PRACTISING CHANGE(S)

Analysing the German niche of permaculture with a Social Learning perspective to monitor social change in sustainability transitions

Master thesis

Key words:

Agency, Communities of Practice, degrowth, grassroots initiatives, networks, permaculture, Strategic Niche Management, social change, Social Learning Systems, sustainability transitions

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ABSTRACT

Grassroots initiatives that are inspired by the framework of permaculture try to design effective social and ecological systems. These are aimed to provide ecosystem services, build communities, give opportunities to learn and practice and support the establishment of circular nutrient systems. This they do, guided by a dynamic and systemic "manual" that helps to integrate and create many functions and draw on synergistic effects. Many results of such a design are commonly perceived as positive externalities. Drawing on principles and practices that run counter the current way "things are done", the permaculture community offers potential insights into transformative processes that question the current growth paradigm and mainstream practices.

One of the reasons for the growth of the permaculture community lies within its set-up as a community with strong core values and practices. These shared values and practices align members whilst recognising each individual's competences. However, being embedded in an environment that plays according to very different rules, the community also has to deal with tensions at its boundaries. Applying a systems perspective to complex problems allows seeing interwoven dynamics more differentiated. This thesis investigates the potential of combining two analytical lenses to better accommodate the diverse dynamics intrinsic to social systems in sustainability transitions: While Social Learning Systems allow for a close review of dynamics that make up social learning processes, the framework from transition studies stretches the time frame and puts dynamics in the perspective of broader external factors.

With the goal to investigate the internal dynamics in a grassroots initiative that shape social learning processes and the potential for such communities to reach out to their environment this thesis establishes a conceptual framework to analyse the German permaculture community. It furthermore discusses the findings based on the present debate on sustainability transitions. Interviews with permaculture teachers as key informants who apply and teach permaculture design principles make up the empirical basis of this report. Frameworks and concepts from innovation and transition studies and theories on social learning are its theoretical backbone.

Findings suggest that the German permaculture community is in the process of better accommodating for its growing diversity. This gives rise to new potential for developments at its boundaries, however, internal challenges are lacking capacity and the absence of commitment to a common strategy that effectively links individuals to coordinated actions.

For transition studies, the combination of the analytical perspective adds insights into developments, challenges, and possible diffusion of radical grassroots initiatives as it highlights dynamics and the strong influence of personal agency on social change and diffusion of practices and meanings. For Social Learning Systems, the transition perspective offers an orientation which external factors also need to be considered in the shaping of learning processes in socio-technical systems.

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Raissa Ulbrich, 2016

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List of Abbreviations

CoP	Community of Practice
CSA	Community supported agriculture
MLP	Multi-level perspective
PDC	Permaculture Design Course
PK	Permakultur [Permaculture]
PKA	*Permakultur Akademie* [Permaculture academy]
PKI	*Permakultur Institut e. V.* [German permaculture association]
SLS	Social Learning System
SNM	Strategic Niche Management
TT	Transition Town

Chapter 1 Introduction

This report deals with the question whether the framework of Social Learning Systems can help initiatives, researchers and politicians alike to monitor and steer in times of wider societal change. It is based on two analytical frameworks combined in an empirical exploratory research in order to closer examine social dynamics in learning processes concerning social change and its diffusion in the wider social system. Each chapter is briefly introduced.

This section provides a first overview on the background and context of the topic of this thesis: The relevance of social change to a sustainability transition, the interplay with the concept of degrowth and a brief introduction into the meaning of permaculture. Then, it highlights the identified needs for research, the relevance for the discipline of Industrial Ecology and finally describes the objective, approach and structure of this thesis.

1.1. Context

We live in times where information is more available than ever before (Kahneman, 2011). With our ability to extract and process data more effectively, also our knowledge on both economic and environmental processes increased tremendously in the last decades. Fields such as Industrial Ecology and the concept of the social metabolism have contributed to insights into the relation between decisions and their consequences in terms of environmental impacts, demand of resources and social inequality (Tukker et al., 2008). This led to a very important realisation: It is now acknowledged by many disciplines that in order to accommodate for a development of our society that ensures a viable life on our planet for us and also for future generations, social change is inevitable. Citing Krausmann and Fischer-Kowalski (2012, p. 362):

> *"It becomes clear that the industrial society's high demand for material and energy resources is structurally determined [...]. In the industrial socio-metabolic regime, economic development and metabolism are as closely interlinked as it is possible to be, and gains in efficiency, although sometimes enormous, have never in the past led to a reduction in metabolism but have rather driven further growth (Ayres and Warr, 2009). [...] Finally, society will have to recognise that physical growth is limited [...]. This will not be achieved by means of technological solutions alone but rather requires far-reaching changes to be made in society. [...] Those who advocate the concept of sustainable development believe that it would be wiser to organise such a change proactively"*

Obviously, this means that consumption practices and individual behaviour need to be addressed, in order to safeguard our environment, social justice and each individual's personal well being (Seyfang and Smith, 2007).

In this context, the concept of degrowth discusses the application of a more “human-scale” perspective (Max-Neef, M. A., 1991; Daly, 1992; Schumacher, 1995; Kumar, 2006; Jackson, 2009). This also refers to learning how to deal with natural boundaries and to keep feedback loops perceivable. Furthermore, it concerns the creation of a value system that draws less on material values and focusses instead on individual capacities and abilities (Paech, 2012). In this regard, small communities and grassroots initiatives in respective “niches" are seen as facilitators for such a social change, providing a sheltered space. In this space new ideas, values and practices can shape that support more connected and locally embedded and connected structures (Seyfang and Smith, 2007).

However, part of grassroots innovations' very nature is the absence of a sympathetic environment (Seyfang and Smith, 2007). One obstacle is the lacking compatibility to the wider societal setting and the socio-technical regimes around. In fact, by emerging from the bottom-up, they are on the very end of the institutionalised power hierarchy. Being widely diffused, they are not naturally equipped with an abundance of resources. (Quist, 2007)

The lock-in effects on a macro-level (Tukker et al., 2008; Rotmans and Loorbach, 2010; WBGU, 2011; Wilson, 2014) as well as in the practices that are reinforced and reproduced under the current system (Wenger, 1999; Shove and Walker, 2007; Tukker and Quist, 2013) make it difficult for niche developments to become acknowledged. Accordingly, grassroots innovations evolve in a harsh environment and need to learn both internally and with surrounding actors how to deal with these conditions. Still, Lorek and Spangenberg specifically argue for a connection of these alternative developments to the consumption patterns of modern societies. They stress the need for “[...] stronger engagement of civil societies and their organizations. Strengthening social innovation and clear convincing messages about the benefits of sustainable societies as well as of the risks of unsustainable ones are crucial elements on the way”(2014, p. 42).

Drawing on the holistic and systemic framework of permaculture, initiatives that learn, teach and practice based on permaculture design principles and the three ethics, display a multitude of characteristics. They are inherently multi-functional.

This creates the additional challenge of *really* being understood and seen in their complex nature. As the discipline of permaculture designs systems with multiple functions, it is difficult to assign certain categories that would fit into the institutional configuration of our specialised society. One key issue in this regard is the question under which conditions the development of such initiatives and the emerging learning processes can be facilitated. This is of special relevance when it comes to the question of whether and how the benefits of such efforts can be internally strengthened and further disseminated into their wider environment.

Talking of the facilitation of learning processes, the work by Etienne Wenger becomes very interesting, who deals with organisational learning. Wenger takes learning dynamics into focus, drawing on a framework which he calls Social Learning Systems (SLS).

In his framework he reflects on Communities of Practice (CoP) in relation to their organisational set-up (Wenger, 2000). Simply put, a CoP is a group of individuals with shared interests and problems in a specific field. Through their interaction and exchange of knowledge, with time, they develop and deepen their expertise in this respective field.

With his approach, Wenger combines individual perspectives and identities with a formation of a group and its dynamics. Likewise, he puts a group's interaction in the context of its wider environment and other actors.

Being "stuck" in a system where the individual identity and practices from people applying the framework of permaculture is constantly confronted with external perceptions and expectations, Wenger's framework offers an interesting field for looking closer into the resulting tensions. In this way, his framework can be valuable for the investigation of dynamics that can contribute to more fundamental *social* change. Further looking into characteristics of a Social Learning system can contribute to a better awareness about relevant dynamics and also about the interplay between the SLS and other "actors", be it from the institutional field or the broader society.

1.2. Background

1.2.I. Social transformations, sustainable lifestyles and degrowth

On a finite planet, infinite growth which is linked to the ongoing extraction and consumption of actual resources is impossible. A discussion that quickly arises is whether a shift to Green Growth as proposed by UNEP can offer an ultimate answer: enabling "economic growth and investment while increasing environmental quality and social inclusiveness" (UNEP, 2011, p. 16). In this thesis this line of argument is not followed-up any further but the reader is simply directed to existing discussions (such as Jackson, 2009; Paech, 2012). Certainly, investing in the right technologies and organisational systems offers solutions to many problems (Hawken et al., 1999), however, without a shift in consumption patterns and the underlying value system, this will not be able to provide long-term answers to our problems (Krausmann and Fischer-Kowalski, 2012).

Relating to these changes the European GLAMURS project ("Green Lifestyles, Alternative Models and Up-scaling Regional Sustainability") investigates systemic transformations of lifestyles and main obstacles and potentials in these transitions (Glamurs, 2015).

"Degrowth by design, not by disaster" as Victor (2010) puts it in his article, means fundamental changes for a more sustainable economic system overall. This entails the discussion of the basic logic inherent to our current economic system and the consideration to integrate "justice and democracy, empowerment of marginalised groups, and international collaboration to solve the global environmental and social problems" (Lorek and Spangenberg, 2014, p. 36).

The concept of degrowth proposes locally embedded cooperatives and socio-ecological enterprises that display clear social, cultural and environmental purpose. Reinforcing short feedback loops, these structures serve the local community and are seen as important drivers for sustainable development (Hawken et al., 1999; Jackson, 2009). However, in our current economy, due to the aforementioned conditions, these initiatives only exist at the margins of the system (Buch-Hansen, 2014).

1.2.II. A short introduction into permaculture design

The first compilation of practices and principles for a holistic management in the form of permaculture principles originated in Australia. Here, Bill Mollison and his student David Holmgren met and elaborated their ideas in the end of the 1970s (Holmgren, 2002).

Despite some common perceptions, permaculture design does not prescribe a specific method of food production (Ingram et al., 2014). Rather, emphasising design principles, it is both a design approach and a philosophy (Mollison, 1988) and provides an ethical and holistic framework for design, decision making and action. In this way, it promotes a constructive approach for integrated solutions and the intentional creation of many positive externalities. It generally provides guiding principles for a social movement that reconnects to the needs for "care for the Earth", "care for people" and "fair share". These three ethics are briefly described in Table 1.2.1 (Mollison, 1988; Holmgren, 2002).

Table 1.2.1: The three ethics underlying the permaculture design approach (Mollison, p. 2)

Care for the earth	Provision for all life systems to continue and multiply. This is the first principle, because without a healthy earth, humans cannot flourish.
Care for the people	Provision for people to access those resources necessary to satisfy their needs.
Fair share / Return of surplus	Reinvesting surpluses back into the system to provide for the first two ethics. This includes returning waste back into the system to recycle but also a fair share of benefits.

In addition to these three underpinning ethics the framework consists of design principles and a set of tools that support locally appropriate solutions in each context:

"In attempting to lead an ethical life we need conceptual tools that will allow us to find what is appropriate, is practical for the situation and the context, and yet will have some enduring value in chaotically changing times." (Holmgren, 2002, p. 10).

Table 1.2.2 depicts the permaculture design principles most commonly referred to. These closely relate to systems thinking and design thinking. Their formulation aims at a holistic approach that can be universally applied, however, with very different methods according to the respective context.

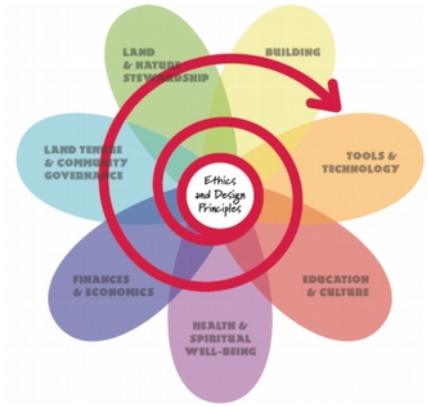
Permaculture principles relate to dynamic processes, design concepts and methods useful for many different applications rather than focussing on a specific field or certain solutions. In fact, they describe contextual approaches to "problems" by identifying potentials and designing solutions accordingly. Thus, they relate more to the development of skills and dynamic approaches than to giving simple answers. This also shows in the definition of a "sustainable society" to which permaculture design principles can contribute. In his book "Permaculture principles and pathways beyond sustainability" Holmgren describes it as follows (2002, p. xxx):

"I am suggesting that we need to get over our naïve and simplistic notions of sustainability as a likely reality for ourselves or even our grandchildren and instead accept that our task is use our familiarity with continuous change to adapt to energy descent."

Table 1.2.2: The twelve permaculture design principles

1	Observe and interact
2	Catch and store energy
3	Obtain a yield
4	Apply self-regulation and respond to feedback
5	Use renewable resources
6	Produce no waste
7	Design from pattern to details
8	Integrate rather than segregate
9	Use small and slow solutions
10	Use and value diversity
11	Use the edges
12	Creatively use and respond to change





A sometimes premature or disproportional use and interpretation of the word historically has given rise to scepticism. As a consequence, this might have hindered the effective development of the actual intellectual strength of the concept that might have been possible in a more constructive debate. (Holmgren, 2002, p. xxiii)

However, the joint application of the ethics and permaculture design principles can offer an alternative to the material-centred mainstream approach, providing answers for sound provisioning and a more equitable governance. Adding to the ecological aspect, being globally connected and well embedded into regional feedback loops, theoretically, permaculture initiatives in their network can provide a source for local solutions for our global problems.

"Understanding is not something we can demand, define or teach to others; it is for each of us to develop" (Bill Mollison)

Yet another question is whether these changes in practices find their way into broader applications in a world where the infrastructure obviously works according to another paradigm. To which extend the permaculture movement can contribute to the wider transition, has lately attracted more interest (for instance Veteto and Lockyer, 2008; Haluza-DeLay and Berezan, 2010; Pickerill, 2012; Anguelovski, 2014; Ingram et al., 2014; Guitart et al., 2015; Hathaway, 2015). On the other hand, up until now the

framework of permaculture has seen little recognition in the institutional setting and has existed pretty much on its own. As a consequence, available research into permaculture from academia is comparatively limited (Ferguson and Lovell, 2015; Hathaway, 2015).

The framework of permaculture design inherently focuses on synergies of different functions, aiming to intentionally create natural cycles that are self-sustaining. Being guided by the design principles can help to design systems that provide a metabolic fit with nature (Salleh, 2010). This can help to turn a different set of values into practice (Haluza-DeLay and Berezan, 2010). Encompassing the teaching of holistic thinking and practice (Pickerill, 2012), the provision of ecosystem services (Guitart et al., 2015), supporting social values through space for community and individual learning and re-connecting production to consumption, the framework of permaculture design thus offers responses to all parts of the "metabolic rift" (Anguelovski, 2014). Hence, projects that build on permaculture design principles can be regarded as "natural laboratories" for alternative practices and sustainable solutions (Veteto and Lockyer, 2008). In this way, they offer interesting potentials.

Fields for research in the past were network dynamics and the collaboration between different agents such as other transition networks, for instance, the Transition Town movement (Hopkins, 2009; Pickerill, 2012), local governments, other established institutions (Ingram et al., 2014) and the public discourse (Haluza-DeLay and Berezan, 2013). Here, the nature of communication and expectations within the network as well as between the wider institutional setting were identified as critical issues.

One suggestion from investigations into the German permaculture community in the past, is the development of a common identity and the strengthening of the community as a Community of Practice (Gaedtke, 2013).

1.3. Identified needs for research

Learning processes are essential to adapt and to integrate values in a broader context. However, social change is still seen as a "black box" in transition processes. Lately, in transition analysis and concerning the question how to shape transitions in ways they progress towards a more desirable future, human intentions as carriers of change have been increasingly emphasised as key drivers to social change (Grin et al., 2010; Klein, 2013, Pesch, 2015). Accordingly, the role of agency on the individual level and its connection to a societally accepted change in a broader social context becomes a crucial area of research (Pesch, 2015, p. 381).

Grassroots initiatives which develop through social learning processes from the bottom-up but on a wide societal scale are a relevant case for further investigation. Combined with suitable analytical means they offer new access to the multi-levelled dynamics playing into wider social change.

However, in the analysis of respective developments in grassroots initiatives, many important questions arise. The following two questions will give a frame to this thesis. Asking for the contribution and the role of individual agency, the first question is, “how do the actors in local initiatives share their knowledge, develop expertise and learn about solutions and how to deal with obstacles?”. The second question confronts the integration of this individual and local knowledge through a wider societal change, “how is this local knowledge dealt with at the initiatives' boundaries and in the wider social system beyond?” (Figure 1)



Figure 1: Research objective

Both perspectives deal with the way in which information is effectively shared. One perspective approaches individuals and their close learning community. The other perspective looks at the wider system and effective ways to link both of them.

Like the field of social change overall, also the discourse about learning has lately seen a lot of development and shifted more and more its focus from knowledge transfer, dissemination and consultation to more practical and social ways to learn together (Wenger, 2000; Ipe, 2003; Inkpen and Tsang, 2005; Pennington, 2008; Klerkx et al., 2012; Gluch et al., 2013; Scharmer and Kaufer, 2013).

Correspondingly we know from the field of innovation studies, that understanding the culture, processes and rules that govern these learning processes in their wider societal context - so to say the “rules of the game” - can help to identify the “degrees of freedom” that emerge during such

times of transformation (Loorbach, 2007; Seyfang and Haxeltine, 2012). In this regard, the importance of a more thorough analysis of community network dynamics, their benefits and challenges in such "transition arenas" have been emphasised in different fields (Seyfang, 2009).

Seyfang and Haxeltine (2012), for instance, conclude that effective communication between the niche and the wider audience is crucial in order to develop and support learning processes on both sides. Simultaneously, they also call for more investigations into internal niche processes such as the meaning and role of identity and group formation. Furthermore, considering the prevailing power distribution and different regimes, dedicated and influential "boundary spanners" are necessary where characteristics of separate regimes are meeting and regulations, definitions, technical linkages and responsibilities are not yet defined in the new context (Hassink et al., 2012).

1.4. Relevance to Industrial Ecology

In the face of increasingly complex challenges such as climate change and achieving a fair and ecologically sound sustainable development makes clear that knowledge alone does not suffice. As Einstein famously put it: "We cannot solve our problems with the same thinking we used when we created them" and the challenge is to learn from the knowledge that we gained in the past and apply it meaningfully in the present.

Industrial Ecology, often described as a toolbox for sustainable development, combines the knowledge of different disciplines in order to deal with complex and "wicked" problems (Rittel and Webber, 1973). Applying a systemic approach and integrating technical, environmental and social frames of reference, it lately extended its angle to the analysis of complex social systems as one critical origin of the lock-in effects we currently experience. Looking for answers to the challenge of our global, social metabolism, concepts from studies on transition management and social innovation address the developments of socio-technical systems from a sociological perspective.

However, currently the analytical options to accommodate for approaches that account for individual agency and consider social dynamics beyond the cluster of institutionalised processes are limited (Pesch, 2015). In this regard, investigating grassroots movements with an analytical perspective from complex social systems should further illuminate the social dynamics that are an integral part of transition processes with relevance to social change.

1.5. Research set-up and structure

Relating to the questions that were raised in previous investigations, it is aimed to shed more light onto the analysis of dynamics relevant to the development of grassroots initiatives, more precisely the network of people in Germany that draw on the framework of permaculture design. First, the

niche of people with an interest in the framework of permaculture is described by conceptualising it first as a Social Learning System (SLS). On the one hand, this is done by looking into core practices among practitioners that apply the framework of permaculture as a Community of Practice (CoP) in Germany. The practitioners are represented through interviews with teachers of the framework of permaculture design. On the other hand, boundary processes are investigated that link individuals and the CoP to their environment. Of interest in the analysis is the balance between core practices and boundary processes. Furthermore, it is investigated in which way the individuals' identities relate to the network.

Second, this thesis asks whether the perspective on SLS can add a relevant dimension to the analysis of niche processes. This is done by locating the SLS in the analytical context of transition studies in order closer examine respective niche dynamics. Applying a "niche perspective" (Kemp et al., 1998; Schot and Geels, 2008) it is aimed to explore the potential for such groups to reach out to their environment and through this support transformative processes that question the current growth paradigm and mainstream practices.

Interviews with key informants who apply permaculture design principles make up the empirical basis of this report. Frameworks and concepts from innovation and transition studies and theories on Social Learning Systems are its theoretical backbone and feed into the methodology.

1.5.I. Problem statement

The set of both ethical and design principles of permaculture initiatives support the integration of many different functions and benefits of ecological and social value with respect to their local environment and conditions. Providing multi-functional benefits, permaculture initiatives operate across several sectors and by this offer means to work as bridging agents between different disciplines. However, both the niche of permaculture overall as well as the single permaculture practitioners have the challenge of doing things differently in an environment that has established different practices and reinforces these every day. The holistic approach through thinking in systems makes it difficult to provide a description and framing that suits the different disciplines all at once. This puts the role of identity and practices on the one side into an interesting tension to boundary processes and external perceptions and expectations on the other side. Thus, it offers an interesting field for further investigation.

Applying a niche's perspective, the specific focus is set on identifying interactions and activities between actors both within the network of permaculture teachers and practitioners and the broader societal field. From transition theory it is already known that "network formation", the "voicing and

shaping of expectations and visions" and "knowledge sharing and learning" are crucial factors that influence decisions and actions of different actors. Also, for innovation to happen, the diversity of actors and their constructive dialogue is essential (Cuppen, 2012).

Less clear is the question, how exactly "boundary processes", referring to the interactions between members of a network and non-members, can be analytically related to this discussion and be used to highlight ongoing dynamics. Finally, especially looking at grassroots initiatives that promote a radical and less tangible process of social change, the framework for niche analysis and transition theory is neither more thoroughly tested, nor does it account for their particular needs (Seyfang, 2009).

This thesis synthesises two analytical perspectives by investigating the potential contribution of Wenger's CoP and SLSs to the systemic perspective used in transition theory. In order to do so, it comprises a methodological line of discussion and an empirical study. Note that this attempt is rather ambitious for the scope of a Master thesis and cannot validate the integration of the two frameworks as a research method. I invite the interested reader to explore the references given for both concepts in the review of theoretical concepts.

1.5.II. Research goal and questions

Relating to the problem statement above, this thesis investigates the dynamics of the network of permaculture practitioners as a niche in a transition arena. More concretely, the aim is to test an analytical framework that helps to identify characteristics that show the niche of permaculture as a Social Learning System between core practices and boundary processes.

This comprises the development of a conceptual and analytical framework for a more thorough in-depth analysis. This theoretical consideration directly links to the empirical analysis of the network of permaculture teachers and an evaluation of the question, how they act as an SLS. The empirical research itself asks concretely, how permaculture practitioners, represented through teachers in Germany, connect within their network as well as to their wider environment.

Adding to this with a perspective on sustainability transitions, the discussion raises the question, "where lies the potential for growth and diffusion of practices?".

The final discussion entails a methodological reflection on the applicability of the concept of SLS as a method to contribute to the analysis of niches in sustainability transitions. Investigating the network of permaculture practitioners as a niche, methodologically, the overarching question is, "does the framework of SLS add a useful dimension for our understanding and the analysis of niches of grassroots initiatives such as permaculture initiatives in Germany?". Table 1.5.1 shows the research questions (RQs) guiding the analysis and discussion.

Table 1.5.1: Research questions that that guide this thesis

In-depth analysis: How can the permaculture network be analysed as a conceptualisation of Social Learning Systems?

RQ 1. 1. – Methodological considerations and case study design

How can the network of permaculture teachers as representatives for the permaculture community be conceptualised as an SLS between core practices, boundary processes and individual identities?

RQ 1. 2. – Case study

The framework applied: Which attributes of an SLS do the interviewees display in their network?

Discussion: What is the potential for the permaculture network as a transition niche?

RQ 2. 1. – Discussion

What are implications and discussions from literature and which insights do the results of the study offer?

RQ 2. 1. – Methodological reflections

Does the developed framework add a useful dimension for the analysis of niches in sustainability transitions?

1.5.III. Scope

The empirical study aims for permaculture teachers that practice and teach the framework of permaculture design in Germany. In the focus lie the dynamics on the niche level between permaculture teachers and practitioners in general, looking both at network-internal and external relationships. A discussion, which implications this perspective offers with an extended view beyond the immediate network of permaculture practitioners follows after the empirical analysis.

Chapter 2 Review of Theoretical Concepts

This section gives an overview on the two theoretical frameworks that are used in the following.

2.1. Understanding transitions

The existing structures and configurations determine the choices that we have and discourage, enable or even exclude certain dynamics and developments (Kemp et al., 1998, Rotmans et al., 2001; Tukker et al., 2008, Grin et al., 2010). The global problems that we are facing are socially shared and embedded. Nevertheless, ways to solve them are highly contextual and spread over many different levels of the socio-technical systems. One of the biggest challenges of our time is the transition towards understanding what it means to lead a life within our planet's boundaries and in social justice.

Transitions are seen as phenomena whose outcomes are unclear and which depend on both human and non-human factors and dynamics. Transition theory states that in order to achieve a more radical desirable change, specific "rules of the game" need to be altered. For this, understanding underlying principles of transitions and factors that play an important role can help in identifying and supporting beneficial dynamics (Tukker et al., 2008).

As a result of the combination of science and practice that mutually inform each other, transition models are used as means to identify these patterns that can potentially support more desirable developments. A look into the latest developments in the field of innovation studies such as system innovation theory and transition management shows big steps in the creation of analysis tools for sustainable development (e. g. Tukker et al., 2008; Grin et al., 2010; Mulder et al., 2011). Applying long-term thinking, this field of research works with a multi-domain, multi-actor, multi-level perspective. It also uses a broad scope and as such keeps options widely open, focussing on learning processes over time. Through this broad and long-term approach it attempts to closer assess system innovations that reach further than system improvements. (Rotmans et al., 2001, p. 22)

Related analytical concepts become increasingly sensitive to a wider problem understanding and framing which is required in the context of our global challenges. Furthermore, the analytical concepts and tools are diversifying in order to better account for the different conditions and dynamics on various levels that play into changes in our societal system (Smith et al., 2010; Pesch, 2015). In the following, some of the relevant theories and perspectives and tools for assessment of socio-technical change are presented.

2.1.I. The multi-level perspective (MLP): A system's perspective

The multi-level perspective (MLP) has been developed in order to accommodate both aspects (wider problem framing and more detailed analysis) in an overarching model with dynamics on different levels that mutually and reflexively affect each other (Geels, 2002).

The underlying idea is that in our complex system a co-evolution can be observed between novel practices in niche experiments (short-run, the micro-level seen in a local model) and simultaneous structural changes on the regime level (current established structures and rules). These developments mutually influence each other through linkages and feedback loops, with the potential to also reinforce the internal dynamics on either of these levels. At the same time, both levels are constantly connected to and shaped by the wider landscape (long-term, the macro-level seen in a global model). (Grin et al., 2010)

Transition theory, being rooted in the field of innovation studies progressively developed more systemic approaches to analyse innovation processes from an object to a whole system's perspective. Observing this branch of research, a clear broadening of the perspective can be seen, leading from understanding dynamics in (1) a concrete field, for instance, the development and integration of improved products over (2) innovating production systems to the (3) even wider problem framing of achieving more sustainable development (Quist and Tukker, 2013). Simultaneously, a wider analytical set of tools can be observed that is still extending and constantly developing the considerations and factors that are analysed to point out the emergence and success of innovations in different contexts (Smith et al., 2010).

Societies as they present themselves to us today hardly developed the way they did on the base of conscious choices of single actors but is rather ruled by routine behaviour grounded on underlying assumptions. Correspondingly, a transition to a more desirable state necessarily represents changes in our underlying sets of values and rules and the de- and re-routinising of behaviour or social practices.

For those not acquainted with complexity theory, Holling's (2001) system's approach can be of interest. Looking back on long experiences in adaptive environment and resource management, he divides systems into respective subsystems, such as the natural system, users, the economy and politics. When observing a specific problem that arises in a complex system with its many subsystems, he states that the analysis of historical events, especially the occurrence of surprises and crises as a result of external influences and internal instabilities can deliver interesting insights into the dynamics of systems. The more that is understood about these dynamics and their cycles, the more it can be said about the factors that have an influence on developments. For each subsystem the cycles can be different.

The system's perspective of the MLP allows for a distinction between different levels, actors and dynamics helps to account for these different characteristics of complex systems. It takes on different lenses and can thus analytically accommodate different levels: from meta-structures, trends and values to the micro-level, made up of single actors, their interactions and practices.

Overall, it sums up to a representation of social complexity in physical and social subsystems, covered in form of human, ecological, socio-cultural and institutional dimensions that are in the analytical focus of different disciplines. Thus, this multi-level view has been developed by an array of complementary theories from various fields – all contributing to the analysis of certain elements and different wholes in the overall socio-technical system. (Grin et al., 2010, p. 124)

Through this, also the two perspectives that deal with dynamics from opposites ends can be discussed in a bigger picture. As the emergence of radically different niches stems from realisations on unsustainable mainstream practices, their diffusion is difficult since they do not directly translate into the practices that are incorporated in the regime. Often, the extend to which practices can be integrated comes with trade-offs between radical change and the "wider diffusion of a more shallow sustainability" (Smith, 2007, p. 446). On the other hand, staying within the group of like-minded activists will not be sufficient when activities aim at more impact.

Granovetter (1973; cited from Cuppen, 2012) states that actors within a network know each other and each other's ideas and perspectives. This means that the contained knowledge and related perspectives have a certain degree of similarity and are less diverse compared to their environment. On the one hand this property contributes to the identity of a learning system, on the other hand being confronted with different perspectives allows for new learning experiences. Granovetter calls this the "disparity property of diversity". With this, he concludes that stakeholders from different backgrounds and networks need to face each other and each other's view points.

In a multi-level perspective, grassroots initiatives can be seen as niches of technological as well as social experiments that have to be seen in their complex setting of actors, artefacts and institutions. Describing the niche in which they interact, can help to analyse how they can contribute to the dialogue that shapes our socio-technical system. Here, it is worthwhile to give an introduction into the concept of the niche.

2.1.II. Analysing the niche

On this micro-level, theoretically, a niche can provide a protective space in which - through ongoing learning processes - actors can develop a new understanding and new practices. By this, over time, new procedures can be integrated into the institutional context. Here, a body of literature on sustainability transitions supports the analysis of dynamics and relations between micro-level actors and established structures on a macro-level (Kemp et al., 1998; Loorbach, 2007; Smith et al., 2005,

Grin et al., 2010). Owing its name to evolutionary economics as one of its supporting roots, the concept of the niche was further developed in innovation studies and transition management. It offers an analytical frame for observing how radical change can emerge, initially shielded from mainstream pressures (Grin et al., 2010; Rotmans et al., 2001).

Directing the multi-level perspective (MLP) on the niche level, sets the focus on ongoing dynamics between groups of actors, integrating learning, voicing and shaping of expectations and network formation into a relational framework. They can be seen as experiments in which local practices can give rise to the development and establishment of new rules.

This is specifically relevant as these niche practices or innovations run counter prevailing paradigms (rules, values and belief system) and as a consequence display characteristics that are not supported and even inhibited by the dominant structures. Applying a niche's perspective thus offers a closer look at how these actors interpret their reality and "anticipate, give meaning, search, learn, and can deliberately deviate from existing routines and rule-regimes" (Grin et al., 2010, p. 30, referring to Giddens' structuration theory (1984)). However, for these adjustments to be taken up and diffuse into the broader structure requires their wider support outside the niche.

Summing it up, niches in transition research provide an analytical format in which certain change processes can be assessed. Simultaneously it searches for theories and concepts that help answering the question, how these developments can be supported in sustainability transitions and system change (Quist, 2007). In the following, some of the important elements that contribute to our understanding of niche dynamics are presented.

2.1.II.1 The network

In general, networks are composed of actors and their relationships that make up a social structure. Networks add an important dimension for analysis by providing a framework that integrates the reflexive dependencies and relationships between actors, the actors' behaviour and the network's respective configuration. All changes in the network have possible consequences on other elements in the network, thus the network is always in dynamic change as a function of the respective states of its elements. Actors in a network can be organisations as well as groups or even individuals. Depending on the network that is chosen and the level on which it is observed, certain individuals can – but do not have to – play an important role as especially powerful or key actors. (Quist, 2007)

Meanwhile, the network as elaborated by Giddens has been extended with further components and different disciplines have contributed to our understanding of networks and their importance to niche dynamics.

With his concept of "embeddedness" and his social network theory, Granovetter (1985) argues that interpersonal relationships crucially depend on trust and informality which can be seen as a potential strength of networks. Social embeddeding means sharing norms, institutions and sets of assumptions among a group of actors. The existence and importance of trust relationships implies that the individual or collective actions of the group differ from the behaviour associated with rational economic mechanisms.

Due to the rise of innovation and technology studies, network theory has seen ample application in the field of analysing industrial networks. These are usually depicted as a function of the interplay between actors, activities and resources.

2.1.II.2 Visions and expectations

The aspect of visions is an important component in transition studies (Kemp et al., 1998; Smith et al. 2005; Quist, 2007). Its precise applicability and related dynamics are not uncontroversial and matter of some debate and development (Shove and Walker, 2007).

Visions of the future can allow for the coordination and guidance of actor groups and communities, facilitating the orientation for action and bridge different boundaries and levels of organisation (Quist, 2007). Here, visions of different nature are used on various levels in the transition arena.

Having revised different types of visions, according to van der Helm visions as a concept become meaningful when they function as a theory of change. When it serves as ideational and transformative instrument in the way that they pull in a desired direction and transform existing structures. Thus, a vision needs to display the "capacity to motivate, inspire and give direction to those who are committed to the vision" (van der Helm, 2009, p. 100).

> *"Being visionary does not necessarily mean realising rapid change, but realising change into a desired direction through the deployment, concretisation and materialisation of transformational ideas."* (van der Helm, 2009, p. 101).

This can be complemented by the typology of vision concepts by Quist (2007, p. 41), according to whom visions are applied on the macro level, the socio-technical regime, as well as the network and the micro level in different fields of transition studies. Here, visions can be both used to describe and analyse dynamics and for the guidance and functions they offer (such as guidance, coordination, mobilisation of actors and resources). In contrast to van der Helm (2009), Quist (2007) concludes that visions do not necessarily exhibit explicitly normative characteristics. However, as an especially

useful concept that does relate to desired, normative principles the concept of "Leitbilder" is raised. These are shared visions which are able to align actors from different backgrounds and guide their actions (Quist, 2007, p. 34)

Similarities between different concepts of visions according to Quist (2007) are that they are related to bottom-up processes that are not solvable by a top-down perspective. Furthermore, different concepts of visions agree that visions are not necessarily static and independent but can evolve in a co-evolutionary way with the respective network in which they emerge and matter. Finally, they are nested in a complex interplay of competing visions, expectations and negotiations.

Thus, all in all, the nested nature of vision concepts and the option to observe dynamics relating to visions on a micro-level can also help to get a better understanding for important developments in the niche.

2.1.II.3 Concepts of learning

For transitions towards more sustainable practices learning is crucial, on the individual as well as on the group and organisational level. The body of literature on learning is comprehensive and comes from many different fields, contributing their perspective on our understanding of the dynamics of learning processes (Parson and Clark, 1995).

Quist and Tukker (2013, p. 179) have given an overview of organisational learning concepts and approaches, with a perspective on their relation to transition and niche studies. After a thorough scan they conclude central concepts to theories on learning:

(1) a distinction between explicit and tacit knowledge;

(2) learning is differentiated into first and higher order;

(3) it happens on different levels, comprising the individual, organisational and societal learning.

The first statement makes clear that it is useful to distinguish between outspoken, explicit knowledge and a more intuitive way of knowing. The latter cannot easily be expressed or communicated in a formal way, often it is even knowledge that we are not explicitly aware of, relating to intuition but also world views and underlying mental models which cannot be easily explained. Directly in relation to this are first and higher order learning processes. While first order learning leaves tacit knowledge unaffected and only causes changes within a narrow problem definition, higher order learning processes lead to changes mental frameworks of actors, providing also opportunities for the creation of alternative behaviours, practices and even values. Here, the tacit knowledge plays a fundamental role.

Having talked of selection pressures in niches before, in the case of learning another consideration should be added, which makes a brief excursion into institutional theory necessary. Through pressures, processes of *institutionalisation* and *de-institutionalisation* can happen, which is nothing else than how transformative processes and innovations are conceptualised. All actors are exposed to these pressures and try to comply with these in order to gain legitimacy.

Referring to the third statement of Quist and Tukker (2013), learning processes happen in individuals as well as in groups it can link individual experience to a manifestation in organisations. Again, this is approached by many different disciplines with their specific views. Here, the spectrum reaches from learning in concrete experiments and projects to learning of networks and the society at large.

Important in the context of sustainability seems that learning as such is not a guarantee of a change but rather one necessary requirement. The actual realisations of actions and activities, however, are a function of the complex configuration of many more different aspects in the social and the physical world. Here, a comprehensive body of literature from very different fields offer more insights such as behavioural and environmental psychology (e. g. Staats et al., 2003), theory on social practice (Shove and Walker, 2007) and the theory on the feeling of belonging (Wenger, 2000).

Finally, and this is highly relevant to the field of social change, there is a strong difference between learning within the scope of an experiment and the diffusion, broadening and spreading of learning outcomes into the wider societal context. This is confirmed and supported by Wenger (2000) who describes the discrepancy between internal learning processes and realisations and the need to bridge and also compromise learning outcomes in order to reach other actors with a different context, mindset and agenda.

2.2. Social Learning Systems

Coming from the discipline of knowledge management and looking at learning and innovation in organisations, in his work on Social Learning Systems (SLS) Wenger (2000) explicitly takes on a social perspective in order to describe the process of learning. This is motivated by his conviction that the very nature of human beings, being *social beings*, calls for a recognition of related processes in order to understand the nature of knowledge and learning. This also means that learning processes are inherently social activities in a network (be it formal or informal, face-to-face or virtual) and as such a function of the contextual characteristics depending on the respective situation. While knowing represents the “competence” which is defined by a certain social community, the interplay of this social competence with personal experiences is where further learning processes can take place (Wenger, 2000, p. 227). This is also called *situated learning*. In this regard, the values a certain community shares, the existing expertise, the respective interests and practices shape and define the SLS (Wenger and Snyder 2000).

Participating in "Communities of Practice" (CoP) makes us derive meaning from our knowledge and thus shapes the learning process in individuals but also communities. In other words, communities of practice represent a body for collective learning by *giving meaning to having certain knowledge*. Respectively, how the community organises and sees itself determines from which knowledge it derives meaning and consequently its ability to learn. (Wenger, 2000)

With his framework he aims to provide "principles and recommendations for understanding [of] and enabling learning [in]" social systems (Wenger, 1999, p. 4). Thus, he offers an analytical dimension that acknowledges learning processes as socially shaped formal and informal processes that define a firm's, organisation's or a group's knowledge-based ability to solve complex problems (Schenkel, 2002).

The interesting point of Etienne Wenger's work is his systemic approach to knowing and social learning. He conceptualises a framework that considers individual perceptions and experiences, the CoP itself and then puts it in relation to its interplay with other SLSs (Wenger, 2000) as can be seen in Figures 2.

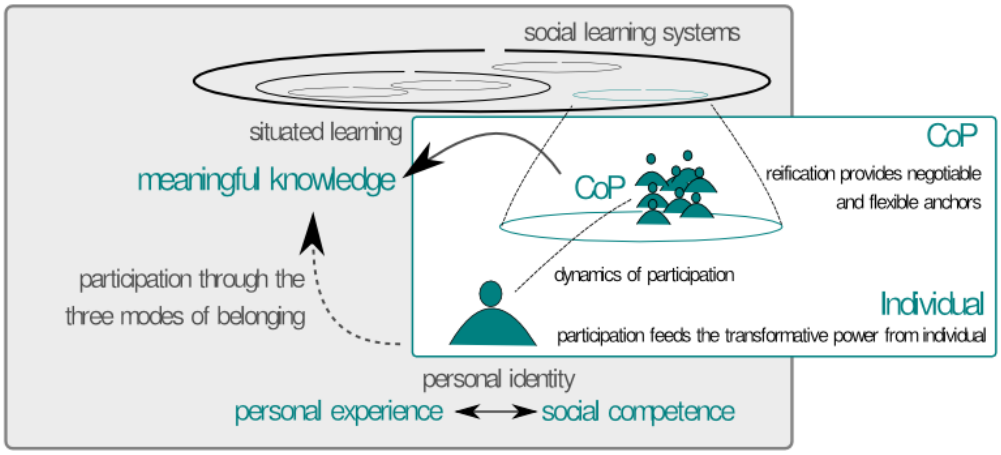


Figure 2: A systemic approach to situated learning, comprising the individual and the community

Using three "modes of belonging", he describes the connections of the *individual* through interaction and participation (both locally and globally) to collective *learning systems*. Each of these modes relates to different characteristics in the formation of SLSs and personal identities respectively (Wenger, 2000, p. 227 - 228).

- **Engagement:** The way we engage causes reflexive dialogue with the world around us. We experience our abilities and possibilities, on the other hand we receive feedback from the world. This interplay makes up the learning process.
- **Imagination:** These are the shared images and collective beliefs that allow us to construct our self and the community in which we live coherently. By offering a consistent interpretative frame of our participation, imagination is what gives us sense and a ground to participate in our social world.
- **Alignment:** A process of reflexive coordination of perspectives, interpretations and actions between members of a community in order to work towards a broader, common goal. By this it links local activities to an effect beyond individual engagement.

Differentiating into these three modes is helpful according to Wenger out of two main reasons (Wenger, 2000, p. 228):

(1) Analytically, they all make up different qualities of SLSs.

(2) Practically, they require different efforts and activities in order to be created, maintained and adapted.

Their respective characteristics contribute to the social structure and nature of learning systems. As they all cover different qualities and the specific constitution of each mode of belonging is in direct relation to the other modes, they can be potentially contradictory or complementary in their effects. Wenger emphasises the need to be aware of these different dimensions as it can help to more intentionally shape and balance an SLS appropriately.

Figure 3 shows a schematic overview of the interrelation of dynamics of social learning on the individual level and social systems.

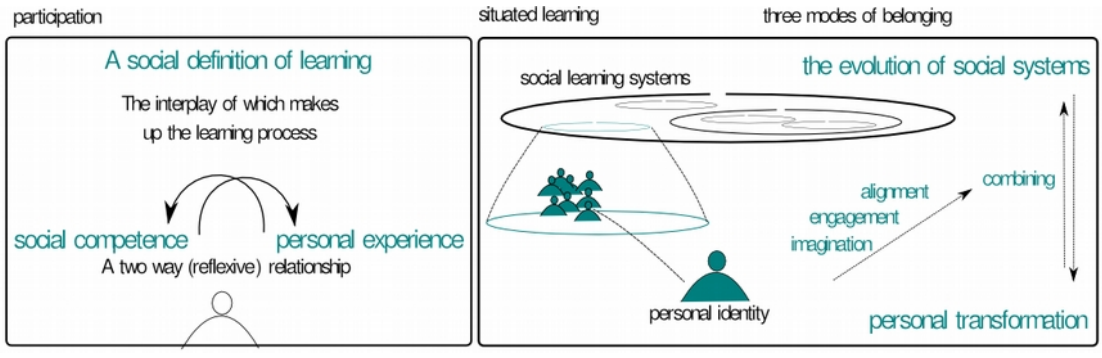


Figure 3: Wenger's definition of social learning

On the one hand, this typology allows for a closer observation of internal characteristics of an SLS. On the other hand, it is also seen in direct relation to external factors and reflexive dynamics between the different systems, linking it back to the learning potential of this respective configuration of the different aspects.

Wenger himself says his intention is to offer both insights for design and analysis of organisations and to "guide the inquiry of the researcher as well as the action of the practitioner: what to pay attention to, how to give direction to our initiatives and where to focus our efforts" (Wenger, 2000, p. 226).

The configurations of the different components have influence on the overall dynamics of the learning system and its interaction with its environment. By pointing out which mechanisms function on which levels, he highlights dynamics, contributing and limiting factors for a development of an organisation. This is relevant both for the organisation as well as for the broader implication of complex problems in sustainability transitions.

Next to the three modes of belonging, Wenger conceptualises an SLS as a system composed of the CoP, the individual Identity and Boundaries (Figure 4). In the following these different structural elements are described in more detail.

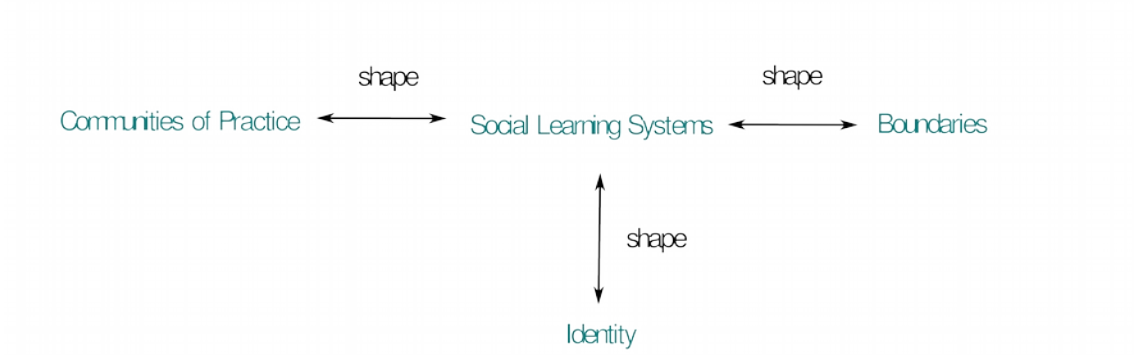


Figure 4: The Social Learning System

2.2.I. Communities of practice

The Community of Practice (CoP) is one structural element of an SLS. The CoP forms the container for knowledge of a group with similar interests that share and develop certain practices. As it gives the frame for the sharing of knowledge and practices, the CoP defines what is understood as "competence" by this respective group. As such, it also shapes further learning processes.

Using the three modes of belonging as a lens, the concept of CoP displays different dimensions which can describe the different functions and the CoP's state as learning system more differentiated:

- Trusting, helping each other and being able to rely on each other make up the social capital in a CoP. How deep it is defines how and to which ends we interact and treat each other. Wenger calls this characteristic of a CoP *mutual engagement*.
- Self-awareness shows in a community of practice' ability and willingness to look for different perspectives, to reconsider assumptions and to discover new opportunities. The nature of these applied practices and established processes, their openness and the language and vocabulary a CoP uses, all of this represents the *shared repertoire* of a community of practice.
- Each CoP has its own degree to embody and maintain learning processes (a spirit of inquiry). This represents the learning energy of CoP, Wenger calls this *joint enterprise*. The degree to which it works and develops depends again on its members' ability to imagine, engage and align with each other.

With his work on CoPs he identifies dynamics between processes, practices and artefacts that can contribute to knowledge sharing and learning in a CoP and are crucial for its development, both inside the CoP as well as at the interface with its environment. In the larger learning systems around them, each can be seen as one part in the constellation of several mutually related CoPs. For a CoP to work well over a longer time, knowing how to participate in the broader learning system is essential for a community in order to remain a part of it. Table 2.2.1 depicts a summary of important characteristics of a CoP. More specifications on CoPs can be found in the appendix.

Table 2.2.1: Characterisation of Communities of Practice

Structuring element	Characteristics	Mechanisms
Communities of practice: • building blocks of an SLS • define what is "competence" • container for knowledge and they shape learning events and processes • connect members by collective understanding of what it is about • determine what is a meaningful contribution • define members' accountability and trustworthiness among each other • define a shared culture through communal resources and a history • mutually influence each other in the larger system	Joint enterprise *(competence to meaningfully act and contribute)* Mutual engagement *(competence to mutually interact and to be hold accountable)* Shared repertoire *(competence to draw on the history and knowledge of the community)*	*Events* *Leadership* *Connectivity* *Membership* *Learning projects* *Artifacts*

2.2.II. Boundaries

Shared practices necessarily create boundaries. These boundaries are often not outspoken and implicit. This fact especially makes them a significant factor in learning processes. Boundaries are the interface between communities and connect these with each other. Here is, where learning opportunities are located. Opposed to a CoP – in which experience and competence converge in order to advance deep expertise – at boundary interactions they tend to diverge, allowing for innovative learning. Distance to and reconfigurations of competence and experience are an important aspect of learning. Here, the right degree of *divergence challenge* is important, which refers to a balance between a close relationship of competence and experience and the ability to reflect on both.

However, in order to realise learning processes, *a close, generative tension between the different experiences and competences* is required. This comes along certain necessities at the boundary:

- interaction (intersection of interest and activity)
- common ground and also open engagement where the differences lie
- willingness to suspend judgement and see the competence of the community
- translation in order to allow for meeting of the different competences and experiences

The presence and nature of these mechanisms can tell something about the dynamics of a learning system. It does not only tell about the interactions with its environment as such but also reflects its ability to learn with its environment. Due to this, boundaries offer great potential as well as many difficulties. For once, they can lead to isolation, defensiveness and misunderstandings while on the other hand they can stimulate common learning events and trigger radical realisations. Thus, strong core processes on the one hand and active boundary processes on the other hand can facilitate learning processes. Table 2.2.2 shows a summary of the important characteristics that define and are shaped by boundaries. More information on Boundaries can be found in the appendix,

Table 2.2.2: Characteristics of boundaries according to Wenger (2000)

Structuring element	**Mechanisms**
Boundaries: • shared practices create boundaries • changing constellations of competence and experience are an importan aspect of learning • boundaries are learning assets and liabilities • a healthy learning potential lies in strong core practices and active boundary processes	*brokerage through people* *boundary objects that support connections* *interactions*

2.2.III. Identity

Since knowing is an act of belonging, the individual identity defines which knowledge is relevant and where ignorance is allowed. Moving across communities we identify with some more and others less (multi-membership). Our identities are the channel through which our competence and experience make up our way of knowing. They determine with whom we identify, whom we trust, with whom we must share what we understand. We create boundaries and bridges through our very own identity. Thus, also the way in which we treat boundaries highly relates to our ability to engage and suspend our identity.

As Wenger (1999, p. 145) puts it: **"**Building an identity consists of negotiating the meanings of our experience of membership in social communities**"**. Furthermore, looking from a social perspective, the notion of Identity both directs the focus onto the individual as well as beyond one Community of Practice. Either way, it strongly relates to identification processes as a result of the broader social structures which are present. Also, it does *neither* concern only the person *nor* only the community. In fact, it is rather the interplay between the two, the individual and the community as they come together in our participation in social communities.

Our identity is the gateway to being part of a whole, with our ability to learn how to understand and appropriately and meaningfully act in a community with our own individual competence. It also gives us a perspective and offers selection criteria that help us choosing certain interpretations, actions and value certain experiences (Wenger, 1999, p. 153). Table 2.2.3 provides an overview of the different characteristics.

Table 2.2.3: Characteristics of identities according to Wenger (2000)

Structuring element	Mechanisms
Identities: • define to whom we feel connected • decide which knowledge is relevant • shape our learning processes and way of knowing • the way boundaries are dealt with depends on our ability to engage and suspend our identity	*home base* *trajectories (and visions)* *multi-membership* *fractals: embedded subcommunities*

2.3. Where niches and SLSs meet in theory

Most apparent is that both frameworks draw on a systemic approach. Both acknowledge the reflexive dynamics in social or socio-technical systems, reinforcing or contradicting certain processes and practices of each actor. Especially the emphasis on enabling and inhibiting features such as the value system, perceptions, relationships, artefacts, infrastructure and roles of other actors overlap in both frameworks.

What is addressed in early transition theory as the duality of structure, Wenger calls participation and reification. Both mean the simultaneous negotiation of meaning and rules on two sides: through the participation of actors that (re-)produce and shape social structures and the reinforcing character of these respective structure in which they are embedded in the first place. Together, these two sides are the basis for and result of actions. However, which factors exactly and the degrees to which these factors are considered differ in the two frameworks. In the following, I compare key differences (Table 2.3.1 gives an overview).

Obviously, both schemes have different priorities. For SLS it is where and under which conditions learning processes most likely occur, in contrast to overall dynamics around a certain "discourse" in transition studies.

The difference for SLSs, indeed, is the context in the centre of attention (organisation), the level on which these dynamics are observed (individual and network) and the focus on social learning processes and the degree to which they are differentiated (split in core practices at boundaries). Thus, the scope differs both in terms of who is reached and addressed and with which intention and

perspective on time. While the SLS framework allows to assess current conditions on where and how the design of social learning processes shape a specific organisation or community with shared interests, the niche approach is used with a broader target group and time frame, relating to general dynamics that are important to the development of a "transition arena" or "discursive field".

Especially considering the broader scale development and diffusion of grassroots innovations the SLS and transition perspective have complementary potential. Grassroots developments depend on strong identities of key individuals that dare unconventional approaches. As such, internal dynamics are of special relevance for the success of these developments. In transition studies, the niche level usually considers dynamics starting at the level of groups of interest as the lowest starting point. Using SLSs, the possibility emerges to zoom in on the individual level and its reflexive relation with a community, while studies in transition theory zoom out with an extension of the scope to niche-external processes.

In this regard, the individual level, the idea of agency besides institutional processes and social learning processes in informal networks are not thoroughly addressed in transition theory. While transition research accounts for learning processes in general, the role of individual agents and social learning processes are less articulated and clear. This has led to discussions before, as transition management and analytical components of the MLP are more attuned to already institutionalised processes and the established rule-system, rather than to actually view and understand the underlying dynamics of change processes. In this respect, for the observation of the process of actual change, transition theory lacks in vocabulary and detail due to its institutional approach. (Shove and Walker, 2007; Pesch, 2015)

Accordingly, the SLS concept expands the view on individual drivers, contexts and their interplay within the network dynamics. With the emphasis on *social* learning processes it fills a gap in transition studies. Here is were the SLS approach can be very valuable as it directs the spotlight exactly on the conditions and dynamics that affect processes of legitimation in individuals but also communities. In that way it also addresses less tangible change processes. As a consequence, it can be of relevance providing a framework that directs the focus onto practitioners that try to do something in a different way themselves, develop new practices and also face barriers. Offering more conceptualised means to study related dynamics, the lens of SLS can make knowledge transfer and distribution more explicit.

Another complementary effect is that although the degree to which dynamics can be analysed is more differentiated in SLS, the nature of the matters of interest is very similar. Strategic Niche Management (SNM), an analytical method applied in transition studies relies on characteristics such as "Voicing and shaping of expectations and visions", "Knowledge sharing and learning" and "Network formation". These were identified in the past to play a major role in the formation and development of transition niches. In this way, it closely relates to dynamics in the components of the

SLS. Putting the influence of external developments into perspective is an interesting complementary effect which transition theory adds to the close focus of the SLS. Hence, the combination of a detailed analysis of the status quo of learning dynamics coupled with an outlook into broader dynamics in the future seems an interesting opportunity. Especially focussing on the question, how ideas and alternatives can further grow out of protected spaces, the niche approach takes into account the dominant regime and society at that time in order to identify how to actually affect sub-systems to change in future developments. (Quist, 2007)

Another interesting difference is the more focussed discussion of power and resources in transition theory. For instance, components of the SNM are usually formulated in ways that account for the availability and mobilisation of resources that support the development of processes. This meaning and influence of power is only implicitly accounted for in the SLS framework.

As a consequence, even though there are many differences, these concepts can be utilised complementary.

Table 2.3.1: Main differences between the two concepts

Structuring element	**SLS**	**SNM / Transition theory**
Context	*(a form of) an organisation of people sharing an interest and practice*	*A discourse*
Focus of analysis	*Dynamics contributing to social learning processes*	*Dynamics relating to the overall development of the discourse*
Levels of attention	*Network-individual interaction*	*Network-regime interactions*
Scope and degree of differentiation	*Internal and boundary processes, with interest in learning mechanisms*	*Internal and external developments, with interest in dynamics overall*
Time horizon	*Snapshot with outlook for directions*	*Development in time*

As mentioned before, the dimension of individual learning has not been widely investigated in the framework of transition studies, yet. One exception is Vercauteren et al. (2013), where concepts of individual learning such as the ones described by Shove and Walker (2007) or Røpke (2009) were related to grassroots innovations in the transition arena.

Acknowledging the social dimension of learning processes provides the option to see the complexity of a system consisting of different actors, with own interests and reflexive interactions. This is generally supported by social sciences that define individual learning as the generation of meaningful knowledge in a given context (Flick, 2009) and offers a perspective to problem solving that stresses the opportunity to learn in the specific context.

Both concepts have many aspects in common, sometimes originating with a different purpose in mind, thus under different terminology and focussing on slightly differing aspects. It needs to be emphasised that none of the presented components should be seen as linear in their relationships, as they relate to interdependent dynamics. This holds true for both frameworks.

Even though the conceptualisation of SLSs might not have been tested in analysing transition arenas as such, elements from both theoretical concepts have already been combined in research. For more details, a more through discussions of overlaps can be found in the appendix. There, also a brief overview is provided on common elements that were already combined in other investigations. The most relevant points are raised in the following.

Directing the angle onto innovation, with his emphasis on boundaries as structuring elements Wenger stresses the need for different perspectives as defined by Granovetter (1973) in order to learn progressively in a changing environment: the configuration of strong core practices and active boundary processes realises the learning potential of a CoP. That boundaries are both learning assets and liabilities is also realised in the field of transition studies and for instance supported by Cuppen (2012) with her emphasis on confrontation and constructive stakeholder dialogue on wicked sustainability issues. Also the aspect of voicing and shaping of expectations and considerations such as vision alignment and diversity in SNM studies, at least raise the notion of an innovative potential that different interests can have, if they are articulated and confronted rather than avoided.

Looking into how the SLS framework can be applied to bottom-up initiatives, Ingram et al. (2014) have tested the concept of CoP on the network of permaculture designers in the UK. In this case, the matter of attention was the balance between core practices and boundary processes with special attention to the permaculture practitioners' connection to the conventional agriculture system. In the focus were the methods and preferences for learning of the participants, sources of information and inspiration as well as interpretations and understandings of permaculture practices.

However, despite his approach which combines several levels of the social system, so far Wenger's framework has not yet been related to the the MLP.

Chapter 3 Research design

The research design comprises both the underlying conceptual framework and the research methodology. The chapter starts with a description of the conceptual framework, which represents the foundation of the analysis. It is used to integrate the different theories above into useful concepts. First, an overview is given in which the overall approach and structure is described. Then, I elaborate on the concepts that make up the analysis in detail. Based on the conceptual framework, the analytical framework describes how the concepts for analysis can be extracted from the data that is collected in the empirical research.

Then, the overall research methodology is described. It begins with a brief description of the research scope and structure. Then, although the approach is not entirely linear, each step is subsequently addressed individually in order to provide for the necessary clarity concerning the different methods that were chosen. The interview guideline can be found in the appendix.

The research design should ensure that what is relevant for the selected area of analysis is actually contained in the material that is collected. Correspondingly, it includes the choice of what information is meaningful and how this information can be retrieved accordingly, referring to the use of appropriate methods.

Based on the theoretical insights above, the guiding question is, how grassroots initiatives such as the permaculture community can be positioned and assessed in transition processes. The scope of the analysis are dynamics in the network of people in Germany that practically relate to the permaculture framework and embed it in their practices, in every day life and their professional work. For this, the investigation focusses on teachers from the German institution for education on permaculture, the Permakultur Akademie [Permaculture Academy], as an informed part of the network of permaculture design practitioners. The teachers are spread across the different federal states of Germany.

3.1. Conceptual framework

3.1.I. Overview

The scientific approach relates experiences and observations to theories from relevant fields by selected methods and analytical steps. In the case of this thesis, several theories from innovation and transition studies and social learning theory are fundamental to address the questions that were

raised above. Together, these theories give the frame to conceptually analyse the interactions of permaculture teachers in the context of their mutual connection to the network as an SLS and their respective encounters across their discipline's borders.

By observing the present situation with a combination of the two analytical frameworks, two main goals are pursued. The first goal is to contribute to a better understanding of the network of people that practically relate to the framework of permaculture design in Germany and their interaction with their environment. Simultaneously, the second goal is to investigate dynamics of the network as a niche in the transition arena.

Due to the scope of this thesis and the limited time frame, the in-depth analysis focusses on permaculture teachers as informants on dynamics within the permaculture community and their experiences with external actors. In the following, the conceptual framework is constructed. It roots in the following findings from the desk-top research and literature:

1.) The permaculture network

The teachers use concepts and principles from permaculture as a mental framework that helps them to guide their actions. As a consequence, as individuals they practically apply permaculture principles both in their every-day practice and profession. As teachers, they share related knowledge, methods and practices with their students and experience the wider community of permaculture practitioners and people interested in permaculture. On the other hand, they also interact with people that are not familiar with the idea of permaculture. In that way, in their own contextual setting they relate to a diverse network of actors from different backgrounds and different processes.

2.) Transition theory

The discipline of transition management analyses dynamics that are relevant to transition processes and the development of discursive fields. It focuses on the connections, reflexive relationships and feedback loops between factors that shape developments and learning processes. "Network formation", "Voicing and shaping of expectations and visions" and "Knowledge sharing and learning" are important analytical components in the analysis of innovative niches.

Guided by expectations and visions, agents represent certain images to other actors. Simultaneously, interactions happen in various networks (internal and with other fields). In their respective networks, the actors and networks reflexively adapt and change, also offering opportunities to share knowledge, learn and develop. Furthermore, these network developments are influenced by external factors.

3.) Social Learning Systems

> **Networks can be seen as Social Learning Systems, shaping their own learning processes through situated learning.** An SLS is composed of individuals that relate to a network of people that share values, interests, expertise and practices. Within that network, knowledge and practices are developed that further shape learning processes in individuals but also in networks. They interact with their environment through both network processes and individual members.
>
> The degree to which an SLS utilises these processes, connects to its members' and deals with its boundaries determines from which knowledge it derives meaning and defines its ability to learn. This learning ability shapes its development.

In this context, the MLP and concepts from transition studies draw on a diverse and thorough body of theoretical knowledge on system analysis in sustainability transitions, including a perspective on learning on several levels in so called "transition arenas". Looking more into where learning takes place and how, Wenger (2000) adds interesting dimensions on similar levels that link group-internal dynamics to interactions with external actors. In his framework of SLSs, Wenger identifies three structuring elements: Community of Practice, Boundaries and Identity. These elements represent important dimensions that influence a system's learning processes and shape its development. Thus the two frameworks – from transition studies and SLSs – are integrated.

The theoretical considerations above prepare for an empirical in-depth analysis of the network. The network of permaculture practitioners represented through permaculture teachers and their insights, is formulated as a Social Learning System based on values, experiences, knowledge and interactions. As social learning happens through the interplay between community and individual, also the study considers different levels. It observes both a local and network level: it looks at how the interviewees relate to the community of permaculture practitioners and observes the conditions at interfaces with people outside the permaculture community through which they share knowledge and practices.

3.1.II. Approach and structure

The way the different concepts are integrated is described in more detail below (Figure 5). The backbone of this thesis is the systemic view on dynamic developments that play a role in transition processes. Using the structuring elements of SLSs, it looks closer into which dynamics contribute to the development of the network of people that deal with the framework of permaculture design.

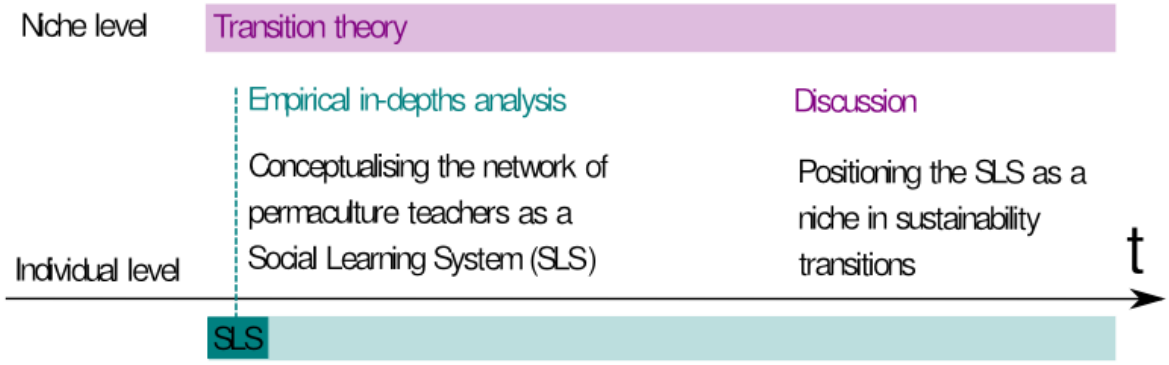


Figure 5: Overview of the thematic emphasises

For this, the following approach is chosen.

- Due to reasons of practicality and representativeness of permaculture design, the in-depths analysis primarily focusses on the network of permaculture teachers, as it is assumed that they are key players in the shaping and diffusion of permaculture practices.
- The conceptual framework depicts the SLS as a function of (1) a CoP, (2) a Boundary and an (3) Identity dimension. Special attention is given to the structural element CoP, as it describes how a network and its learning processes are defined by common practice as well as shared knowledge, experiences and interactions between individuals. The components Boundary and Identity are also analysed. However, due to a certain restriction in scope and validity of the information these will be assessed in less detail.
- The three modes of belonging (alignment, engagement and imagination) are used to characterise the state of the different structural elements.
- All three structuring elements shape and influence each other. Thus, they cannot be seen absolutely separate from each other and it is not the purpose to draw a concrete line.

It needs to be stressed that the framework on SLSs is very comprehensive and commonly used in a diversity of ways to assess a state and organisation of a group with a shared interest and practice. Thus, there is not one way to apply the framework.

Both core practices and boundary processes strongly relate to characteristics important for the analysis of niches, such as “Network formation”, “Knowledge sharing and learning” and “Voicing and shaping of expectations and visions”. However, as these niche components emerge in all structural elements of the SLS, for ease of analysis, the structuring elements of SLS dominate the in-depth analysis of the network of permaculture teachers, while the following discussion extends the perspective and elaborates on the implications of the findings for the “usual” niche analysis.

3.1.II.1 The Community of Practice (CoP)

The structuring element CoP relates to the internal network of people practising permaculture, represented by people teaching permaculture. The key question is whether and where core practices exist and how they shape the CoP. Thus, it focusses on the relation of the permaculture teachers to the network and their participation in network processes.

As mentioned in the theory above, the work-related social practice that allows to turn knowledge into knowing through the social setting is what Wenger calls *situated learning*. In general, it is represented by active participation through activities, interactions, an experienced and lived culture as well as through a shared history.

It constitutes the social fabric out of which a community consists: the interactions and relationships based on mutual respect and trust. Participating in the network supports the ongoing negotiation of meaning of certain knowledge for permaculture practitioners. It can encourage a willingness to share ideas, to expose one's ignorance and to ask difficult questions. On the other hand, it also considers routinisation as a set of frameworks, ideas, tools, information, styles, language, stories, and documents that community members share.

The dimension of the CoP is assessed looking at the participants' experiences, knowledge, perceptions, interactions and their relation to the network of other teachers and the wider permaculture community.

As mentioned above, the dimensions of Wenger relate to features also important to the analysis of transition niches. Correspondingly, the CoP assesses properties that are commonly considered in the SNM component "Network formation", which deals with the construction and developments of social networks. However, the CoP simultaneously includes aspects of "Voicing and shaping of expectations and visions" as it extends the focus of attention to visions, meanings, perceptions, and experience that are an integral part of the practices through which the community identifies and organises itself. Overall, in the dimension of the CoP the aspects of core practices, the organisation and perception of membership and the general coordination in the CoP are of special interest. This feeds into the analytical framework.

The investigation of the CoP through the network of permaculture teachers also includes the teachers' experiences with and perceptions of the broader the community of permaculture practitioners. These insights are used in the analysis. However, it has to be noted that the information cannot be considered as representative.

3.1.II.2 Boundary processes

Boundary processes take the teachers' local network into focus. This structuring element means the relationships and experiences from permaculture teachers with actors outside the permaculture community. According to Wenger (2000), special learning potential exists where social competence and personal experience are in close tension. As a result, the nature of boundaries of the network - the conditions under which members engage with non-members - play an interesting role. These stand in close connection to how the individual relates to the CoP and are very specific to the case and the individual. While in a CoP experience and competence converge in order to develop deeper expertise, at boundary interactions they tend to diverge. Openness towards and access to boundaries can give rise to unusual learning and new possibilities.

Also this dimension has a strong connection to the SNM component "Network formation", only that this time it directs the attention to parties that may have different motivations, visions and expectations. This is different to the SNM, where there is no such a clear distinction between the different qualities of interaction and their potential.

The right degree of tension between competence and experience are an important aspect of learning as well as the ability to remain aware of this interplay and reflect on the potential that it offers. Regarding the SNM, the extension to "Voicing and shaping of expectations and visions" of the external parties would be very interesting as it could offer insights on which boundaries there are enough similarities that bring competence and experience in a promising tension. This could also include whether expectations align with certain groups and would be an adequate combination of both frameworks. However, this would require more information from external parties. Hence, it cannot be further investigated in this thesis.

3.1.II.3 Identity

The interplay of both core practices and boundary processes strongly relates to the individual identity. Talking of social learning and learning as an "act of belonging", necessarily, identity is a key element (Wenger, 2000, p. 238). The individual identity is where social competence from being embedded in certain communities and our personal experiences and expertise meet. This means that our perception of our self and of the communities we belong to defines what we consider meaningful, what we need to understand, what we accept not to understand and which information we share. The way in which we treat boundaries highly relates to our ability to engage and suspend our identity, in this way, with our individual identity we can create boundaries and bridges alike.

Finally, the identity is also the space in which different communities meet within each individual. In all three ways, our identity represents the point in which learning processes originate.

Our identity shows the link between the individual and its community. As Wenger said: "Building an identity consists of negotiating the meanings of our experience of membership in social communities", in that way it is very personal on the one hand and simultaneously depends on the social community around us. The interplay of both levels influences our participation in social communities.

It is further observed whether and how the interplay of both core practices and boundary processes corresponds to the identity of the individual and its relation to the network. This strongly corresponds to the theory of social practices (Shove and Walker, 2007) which also work on these two very different levels.

The Identity dimension is especially interesting for transition studies because it represents a more agency-based approach to look at criteria that offer potential for learning in transition processes.

3.1.III. Analytical framework

The idea of situated learning refers to the contextual nature of learning processes. Categorising into CoP and Boundaries allows for a more detailed distinction between learning interfaces, their dynamics and respective potential.

3.1.III.1 CoP

The CoP of the permaculture teachers in Germany is investigated based on each individual relation to the internal permaculture network. In the in-depth analysis, the CoP is first assessed based on several key aspects from Wenger's framework. Dynamics in the CoP are clustered in core practices, factors concerning membership in the CoP and general coordination of members. This is seen as an adequate synthesis from the literature which combines aspects important in the framework of SLS which are simultaneously relevant to the analysis of niches.

Derived from Wenger (2000) Table 3.1.1 shows criteria for "core practices", "membership" characteristics and "coordination". Due to the diversity of Wenger's framework, these are adapted with a focus on the criteria that suit the analysis of the CoP of permaculture teachers.

Due to the exploratory function of this thesis with a focus on alternative grassroots initiatives as CoPs, especially this structural element is openly investigated according to different dimensions. The selected criteria are chosen because they represent factors that are less explicitly considered in transition studies.

The investigation starts with "core practices" which are further split in six different important criteria. The first concerns the definition and meanings for the interviewees. The criterion concerning competences describe what the interviewees consider especially important to their common

practices. By investigating the repertoire and relevant knowledge it is looked at the knowledge the interviewees commonly make use of. Then, with the criteria on common goals and visions a combination of SLS and SNM components is chosen in order to further illuminate the direction of efforts that are taken. As the fifth criterion the learning energy refers to what Wenger deems an important criteria of SLSs in terms of the direction in which common learning processes are oriented. Finally, internal challenges should offer more understanding of general dynamics that are of major concern of participants.

The "membership" dimension deals with three different criteria. First it investigates social capital, trust and belonging as the social dynamics that make up the engagement in the CoP. Then, network characteristics and distance and artefacts concern practical information on the network of permaculture teachers in the PKA and PKI as well as their relation to the broader network of permaculture practitioners in general.

Finally, the dimension "Coordination" assesses the need and ability of the network to provide guidance for its members.

Table 3.1.1: Relevant criteria for the dimension of the CoP

CoP – characteristics	Criteria
Core practices	• Definition and meaning • Competence • Repertoire and relevant knowledge • Common goals and visions • Learning energy • Internal challenges
Membership	• Social capital, trust and belonging • Network characteristics • Distance and artefacts
Coordination	• Coordination

3.1.III.2 Boundaries

Based on the theory of social learning, the tensions that can arise at boundaries can stimulate learning processes. Hence, concerning Boundaries, of interest are the ties of interviewees to their environment as well as the forms of interaction. Relevant is also when and where conflicting actions or new problems and uncertainties arise. In this way, boundary processes are openly investigated.

The structural element considers two different characteristics analytically. First, it investigates "Boundary processes" and their nature, focussing on their contexts and challenges that individuals encounter at these boundaries.

Second, looking into how learning processes can be facilitated, Wenger stresses the notion of "Boundary spanning". He further differentiates boundary spanning into three important dimensions: translation, alignment and coordination. These conditions around boundary spanning are closer examined. Table 3.1.2 shows the different characteristics and their respective criteria that are examined under Boundaries.

Table 3.1.2: Relevant criteria for the dimension of the Boundaries

Boundaries – characteristics	Criteria
Boundary processes	• Contexts • Challenges
Boundary spanning	• Translation • Alignment • Coordination

3.1.III.3 Identity

Asking the question, how identities are shaped and influenced, the structuring element Identity addresses both directions that arise from the differentiation between core practices and boundary processes. Each individual creates her or his own bridges and also boundaries to different communities, depending on the ability and need to engage and suspend the own identity.

To further investigate the role of identity of permaculture teachers in the SLS analysis, two distinct features have been selected: the notion of a "Home base" and the aspect of "Multi-membership" (Wenger, 2000).

Investigating characteristics under "Home base" should shed more light on whether the SLS can build up a feeling of belonging in each individual. "Multi-membership" explores how the individual relates to other groups outside the permaculture network. These characteristics and their criteria are displayed in Table 3.1.3.

However, as the SLS concept is very comprehensive, this thesis cannot concentrate on this part with the attention it deserves. Thus, the focus of this analysis mainly concerns the bridge between the CoP and boundary processes over the individual. As such, it represents the interplay and intersection

between the CoP and the boundary processes on the individual level. Due to the individual characteristics, this component is the most exploratory part of this investigation, open for findings that can hint more points of access.

Table 3.1.3: Relevant criteria for the dimension of Identity

Identity – characteristics	Criteria
Home base	• Feeling of belonging
Multi-membership	• Engagement in different groups and social fields

3.1.IV. Dynamic interplay and three modes of belonging for orientation

Figure 6 depicts an overview of the structural elements used to characterise the network as an SLS. Special attention and detail is given to the conceptualisation as a CoP.

In order to give space to the reflexive dynamics of the criteria and to offer orientation, the three modes of belonging are applied as lenses to assess the state of each structural element. According to Wenger the three modes of belonging better relate the local interaction of each individual with a more general global participation in the SLS (Wenger, 2000, p. 227).

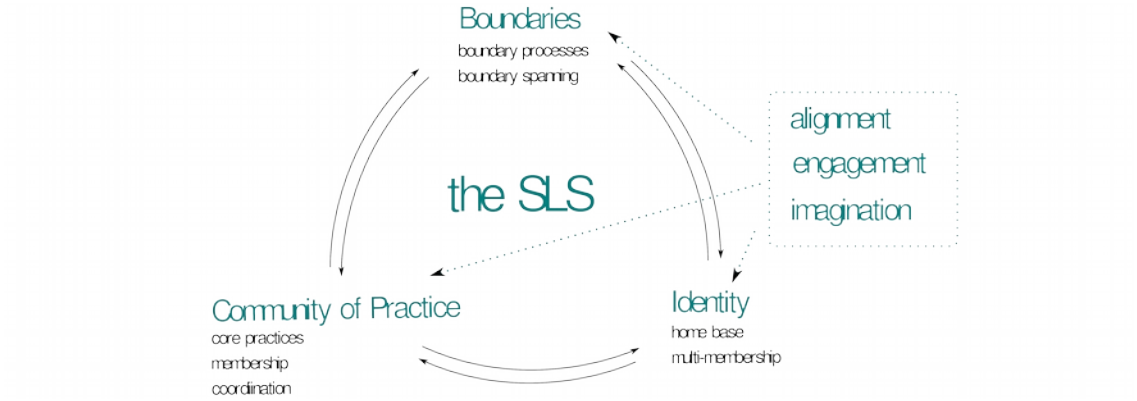


Figure 6: Analytical framework of the three structural elements and their respective characteristics

In order to account for a more thorough examination of the conceptualisation of the CoP, the three modes of belonging for the CoP are analytically extended across the dimensions “joint enterprise”, “mutual engagement” and “shared repertoire” which are identified by Wenger as “dimensions of progress” for a CoP (Wenger, 2000, p. 230).

3.2. Research methodology

“Research approaches are mental models that we formulate for our study of the world” (Preissle, 2009, p. 695). In that way, the scientific approach means to relate experiences and observations to theories from relevant fields by selected methods and analytical steps in order to closer examine certain dynamics and mechanisms. Therefore, a research question is formulated to link a real case to useful theoretical considerations (Figure 7).

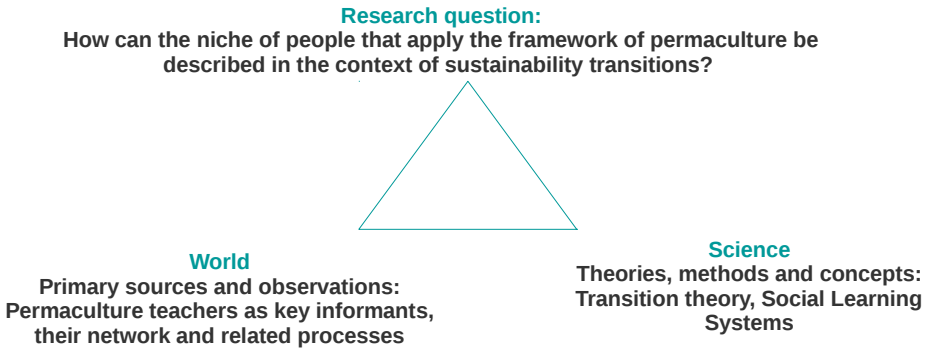


Figure 7: Triangulation between theory and practice

Under the research question, several sub-questions were defined above that guide through the different chapters. While the conceptual framework describes the process in which the chosen theories are purposefully turned into concepts and related to the information that helps to answer the research questions, the overall methodology deals with the challenge to make the required information accessible for the purpose of the study.

3.2.I. Research scope and structure

In the focus of the analysis are dynamics of the network of people in Germany that draw on the framework of permaculture design. The scope is restricted to dynamics and relationships across Germany. The methodology draws on the relevant information through different methods. In the following, the combination and sequence of different methods is explained in order to turn the underlying conceptual framework into practice.

Due to the exploratory character of this investigation, the limited time horizon of this thesis and broad scope of the indicators, a qualitative research approach is chosen. A review of available literature on CoPs shows that many qualitative research methods are common practice in the investigation of CoPs (Zboralski, 2007). Although quantitative research methods would work more thoroughly along the logic of representativeness (Flick, 2011, p. 164), it is out of the scope of this thesis.

The qualitative approach allows for an open investigation into characteristics of the network of people that relate to, apply and teach the framework of permaculture design in Germany. As is often the case with qualitative research, the process in which the information is collected and evaluated is not strictly linear (Fink, 2009). The information is both collected through literature and desk-top research as well as through empirical investigations using an iterative approach of sampling rounds. It is analysed drawing on guidelines from Cohen and Crabtree (2006) and Flick (2011). In the following the different steps are briefly described. Figure 8 shows the whole overview of all process steps.

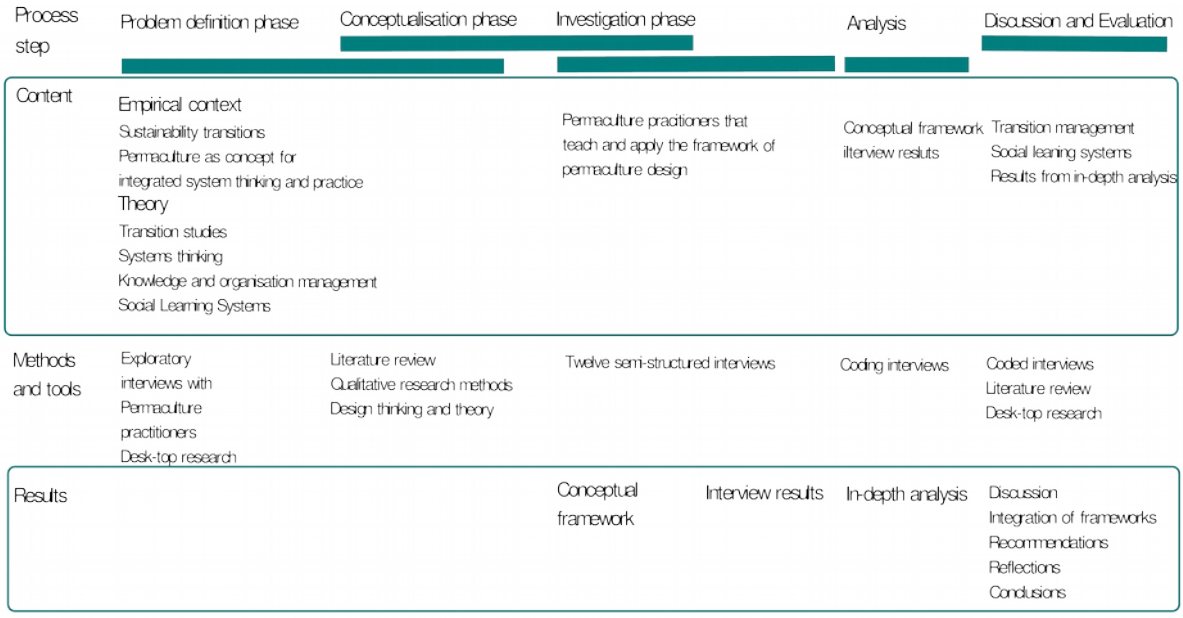


Figure 8: Overview of the process steps

3.2.II. Initial problem definition: Literature review and desk-top research

In order to get a better understanding of the context, at the outset of this thesis, both literature on theory as well as on the present situation of the permaculture network in Germany were investigated. This was combined with some initial open interviews with informants from the permaculture network in Germany, making it easier to synthesise the theoretical concepts into a framework that makes an investigation in the given time frame viable. This helped to both get a first overview and to receive contacts for the following interviews.

Also owing to the short time frame of this thesis and the conditions, the investigation is to a certain extend relying on convenience sampling. This means that one important selection criteria is the accessibility and availability of informants rather than generalisability from the sampling group which would be better supported by a more thorough random sampling. (Flick, 2011, p. 166)

The interviewees of the first round were practitioners and teachers that apply the framework of permaculture design in their every day practices and researchers. After the key informants were identified through the preceding desk-top research, the contacts were increasingly provided by the interviewees themselves that alluded to vital actors within their network. This was supplemented by some more desk-top research in order to provide for a diversity of profiles.

During the first collection round of data, the information was already processed. This led to key words for common themes that subsequently shaped the following conceptualisation, the investigation method and the design of the questionnaire for more in-depth information.

Table 3.2.1: Interviewees during the problem definition phase, open interviews

Name	Occupation	Institution	Perma-culture design diploma	Location (in Germany)
Robert Strauch	+ Permaculture instructor + developing his own on-site project + actively working in the PKA (organisation of courses, finances, media)	Permakultur Akademie Deutschland	+++ (“yes”)	Branden-burg
Max Gaedtke	+ PhD student on permaculture design in urban planning + Permaculture instructor working for University of Göttingen	University of Göttingen	+ (“In the process”)	Göttingen
Hannelore Zech	+ Permaculture designer + developing her own on-site project	Waldgarten-gärtnerei (Food forest)	+	Landau / Isar
Harald Wedig	+ Permaculture instructor + Permaculture designer	Permakultur Akademie Deutschland, garden business	+++	Bad Kreuz-nach

Name	Occupation	Institution	Perma-culture design diploma	Location (in Germany)
Sina Goudarzi	+ Permaculture instructor, + actively working in the PKA (finances, conceptual work)	Permakultur Akademie Deutschland,	+++	Freiburg

3.2.III. Preparation: Development of a conceptual model and an analytical framework methodology

After the initial problem definition, the conceptual framework was constructed. Based on the conceptual framework, the analytical framework was elaborated. The analytical framework is used to relate the different concepts from the conceptual framework to criteria that further define which information is considered relevant in the investigation. As such, it builds the foundation for further empirical research. When both conceptual and analytical framework were sufficiently elaborated they were put into a shape that allows for empirical analysis in form of a interview guideline.

3.2.IV. Empirical research

According to Fink (2004, p. 148) the approach used in this thesis can be best described as a snapshot analysis that investigated state and processes of the permaculture network in Germany at the present time.

After diverging into the different relevant analytical aspects and converging to an analytical framework that left the indicators open enough for adaptations in the process, questions for an interview guideline were formulated. Due to the nature of the relevant information as well as the time horizon and scope, the indicators were of qualitative nature.

The method of semi-structured interviews was chosen due to its suitability to retrieve the relevant information on perspectives, processes and relationships. The interviews were performed in April and May 2016. Interviewees were permaculture teachers from the biggest German body of education for permaculture, the Permakultur Akademie (PKA). During the interviews, matters of interest were perceptions and stories, personal experiences and reflections.

3.2.IV.1 Sampling

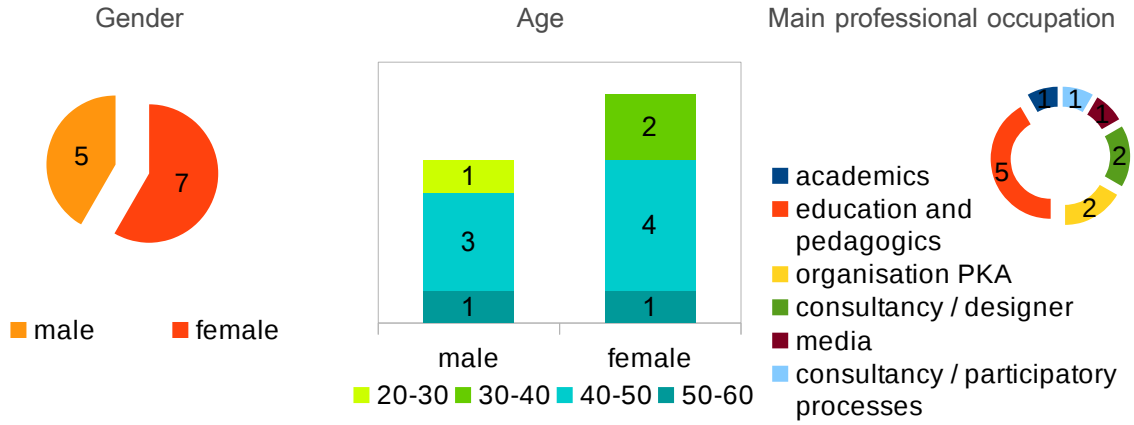
Contact details to the interviewees were predominantly received from the permaculture teachers themselves, pointing to other knowledgeable network participants. Some were additionally picked from information available on the internet, due to their strategic connection to a certain professional field.

The common denominator of the interviewees that were chosen as interviewees was that all of them have the Diploma of Permaculture Design or are in the process of pursuing it. The selection of interviewees further focussed on practitioners that engaged in teaching practices for the PKA at the time of the research. These criteria were chosen to ensure a certain level of knowledge, experience and involvement in either internal organisational work or in educational work at borders of the network with external actors.

Two interviewees were an exception of the premise above: one was on maternity leave at that time, the other is the co-founder of the PKA, but not associated with teaching at the PKA any longer. Both were still regarded as suitable interviewees due to their relevant experience and differentiated perspective.

In addition to their common teaching practices of the interviewees, their individual professions should also display a wide range of occupations and functions in the permaculture network. As a consequence, interviewees were landscape planners, teachers and researchers, consultants as well as journalists. Finally, also different models of income were of interest (e. g. self-employed, in collaboration with regional organisations, hired for an institution). Table 3.2.2 gives an overview on the gender, age and predominant occupation of the interviewees.

Table 3.2.2: Overview on gender and age distribution of interviewees and main field of occupation



Interviewees and their backgrounds are shown in Table 3.2.3. The selection process of interviewees does not claim to be exhaustive in any way. Due to the restricted time frame it was simply attempted to give an overview of different perspectives and impressions of practices.

Table 3.2.3: Interviewees and their backgrounds

Name	Occupation & Institution	Social field	Location
Max Gaedtke	+ PhD student on permaculture design in urban planning + Permaculture instructor working for university of Göttingen	Academics	Göttingen, Lower Saxony
Volker Kranz	+ Consultant and Landscape gardener, Co-owner of Baumrausch GmbH & Co. KG Gartengestaltung & Baumpflege + Permaculture instructor	Business on horticulture and landscape planning	Bremen, Bremen
Marit Efinger	+ Self-employed + Permaculture instructor	Pedagogics	Bruchsal, Baden-Württemberg
Judit Bartel	+ Education work for the Permakultur Akademie Deutschland + Permaculture instructor	Education and organisation PKA	
Burkhard Kayser	+ Consultant and designer, Self-employed + Permaculture instructor	Business on integrated agricultural and gastronomic garden design	Minden, North Rhine-Westphalia, GER
Ulrike Meißner	+ Editorial journalist, Oya journal, Self-employed + Permaculture instructor	Media	Klipphausen, Saxony, GER
Sylvia Paglialonga	+ Self-employed + Permaculture instructor	Education	Rosenfeld, Bavaria, GER
Ronny Müller	+ Self-employed + Permaculture instructor	Education and social work	Freiburg, Baden-Württemberg
Sarah Daum	+ Self-employed + Permaculture instructor	(Wilderness) Education and social work	Freiburg, Baden-Württemberg

Name	Occupation & Institution	Social field	Location
Jascha Rohr	+ Consultant and process facilitator, Co-owner of Institut für partizipatorische Gestaltung (IPG) + founder Permakultur Akademie Deutschland	Consultancy business on participatory processes	Oldenburg, Lower Saxony
Vera Hemme	+ Self-employed + Permaculture instructor	Education and organisation PKA	Berlin, Berlin
Ulrike Oemisch	+ Landscape gardener, Self-employed + Permaculture instructor	Education and social work	Prinzhöfte, Lower Saxony

3.2.IV.2 Coding

After their performance according to the interview guideline, the semi-structured interviews were transcribed. They were analysed using a priori clustering. This coding method relates to an already existing theoretical understanding. This understanding was created through the development of the analytical framework based on the existing literature (Ingram et al., 2014; Gluch et al., 2013, Wenger, 2000).

By selecting an initially broad array of criteria in the analytical framework, the goal was to keep the analysis open for possible schemes that could not have been anticipated before. This goes in line with Flick (2011) who states that a step-by-step analysis can help to avoid the trap of the researcher's bias which is important as all observations are limited by our own perspective. During the analysis of the empirical data, the criteria were chosen that repeatedly occurred. The criteria that were finally used in the analysis do not claim to be exhaustive.

3.2.IV.3 Interview guideline

The interview guideline can be found in the appendix.

3.2.V. Discussion

The discussion encompasses an exploration of the results in the context of their broader implications, both in terms of relevant literature and present socio-technical dynamics that were not part of the interviews. These information were acquired over a parallel desk-top research and literature review.

3.2.VI. Validation

3.2.VI.1 The approach

The intention of this thesis is not to provide an absolute, empirical observation. Using the framework of SLS and transition theory is rather an instrumental approach in order to identify characteristics that serve the purpose of better accounting for processes of knowledge creation and sharing. In this way, it looks at how interactions, learning and knowledge sharing processes are organised in order to identify important dynamic relationships.

3.2.VI.2 The interviews

The goal of the exploratory investigation was to sample contacts from permaculture teachers that have different occupations and perspectives. However, due to the nature of desk-research and snowballing through the interviewees. It can be assumed that the teachers' initial accessibility already hints at an openness and certain will to span boundaries. Thus, it needs to be made clear that the collected views are not exhaustive and it cannot be excluded that less outgoing members of the community are omitted through the research approach.

Also during the assembly of the data and the subsequent evaluation decisions have been made which information is taken into account and which is excluded, based on the pre-defined analytical framework. Thus, it might be that certain perspectives have not gained the recognition they actually deserved.

3.2.VI.3 Iterative process and adaptations to the interview guideline

As mentioned above, qualitative analysis is not a linear process. The process - comprising problem definition, conceptualising, preparing the investigation, conducting the actual research and evaluating the data – also featured the reflection of gained insights and an adaptation of the approach, where it was deemed necessary.

During the in-depths analysis, the pre-selected criteria were critically reflected. This led to a re-sorting of the criterion on visions and motivations. It was initially located within the concept of Identity. However, as it related to values that describe the CoP, the CoP was deemed more suitable in retrospective. Furthermore, some characteristics of the concepts were re-structured and merged, in order to allow for a more structured analysis. This led to the general characteristics of boundary processes being made up of contexts and challenges, in order to provide a first description under this topic before boundary spanning was illuminated in more detail.

Furthermore, during the first interviews according to the interview guideline it became clear that certain aspects important for the analytical framework were easier accessible through another framing of the question. Also, as some questions were automatically answered in the storytelling of the interviewees they could be left out. Thus, the questionnaire was shortened by two questions and the order was adapted depending on the interviewee and her or his story.

3.2.VI.4 Quality of information

Due to the scope of the master thesis and its explorative character, quantitative sampling was not considered.

The sample size of twelve semi-structured interviews has not the purpose of giving an exhaustive picture of the context in any means. Rather it is an attempt to investigate whether there are certain characteristics that occur more often and that can be of relevance to the theoretical foundation of this thesis and contribute to the already existing frameworks. It should be seen as a first exploration whether the two frameworks can complement each other.

Chapter 4 Empirical Findings

In-Depths Analysis: The Network of Permaculture teachers as a Social Learning System

This chapter investigates how the network of permaculture teachers can be described as a Social Learning System (SLS) by discussing the findings of the empirical research. It briefly addresses the general situation in Germany and then analyses the network based on interviews with the teachers.

4.1. The permaculture network in Germany

In the past years, the permaculture network in Germany has seen an increase in people that have an interest to learn how to apply permaculture principles in their daily and professional practices. Both in the European context and Germany-wide the word has gained in recognition. Also research programmes increasingly show their interest in projects that draw on the comprehensive framework that it encompasses. Furthermore, permaculture courses are more commonly offered in many different contexts, including universities (Zimmer, 2016). The emergence of platforms such as the Permaculture International Research Network (PIRN) and the European Permaculture Teachers Partnership show the growth of the movement also in the field of education and research.

The interviews have shown that the Permakultur Institut e.V. (PKI) is the biggest assembly of people with an interest in the framework of permaculture in Germany. Founded already in 1984, it functions as a non-profit organisation. It offers yearly meetings for members and people with an interest and is internationally linked to the global permaculture community. As the network is highly de-central, local and regional connections are very common. These are informal networks, depending on who wants to engage and invest energy in a certain place.

Especially at the border regions there are also strong cross-border ties which are more depending on the activity of the respective actors involved than on nationality. For instance, there are good connections between Germany, Austria and the Swiss. Furthermore, the initiatives that integrate permaculture principles in one or the other way are countless and diverse. Being closely connected to the TT movement, many of them are part of a wider alternative network. Still, the specific relationship of each initiative is highly contextual depending on its local setting. Correspondingly, the network of different types of initiatives is diverse, ranging from single actors that aim for self-

sufficiency, companies that integrate the systemic approach from the permaculture framework all the way to community projects that draw on permaculture design principles in their development, community organisation and food supply.

The PKI's executive committee elects the board of executives that run the Permakultur Akademie (PKA), which provides the Germany-wide permaculture design education. It has been founded in 2002 and since then it has gone through structural developments to better accommodate for the permaculture training programme in Germany and a suitable organisational shape.

It is a platform for teachers that offer different formats of permaculture classes, ranging from short introduction courses to the education programme that ends with a "Diploma in Applied Permaculture". The Permaculture Design Course (PDC), a 72-hours course that follows an international curriculum, is the official entry for people to make their "Diploma in Applied Permaculture Design".

Both PDC and the diploma are recognised in the international permaculture community. The PKA offers the accreditation of the diploma and structures the German curriculum (PKA, June 2016). Table 4.1.1 shows the approximate numbers on members of the PKI and students and teachers at the PKA. In the past years the training at the PKA has witnessed quite some development and re-structuration of the curriculum as well as the pedagogic concepts and methods.

Table 4.1.1: Current member numbers (May 2016) of the "formal" permaculture network PKA and PKI in Germany (based on communication with the PKI, May, 2016)

PKA members, overall	~ 300
PKI teachers	26
PKI students, Diploma in Applied Permaculture Design	~ 80

This thesis focuses on the teachers of the PKA as the core network and informants and the combined members of the PKA and PKI as the broader network. Here, it is especially relevant to keep in mind that the interviewees' network is only a small part of the overall network comprising many course participants and permaculture practitioners. Furthermore, beyond the official network made up of PKA and PKI, there is an unaccountable number of people that relates to permaculture without being part of an "official" group. This is important to note, as these different ways to engage also influence how members relate to the idea of permaculture and as such also affects the dynamics of the SLS. Nevertheless, a more thorough investigation beyond the "formal" permaculture network, and even here beyond insights from twelve interviewees that are related to this network, is out of the scope of this thesis.

In the following, the three structuring elements CoP, Boundaries and Identity are further illuminated looking at the permaculture teachers' relations, keeping the teachers' close link to the broader network of members of the PKI in mind.

4.1.I. Community of Practice

The idea of CoP is to describe the internal network to which permaculture teachers relate. The question regarding the CoP is whether core practices exist and how they link to the development of the CoP.

Thus the element of the CoP focusses on the relation of the permaculture teachers to the network and their participation in network processes. For this, the broader network of the PKI and the in-official permaculture community cannot be wholly left out as it also shapes the participation of each member. It is mentioned where references are made to the broader community beyond the PKA and PKI.

The CoP is assessed based on the teachers' experiences, knowledge, perceptions and their relation to the network of other teachers and the wider permaculture community. For ease of analysis, it has been differentiated into characteristics concerning core practices, membership characteristics and aspects regarding coordination (Figure 9).

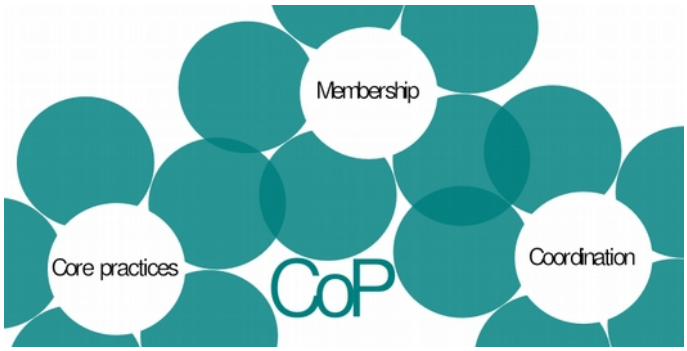


Figure 9: Characteristics of the CoP

4.1.I.1 Core practices

Core practices describe the practices that make up and emerge through the participation in a Community of Practice. With Wenger's words (1999, p. 45): "[...] collectively we participate in activities and engage in them, and over time, this collective learning results in practices that reflect both the pursuit of our enterprise and the attendant of social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of a shared enterprise."

In the following I further describe different criteria that seem to influence how the interviewees participate in the community. The key question is, what gives meaning to their way of participation and their learning processes a direction. Criteria were described in the analytical framework and are based on what Wenger (2000) raises as decisive factors for the development of the CoP (Figure 10).

I start with the interviewees' definition and the meaning assign to permaculture and further elaborate on which competences they deem relevant for being a permaculture practitioner. Then, I look at the repertoire and relevant knowledge for practising permaculture, the common goals they share and the learning energy present in the network. Finally, I summarise the challenges the interviewees and the network face as an important influencing factor.



Figure 10: Analytical dimensions of core practices

Core practices:	*Definition and meaning*

Due to its complexity and universality, providing a definition of permaculture is not easy. Nevertheless, this was one of the first questions for the interviewees. The goal is not to receive an absolute answer but to further understand, from the interviewees' perspective, what it is that differentiates it from other concepts and what it means to them.

During the years, the original meaning of the word "permanent agriculture" has been extended to "permanent culture".

"[...] für mich ist das eine Grundentwicklung von "permanenet agriculture" zu "permanent culture". Es ist zwar nett eine funktionierende Landwirtschaft haben, aber das nützt dir nichts, wenn um dich herum Krieg ist. Also braucht es eben auch die soziale Ebene."

"[...] For me it is a development from "permanent agriculture" to "permanent culture". It is nice to have a functioning agriculture but it does not help if you have war around you. And there it also needs to address the social level." (Interviewee 7)

Thus it can be described as a holistic framework that guides actions for a culture that can live in

Core practices: *Definition and meaning*

harmony, keeping humans' well being, other life forms and the planet's carrying capacity in mind. Commonly, three key aspects were mentioned immediately in the interviews that are intertwined and through this gain their quality.

One aspect is, that permaculture is seen as a **holistic, systemic approach to perceive and analyse the world**. In that way, it offers a diversity of theoretical concepts and tools to understand systems, drawing on knowledge about ecosystems and their functional relationships.

"Der [...] Reiz ist sicherlich, dass ich denke, man kann Dinge nicht auf einer Spezialisten-Ebene lösen (oder zu einem späten Zeitpunkt). Sondern, weil sie so komplex sind, kann man sie nur auf einer generalistischen Ebene lösen. Und da ist PK eben eine Lösungsstrategie oder ein Weg, Dinge zu betrachten. Ein Automatismus: "wie funktioniert dieses System?""

"One of its appeals is certainly that I think you cannot solve issues with a specialist's perspective (or only at a later stage). Rather, because they are so complex, you can only solve them with a generalist's perspective. In this context, permaculture is a strategy or a way to look at things. An automatism: "how does this system function?" (Interviewee 3)

Second, and this has been confirmed by ten interviewees, it is a **consciously ethical approach**. Through its ethics **"**earth care, people care and fair share**"**, it directly links human action to a quality of life on earth, valuing and taking responsibility for the planet and its inhabitants in its application. Two interviewees refer to it as a philosophy as one of its aspects.

"Einerseits eine Haltung, dass wir Verantwortung übernehmen positiv zu gestalten. Etwas Positives, Lösungsorientertes."

"For one thing, it is an attitude, that we take responsibility for a positive design. Something positive, solution-oriented." (Interviewee 10)

This positive attitude and the intention to actively look for solutions that integrate various aspects weaves through the interviews.

Third, it is not prescribing a certain solution in any way, but rather guides the process, drawing on system thinking and a wide system boundary. On the one hand, it assigns responsibility in the decision making process in which consequences are considered with a wide problem definition:

"Es hört erstens nicht auf meinem Grundstück oder mit meinem konkreten Vorhaben auf, sondern alles was ich tue hat immer weitere Wirkungszusammenhänge. Ich kann meinen Hof nicht abkoppeln."

"First, it does not end with my property's boundaries or with a concrete action, rather everything that I do has further consequences. I cannot disconnect my plot. " (Interviewee 3)

On the other hand, it combines this responsibility with a constructive design approach to finding solutions that focus on the integration of different functions in order to create productive systems that work effectively within this wide system boundary. As a result, solutions often display many different functions.

This also highlights that the permaculture framework guides actions that draw on synergistic effects, rather than simply focussing on avoiding harm. For this, it functions as a **methodological**

Core practices: *Definition and meaning*

framework for holistic decision making and design that allows for concrete actions. Through this design approach and the awareness about feedback loops, it creates intentional links between functions and helps to design connected, effective and productive systems.

„ […] zu sehen, das ist eine Ressource, das auch und da ist der Schwachpunkt. Wo ich finde was, da ist PK ein super Werkzeug.“

“[...] to see that's a resource, this also and there is a weak point. Where I think, permaculture is a great tool.” (Interviewee 3)

In this, it immediately relates this systemic perspective and the ethical foundation through tool-sets and guiding principles to practices.

“Und es ist was ganz Vielschichtiges. Im Sinne von “wir können unseren Kopf einsetzen, unser Herz und unsere Hände” es ist etwas Praktisches, Philosophisches und Zwischenmenschliches, Es ist sehr ganzheitlich, das macht für mich den Reiz aus.”

“And it is multi-layered. We can use our head, our heart and our hands, it is something practical, something philosophical and something between human beings. It is holistic, that's the attraction.” (Interviewee 10)

In that way it can be seen as an **approach for analysis and practice simultaneously**. Assuming an analytical systemic perspective and combining ethical guidelines in a design approach with a tool-kit of different methods. Due to its systemic approach, it focusses on functions, interconnections and relationships, rather than on absolute facts. It interrelates many different fields on different levels. All interviewees agree in that. However, they also stress that neither the methods from the tool-kit itself, nor practices really originated from the permaculture movement:

„Prinzipiell klaut es ganz viel. Es werden ja keine tollen Dinge entwickelt. Sondern es ist ja eigentlich die Art und Weise wie man auf Dinge blickt. […] Es ist das Aufzeigen von Verbindungen. […] diese Art, mit komplexen Dingen umzugehen.“

“Actually it steals a lot. It does not invent great things. It is rather a way to look at matters, […] pointing out the connections. […] this way to deal with complex issues.” (Interviewee 3)

Rather is permaculture the encompassing **framework that links different theories and methods meaningfully** in a way that is of practical use for the respective context. This can, be a design challenge, or can refer to an individual a group or a community. Along this guideline, space is left for inspiration and creativity to find an appropriate expression that suits the context.

“Aber einfach dieses Ineinandergreifen von verschiedenen Konzepten hat mich sehr überzeugt. Diese Übersetzung zwischen den Feldern.”

“Simply this fabric that integrates different concepts convinced me. This translation between the fields.” (Interviewee 8)

Especially, the wide system boundary and the holistic constructive design approach that is required in a wide problem definition often comes up throughout the interviews. This shows how

deeply the permaculture ethics and principles are rooted in their habits and thinking. For instance, several interviewees mention the necessity to closer look at what – as an effect of an action – is a yield. Opposite to what in economic terms is only a yield when it can be realised in a financial transaction, according to permaculture a yield can express itself in different ways. If, for instance, agricultural yield of a crop is kept at a certain level through a permaculture design that supports small-scale integrated farming, still other yields such as soil restoration, social equity and education practices are taken into account as yields. This appreciation of multi-functionality really is a core aspect of permaculture practice.

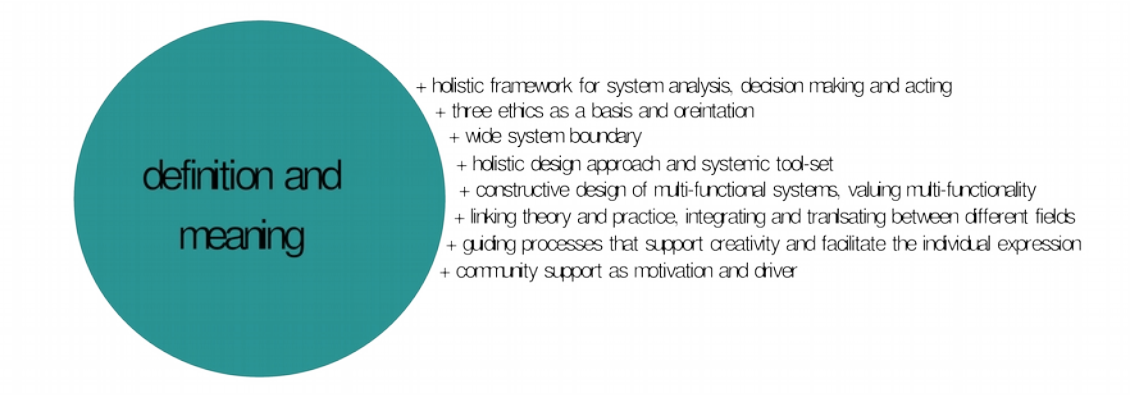
Having its root in the application in design guidelines for a permanent agriculture, agriculture still plays a prominent role as it directly links to sustaining our life and through this links many loops. However, it is only one expression of the application of permaculture design principles in a specific setting. Permaculture design cannot be reduced to agricultural practices. Especially not to certain expressions and techniques that are sometimes superficially communicated or simply taken as the essence of what permaculture represents, disregarding the context. This is further elaborated under challenges in the boundary processes.

"Einerseits geht es über Landnutzung hinaus und hat auch nicht den Anspruch eine bestimmte Form von Anbau und Technik vorzugeben. Sondern auf Prinzipien beruht, die im Grunde in allen Lebensbereichen Anwendung finden sollten. [...] PK Design ist, jeden Ort individuell zu betrachten, was es für Bedürfnisse gibt, auf allen Interaktionsebenen. Und wenn man eben nur das Produkt anwendet, eben nicht unbedingt gute Lösungen heraus kommen."

"On the one hand it goes beyond agricultural practices, and it also does not aim at prescribing any certain form of techniques and methods. Rather, it is based on principles, which basically should find their application in any part of life. Permaculture design means looking at each place individually, looking into which needs there are on all interaction levels. And when one only uses the product, it does not necessarily lead to a good solution." (Interviewee 6)

The framework which lies behind expressions of permaculture design in form of permaculture sites or garden designs is an integral part of the permaculture practice. Permaculture is nothing fixed, but a framework that guides the design process and practices. In this way, its strength, the potentiality to be of use in many different situations, contexts and under different conditions also becomes its biggest challenge. Communicating its real meaning and potential to others and also receive acknowledgement in the main share of society is not easy. More on the challenges are described in internal challenges as one descriptive component of the CoP and in challenges under boundary processes.

Core practices: *Definition and meaning*



Core practices: *Competences*

Competences are understandings, knowledge and core routines that the interviewees share. This further describes, which elements are key to take part in the CoP. Competences do not only encompass the teachers' skills but also extend the focus to skills they deem relevant for permaculture practitioners in general. Although plenty of skills were mentioned, the interviewees converged on some key competences. These are described in the following.

Overall, practising permaculture comes in manifold expressions. Everyone has an own way to apply permaculture principles according to one's own skills and interests. This already leads to a core competence that becomes more apparent throughout the interviews. At least in the interviewees' perspective, permaculture is very inclusive and open for each individual to participate. Giving people from different backgrounds respect and space to practice according to their own characteristics is one condition to work together. This happens on the common base of the ethics and guided by the different principles. However, what also becomes apparent in the analysis is that different understandings exist in the broader community beyond the PKA where more exclusive behaviour of single practitioners occurs.

In general, the integrative nature of the permaculture framework and methodology becomes apparent in the interviews. Many mentioned that it unites different fields and serves as an overall guideline in a decision making process. Initially applying a wide system boundary allows to integrate many different fields. This generalist's perspective makes the interviewees very flexible and adaptive.

"[…] systemisches Denken, Sachen in Balance bringen, die in Zusammenhängen miteinander stehen, auf einer niedrigschwelligen Ebene [...]"

"systemic thinking that allows to bring things in balance that are interconnected, on an easily accessible level [...]" (Interviewee 2)

Their ability to think critically and practically with a wide system boundary is a trait that becomes apparent during the interviews. As a result of system thinking in relationships and connections, the need to differentiate between function and product is what the interviewees stress without

Core practices: *Competences*

exception. As already mentioned under definition and meaning above, this arises in many different contexts.

"[...] wenn ich diese Qualitäten mir klar mache, dann kommen noch ganz andere Dinge in Betracht. Die ich einsetzen kann und vielleicht sogar viele die besser passsen. […] Das macht dann den Blick offen, es kommen ganz viele Lösungsmöglichkeiten, wo ich dann gucken kann, welche Lösung passt für mein System am besten. Wenn Kursteilnehmer das verstanden haben, haben sie PK verstanden und können damit arbeiten. Aber wenn du das Wesen, die Arbeit mit Komplexität, nicht verstanden hast, dann nützt dir das glaube ich wenig. Dann kannst du Tricks anwenden, und das wird fröhlich nachgebaut."

"[...] If I become clear about the functions, then there are many possibilities which I can use and maybe even fit better. This open view, there are so many possible solutions where I can choose what fits the best to my system. If a course participant has understood they understood permaculture and can apply it. But if you do not understand the core, the work with complexity, then it is of not much use, I believe. Then you can apply tricks, which are happily copied." (Interviewee 3)

All interviewees agree that practising permaculture relates to a process and that part of the competence is to stay aware, attentive, to observe, experiment, to allow mistakes and support learning processes. With its emphasis on observation of relationships, meaningful design, feedback and interaction, permaculture guides ongoing and dynamic learning processes of the interviewees.

Another important aspect is that many people that enter the permaculture education are looking for answers which they did not find in conventional education, their daily life and job.

"Ich glaube ,dass Leute zur PK kommen, hat viel mit Infragestellen zu tun. Den eigenen Lebensweg, die eigne Lebensituation, die Gesellschaftsystem. Das ist schon fast eine Vorraussetzung. Ich glaube PK wenn man es ernst nimmt, was man lernt und probiert dann führt es dazu dass man seinen Blick auf die Welt verändert."

"I think arriving at permaculture has a lot to do with challenging current paradigms. The own pathway, the own situation of life, our societal system. This is nearly a prerequisite. I think, if you take permaculture serious you and also what you learn and try out, then it leads to changing the perspective onto the world." (Interviewee 7)

Skills the interviewees deem important are the curiosity, the analytical skill to assess situations and also to regard situations in their process, navigating to the different stages, being able to analyse what are critical factors at which time and in which state. Furthermore, practising permaculture necessarily comes with a certain need to take responsibility for one's own learning outcome.

„Dass sie diese Kompetenz die Umwelt einschätzen zu können und darauf auch Lösungen entwickeln zu können. Die Notwendigkeit für das Handeln zu sehen und die Kompetenz zu gestalten und Lösungen anzugehen und zu experimentieren. Man muss ja nicht wissen, was das Richtige ist, aber dass man den Mut hat, es auszuprobieren und daraus dann auch lernt und es weiter entwickelt."

Core practices: *Competences*

„This competence to assess the environment and to develop respective solutions. To see the necessity for one's actions, the competence to design and find solutions and to experiment. You do not have to know what is the right thing, but you have to dare to try it and to learn from it and to further develop it.“ (Interviewee 4)

As mentioned before, applying a system's perspective is key to the understanding of permaculture. The interviewees are looking at a system on different levels. Being able to identify functional relationships and feedback loops and thinking in terms of critical nodes and leverage points of a system is one important ability. Simultaneously, and this distinguishes the framework from other intellectual approaches, it is the application of this comprehensive framework in every-day practice that makes it meaningful to the practitioners.

“Dass sie zumindest den Anspruch hat diese Verbindung zu schaffen, zwischen dem eigenen Handeln und dem gesellschaftlichen Handeln. Dieser systemsiche Ansatz, hat mich überzeugt, sodass ich mich auch weiterhin in der PK engagiere.”

“That it at least has this claim to create connections, between individual actions and the societal actions. This systemic approach convinced me to further support the permaculture” (Interviewee 8)

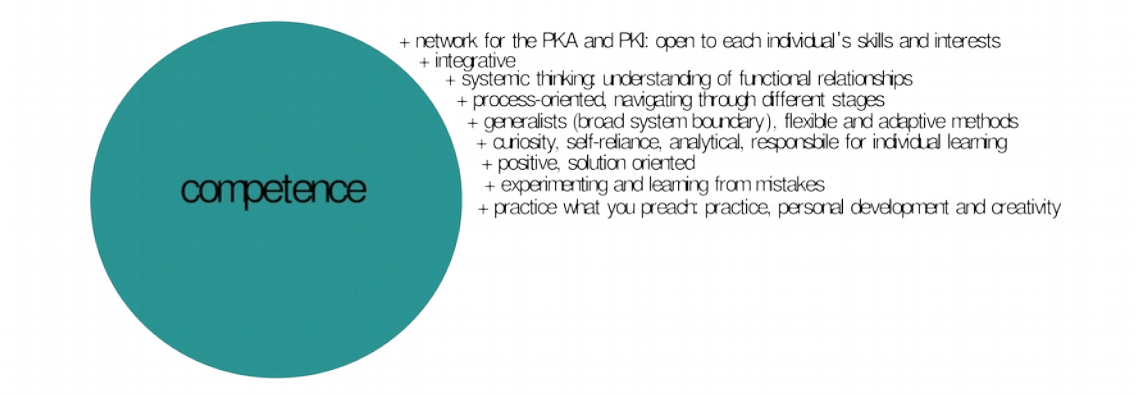
This also offers a wide range of solutions depending on each context. While one part of permaculture is very theoretical and analytical, the active and creative aspect of permaculture is as important for the interviewees. The design approach and the tool kit of methods allow for creativity and practical application.

What cannot be stressed often enough is the expression of the theoretical framework through practical application and deep-rootedness of the theoretical framework in every-day practices. Many of the interviewees confirm that they apply the framework in their life as an analytical tool and a base for decision making. Several interviewees mention the PKA as one real-life example for permaculture practices. To use Wenger's words, the PKA itself can be seen as a social fabric of the community of permaculture teachers.

“Die Akademie ist im Grunde unser Garten. Ein ökonomisch sozialer Garten.”

“Basically, the academy is our garden. Our social, economic garden.” (Interviewee 10)

Core practices: *Competences*



Core practices: *Repertoire and relevant knowledge*

Repertoire and relevant knowledge are closely linked to competences. They define what the CoP considers as important and relevant. This also shows the orientation of a CoP and shapes its development.

It becomes clear that permaculture practices are not facts that the interviewees teach. It is rather the understanding and consideration of processes and relationships provided, for instance, through the principles, the knowledge of system elements, design tools and methods.

"[...] beispielweise in Zusammenhängen zu denken, Beziehungen herstellen zu können, heraus finden zu können was in Wechselwirkungen steht"

"[...] for instance to think in relationships. To be able to draw connections and to understand where there are interdependencies". (Interviewee 2)

Obviously, the permaculture principles are an important aspect of the repertoire which interviewees use daily. Also visible in the principles, is the analogy to or rather the inspiration in nature and natural processes. The interviewees are very connected to nature and understand to see ecosystems in their diverse functions. In this regard, eight of the twelve interviewees also mentioned that seeing the relationships, cycles and dependencies in ecosystems also helps to understand the consequences of certain actions to derive solutions from this understanding.

"Dieses Wissen, dass es außer uns menschlichen Wesen gibt es noch viel um uns herum, was wir nicht wahrnehmen. Anfangs macht man das bewusst, aber man muss das später nicht bewusst machen. Man kriegt da ganz viel mit, weil man seinen Blick dafür geschärft hat. Und das fehlt gesamtgesellschaftlich."

"This knowledge that there are other beings around us apart from us humans, which we do not take note of. At the beginning you make this more apparent, but later on you do not have to do it consciously any more. You perceive a lot, because you have trained your eye for it. This is

Core practices: *Repertoire and relevant knowledge*

lacking in a big part of society." (Interviewee 7)

Based on the ethical principles, the goal of any permaculture design is a functional, productive solution, that is able to make effective use of the context, that closes loops and is mindful of resources. In that way, the abstract system analysis and wide system boundary still comes with concrete principles that guide individual actions in practical applications that integrate matters in each design situation. This continuous link between theory that deals with complex systems and very individual practice is what the interviewees share and develop.

"Einfach eine ganz vitale, lebendige Kombination von guten Werkzeugen, einem schlüssigen Set von Prinzipien und einer wirklichen wahrhaftigen Ethik, die ich funktionieren sehe"

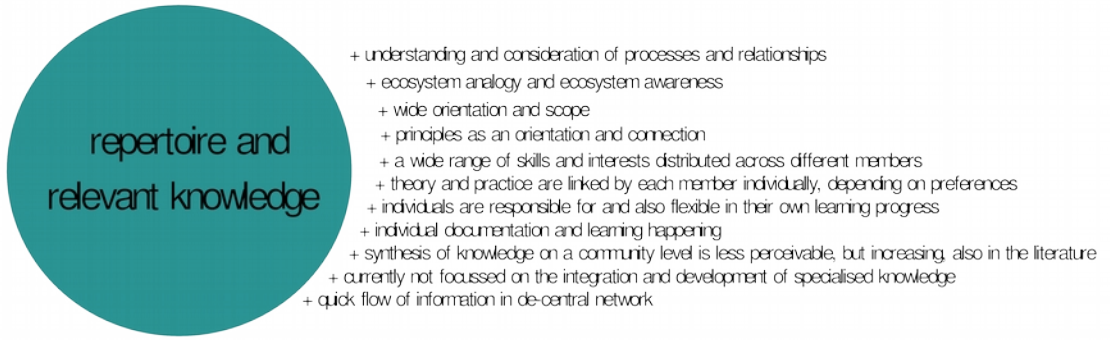
"Simply a very lively combination of good tools, a consistent set of principles and real ethics, which I see being effective."(Interviewee 10)

An interesting aspect of relevant knowledge again refers to the very integrative nature of the permaculture framework. Throughout the interviews it became clear that the interviewees share the overall framework and still every interviewee has her or his own spectrum of interest. This makes permaculture a very individual framework applicable in many different ways and explains why the common body of knowledge is only slowly building up. So far, for instance, several interviewees stress that documentation was mainly performed on an individual basis, not connected to an accumulation of knowledge on a community level. Also, several interviewees wish for more discourse with people that engage in similar activities and to share experiences. Currently, there is a lack in capacity that is designated to the collection and development of such an accessible body of knowledge. Likewise, several interviewees mentioned the relevance of complementary input from more specialised fields. Simultaneously, they stressed that the development and integration of knowledge is currently restricted to individual endeavour. This makes everyone responsible for and flexible in their own learning progress but also restricts the generation of a shared body of knowledge.

One the other hand, ways to the desired information are often very short. Due to the de-central character of the network, information flows quickly over personal contacts. Furthermore, information on different facets are accessible on the internet.

The process of differentiation into different topics is only in its infant shoes. A growing body of literature on different fields shows the growth of the scene and also the work of individuals at the margins of the idea of permaculture. This is also seen, in the cooperation with education institutions that is slowly developing.

Core practices: *Repertoire and relevant knowledge*



Core practices: *Common goals and visions*

Common goals and visions may or may not be officially negotiated. These show the pathway of a community, and indicate the link between individuals and the community. Investigating the goals the interviewees have in common, it becomes apparent that everyone has their own understanding and finds their meaning in practising permaculture. However, the ethical principles align everyone.

The interviewees have in common that in fact they do not see an expression of permaculture as a final state that should be achieved (a product) but rather see permaculture as a guideline and approach (a function).

"Aber das ist jetzt nicht mein Anspruch an PK: Dass wir sagen, wir haben dieses eine Ziel und da arbeiten wir hin. Ich würde eher sagen, das ist ein Weg, den kann man vielfältig anwenden."

"But I would not say this is the expectation of permaculture. That this is the ultimate goal and we work for it. I would rather say it is a way that can be applied in many contexts." (Interviewee 2)

Some also felt it necessary to distance themselves more explicitly from unsuitable expectations of permaculture.

"Für mich ist es weit entfernt von einer Weltrettungsphilosophie. Oder "damit wird jetzt alles gut". Deswegen habe ich nicht so ein konkretes Bild. Ich könnte jetzt sagen, was alles toll wäre, wenn die Welt sich dahin entwickelt. Das ist jetzt nicht so etwas wie mein PK-Traum. Da würde ich eher vielleicht von Politik reden."

"For me it is far away from a world saving philosophy. Or: "everything will be perfect with it". This is why I do not have a concrete picture in mind. I could say what I would love to see in the world. But that would not be a permaculture dream. Then I would probably rather talk of politics" (Interviewee 3)

Core practices: *Common goals and visions*

However, most of them direct to the three ethical principles as the foundation of practising permaculture. Some describe these as a polar star, which is not a goal but gives a common orientation and that guides the way.

"Da geistern eine Menge parallele Ziele herum. Und die werden nicht von allen gleich unterschieden. Aber sie sind immer wieder ähnlich. Und die sind ganz klar zu finden in den drei Ethiken. Und da haben wir ein ausreichendes Framework, womit wir arbeiten können ohne gleich alles unterschreiben können zu müssen."

"There are many different parallel goals. And they are not differentiated by everyone in the same way. But they are similar. And these are visible in the three ethics. And that is a sufficient framework with which we can work without having to immediately sign everything." (Interviewee 5)

These similarities that the interviewees have in mind is for instance a guideline for societal change that comes through a different approach to how we perceive people, nature and ourselves and which results in a different mindset and also possibly different lifestyles. In that way it is a concept for transformation to a culture that connects to nature, to people and community and also to oneself.

"Die PKA hat da eine andere Sicht, nämlich PK als Konzept einer umfassenden Lebensgestaltung und auch Gesellschaftsgestaltung."

"The PKA has another point of view, permaculture as a concept for a holistic design of ones life and a design of society"(Interviewee 6)

Also of importance is the focus on creating beneficial actions rather than only avoiding harm, referring to the creation of a regenerative culture rather than a consuming one.

"Es ist schon eine positive Verbindung. Nicht schädlich zu agieren, sondern nützlich zu sein."

"It is indeed a positive connection: Not to act harmfully but to be useful." (Interviewee 10)

Taking the visions into more focus, it becomes very apparent that also none of the interviewees aims for a concrete future that only draws on methods regularly used in the framework of permaculture. Too diverse is society and the openness of the interviewees leaves space for people to bring in their needs, skills and ideas. What becomes clear, however, is an attraction to nature and the belief that understanding the natural cycles and developing a link to the Earth' needs and also the benefits it provides for all of us is very important to them.

All interviewees stress the need for certain values conditions to be fulfilled on a more abstract level. These are for instance peaceful interactions between beings, cooperative structures, and a life that respects the planet's carrying capacity. In this way, the vision is to not only utilise the Earth's resources for our benefits but to find a way of living within its boundaries and orientating one's life according to these by making effective use of the integrated functions that are naturally provided.

"Eher Wertebasiert. Nicht dass ich konkrete Bilder hätte. Sondern eher welche Werte gelebt

Core practices: *Common goals and visions*

werden. […] Und, dass dieses Leitbild nicht in Vollkommenheit eintreten wird. Es ist aber eine Orientierung und Ausrichtung.“

“It is value-oriented. Not that I had a concrete picture in mind. Rather it concerns which values are expressed. […] And that this “Leitbild” will not be realised completely. But it is an orientation and direction.” (Interviewee 6)

Being so different to current mainstream paradigms that guide people's decisions, the conviction that this vision is still worth acting according to it needs to be very strong. Accordingly, despite the normative and ideological character of this “Leitbild”, interviewees also have already thought about changes that are necessary. They mention several key aspects situated in the economic, social and institutional field.

Changing the mental infrastructure

Asked where it should start, most state that the change needs to be within each individual. The barrier of “cognitive dissonance” (discussed in the challenges under the component boundary processes) needs to change to the development of a feeling of resonance that enables people to accept and pursue a life within the Earth' and society's natural limits.

“[...] unsere mentalen Infrastrukturen verändern. Ich merke das selber. Einfach dieser Glaube, wenn etwas schneller geht, wenn etwas größer ist, wenn es von etwas mehr gibt... dass das immer besser ist.[...] Und da sich diese Frage zu stellen, “Nee, wann ist es genug? wo ist das richtige Maß?“ […] Dieses Umdenken in uns selber, braucht etwas. ”

“[...] to change our mental infrastructures. I sense that myself. Simply this belief that if something is faster, bigger, if you have more of it... that this is always better. And then to raise the question, “No, when is it enough? What is the right proportion? […] This change in thinking patterns in ourselves, that's what's required” (Interviewee 2)

Paradigm of economic growth and “economic” distribution

The necessary change in mindsets is closely connected to the current paradigm of economic growth. As long as our economic and regulative system does not account for social and ecological values and aims for growth in a limited carrying capacity, also the mindset of people will be automatically ruled by the paradigm of and desire for constant growth, because the physical infrastructure, institutions and media reinforce its legitimacy every day.

Opposing this is the important attribute of permaculture to cooperate rather than to compete. Also, new ways to use the actual benefits of our economic concepts are of big interest for the change.

“Wir haben so viel. Und da finde ich es wieder interessant. Sprich, Social Entrepreneurship. Dass es etwas zum Verteilen gibt. Und hätten wir eine andere innere Haltung, würden wir uns anders verhalten. Würden wir mehr verstehen, wie wir alle verknüpft sind, was ein systemischer Ansatz mit sich zieht, dann würden wir auch mehr darauf zielen, dass es ein gesellschaftliches Surplus gibt. Aber wir haben dann Gewinnmaximierung und das ist völlig schwachsinning auf mittelfristige Sicht.”

Core practices: *Common goals and visions*

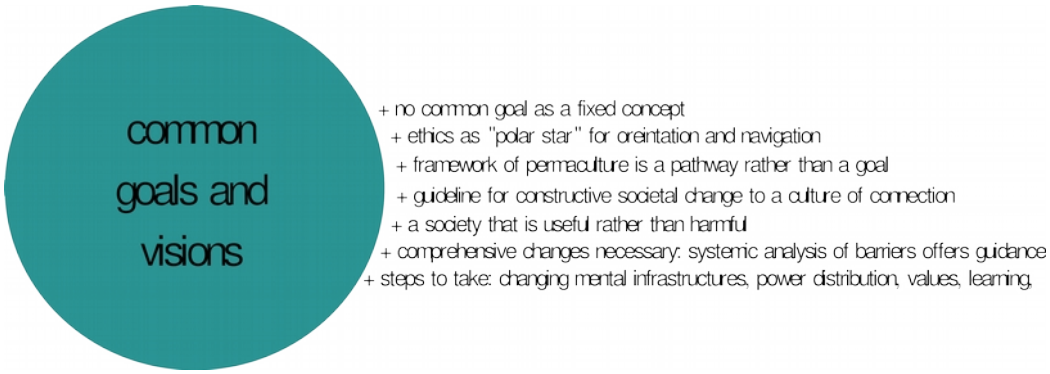
"We have so many things. And there is what I find interesting. Say, Social entrepreneurship. That there is something to distribute. If we had another inner attitude, we would behave differently. If we would understand how everything is interconnected, what comes through a systemic approach, we would also aim for this societal surplus. But what we currently have is the maximisation of profits and this is completely daft with a mid-term perspective." (Interviewee 8)

Power distribution and learning processes

The need for changing the economic approach also comes with a shift in power. A re-distribution of resources and power needs to happen on many different levels. Main points are both a re-distribution away from the big companies that currently influence political decisions disproportionally and also a shift in what institutions actually need to do: from having power to distributing it and facilitating its use. For this, many interviewees mention a skill that is also commonly acknowledged and which we currently lack. This is learning to learn to deal with uncertainties and life in constant change and flexibility. For this, the "inefficient" process of learning and experimenting is an inevitable prerequisite. One interviewee puts it as follows:

"Weil es Handarbeit braucht, und die die Menschen auch einfach erst selbst noch lernen müssen, wie es läuft. Da muss man ganz viel ausprobieren und erforschen. Und wenn man da nicht die Chance hat, unterstützt zu werden, wie durch Stiftungen, dann können sich das auch viele gar nicht leisten umzustellen. Da braucht es sehr viel Mut und junge Menschen die noch nicht so viel Verantwortung haben."

"Because it needs skills, which people need to still learn themselves how it turns out. And there you have to try a lot and experiment. And if you do not have the chance to get support, e. g. through foundations, many cannot afford it to change. It needs a lot of bravery and young people that are not yet stuck in responsibility." (Interviewee 4)



Core practices: *Learning energy*

The learning energy refers to where the network's learning effort is directed to and where new

Core practices: *Learning energy*

knowledge is openly searched for. It also deals with the question, how much the CoP nurtures organisational learning as a core practice and keeps a spirit of enquiry concerning knowledge gaps, directions of development and opportunities.

The topic learning energy is visible on different levels to varying degrees. Starting with the individual and with the negotiability between the interviewees, it can be said that most of them describe themselves as very curious, open and keen to learn. This is both expressed in their background and the reason why they relate to permaculture, their practice of experimenting and adjusting to feedback. As such, the individual learning energy is perceivable in each interviewee. Being curious and self-reliant in the learning process is a helpful trait, as the curriculum of the PKA is designed in a way that teachers and students are seen as equals and that everyone is responsible for their own learning progress.

With the course programme for the PDC, the international permaculture community has its own guidelines that should allow participants all over the world to get a common basis. Furthermore, with the education programme for the design diploma the PKA has its own internally established learning pathways. These are also designed in a way that the participants and the teachers are explicitly on an equal level, learning from each other, further embedding the "flat" structure that is essential to the permaculture framework.

Also the network of members of the PKA and PKI in Germany itself functions as an SLS concerning self-organisation and education. As mentioned before, the PKA's structure is an experiment of individuals organising themselves. In developing their own structure, they try out new organisational forms with different properties compared to common hierarchical structures in the German context. These are open, cooperative and with a strong focus on learning and flexible development.

„Wir versuchen eine Struktur zu geben und gleichzeitig merken wir , das braucht ganz viel Freiheit. Und diese Gratwanderung, die eine Struktur die Freiheit ermöglicht, das ist echt spannend."

„We try to provide a structure and simultanesously we notice that it needs a lot of free space. And this balancing act to develop a structure which gives free space, that is really exciting." *(Interviewee 10)*

It becomes apparent that the national network is predominantly concerned with this internal organisation and also the educational reform. In the past, especially the PKA was very busy with dealing with its growth and the grown structure. In this, the network of the PKA is very open to ideas that can be adapted to the organisation's needs.

"Ich hatte das Gefühl, immer wenn wir nicht weiter wussten kam von außen ein interessantes Modell was wir dann integrieren konnten."

"I had the feeling that always when we did not know how to process an interesting model came from outside which we could integrate." (Interviewee 10)

However, aspects such as the extension of the network's scope of education and knowledge transfer are heavily dependent on certain individuals. There are single actors that do try out new approaches and extend boundaries. Nevertheless, several actors also regret that the network's attention is currently not very oriented towards external input. One reason can be that the PKI

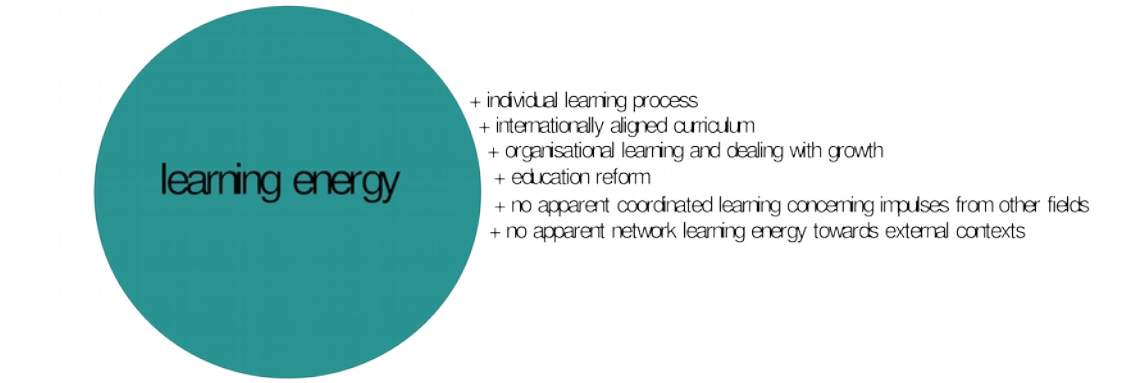
Core practices: *Learning energy*

which could be responsible for these offers, is less active and present than the PKA. This imbalance in activity already goes a long way back, starting with the founding of the PKA.

"[...] das PKI [wurde] im Grunde genommen zum formellen Träger [...] es ist auch da bedauerlich wo es um die öffentliche Wahrnehmung geht. Und da würde es eigentlich um die fachliche Ebene gehen, die nicht nur in die eigene Bildungsfrage greift. Primär war damals das Netzwerk und das Wissen, dass man damit weiter kommen kann. Diese Netzwerkgeschichte finde ich absolut essentiell. Offenheit gegenüber Impulsen von außen ist noch nicht so eindeutig, und das ist eine der wichtigsten Qualitäten die ein Netzwerk haben sollte. Was individuelle Lernprozesse ausmacht.

"The PKI became the formal body, which is sad when it is about public perception. And there it would be about the technical level, which does not concern the own education. Earlier it was mainly the network and the knowledge that you can get further with it. I think this network issue is absolutely essential. Openness for impulses from outside is not very explicit at the moment and this would be one of the most important functions a network should have. Which also concerns individual learning processes." (Interviewee 5)

In the context of research many mention the existence of the Permaculture International Research Network (PIRN) and also admire the permaculture network in the UK which was able to participate in the LAND project. In that way, several of the interviewees regret the lack in learning energy from within the network and permaculture community towards external contexts. It has often been mentioned that it is due to capacity reasons until someone takes it in his or her hand to take the next step. This is already done by single actors in their field of attention, however, the support from within the network and people that engage in the same context is restricted but something several interviewees would wish for.



Core practices: *Internal challenges*

Challenges represent the issues, with which the community struggles and along which practices further establish in order to deal with these. In that way, it is a decisive criteria of a CoP.

There are challenges among the permaculture network as well as between external actors and people that try to apply permaculture principles in as many ways as possible. Problems with externals will be mentioned in the section challenges under boundary processes.

It is especially relevant to keep in mind that the interviewees' network is only a small part of the overall network comprising many course participants and individual permaculture practitioners. Thus the network of teachers and the wider permaculture community witness different key issues.

In the interviewees' network, relating to their profession as a teacher, challenges mainly concern education and organisational issues. These are discussed in the network of PKA and PKI where also some strategic questions about priorities and needs of the network arise.

Considering network-internal alignment, what the broader network sometimes expresses and what teachers pursue is quite different. This makes it difficult for permaculture teachers to be understood by people that do not deal with permaculture or do not try to understand the complexity and extent of it. This is a major barrier, because of this common misunderstanding, in the past, certain expressions were labelled as "permaculture". Hence, it is easy for someone who talks about permaculture to be taken for a person that simply gardens for self-sufficiency.

"Da gibt es große Unterschiede. Denn wir verstehen es sozusagen als eine Designschule. Das wird von anderen nicht gesehen, denn da wird die PK als fertiges Ergebnis gesehen. Und das wirkt sich auf die Erwartungshaltung der Kunden aus. […] Es wurden bei vielen Leuten Sehnsüchte und Erwartungen geweckt, die dann denken sie können davon dann leben, wenn man ihnen da „PK hinstellt""

"There are big differences. We understand it as a school of design. Others do not see that, and then permaculture is perceived as a final result. And that affects the expectation of the customer. […] There were desires and expectations raised in people that thought they could live from it, when you "installed permaculture" for them." (Interviewee 5)

While the interviewees are interested in spreading the idea and spirit of permaculture design, some of the people practising permaculture are more interested in self-sufficiency and the option to be independent of a system they do not support. Although this is not a problem on its own, this can lead to situations in which attitudes become more nationalistic and exclusive than most of the permaculture practitioners would wish for, as this can also reflect back on the whole image of permaculture. More on this is mentioned under the membership dimension.

Other regular topics are issues of a professionalisation of permaculture. Being a topic in many professions that are often linked to voluntary and unpaid work, also the interviewees confirm that this debate occurs regularly. As it is a topic that relates to ideologies and personal values, some people (from the broader network of people that relate to permaculture) object that it the idea of permaculture is turned into a profession that is economically integrated.

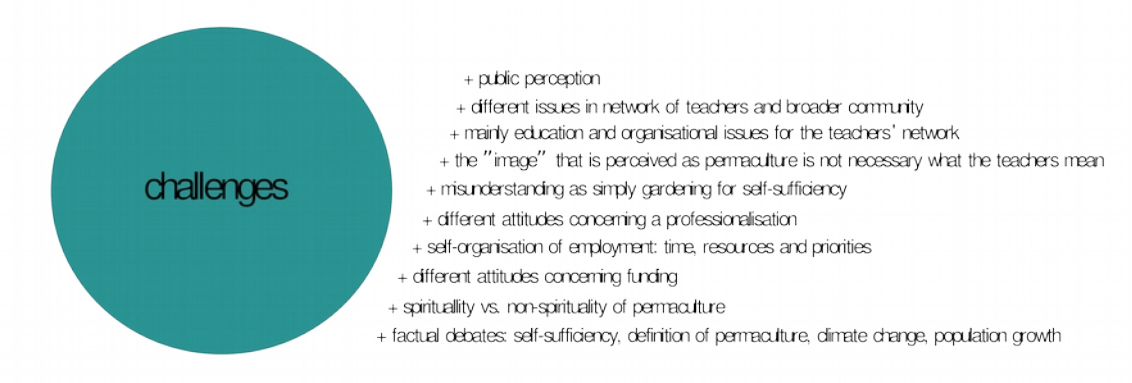
Also concerning economic considerations is the question of whether or not projects that are based on the permaculture framework should be "dependent" on public funding. As the current economic system is not at all consistent with the permaculture ethics as such, many people raise concerns that an attachment to funding mechanisms infringe their ability to be self-reliant. On the other hand, funding could give options to further establish and develop structures and

practices in a more institutionalised way. It becomes clear in the interviews that there are many different perspectives on this topic, both within the network of teachers and the broader network of practitioners.

A challenge is certainly that employment options are still not very established and depend on individual initiative, knowledge and entrepreneurial skills. This also leads to problems for the individual and the network alike in terms of time capacity, resources and priorities. This is further described in the multi-membership component under Identity.

Another ambivalent topic that sometimes arises of whether permaculture can also be spiritual. On the one hand, permaculture can be lived and practised by each and everyone without being restricted. However, in the more formal network this is an issue that sometimes leads to discussions of what message is represented in public.

Of common debate in the broader permaculture network are the definition of permaculture and related debates that arise from it. In this debate key aspects are that it can be a very emotional debate as it closely links the individual's personality. On the factual side, common debates concern what sustainability actually means, including popular topics such as climate change or the meaning of population growth to sustainability.



4.1.I.2 Membership

The Membership dimension is relevant because it strongly sets the aspect of belonging to a certain organisation into focus. This allows a more differentiated perspective in comparison to the approach in transition studies. Membership, as defined my Wenger, refers to criteria in terms of a network's connectivity to and between its members. The subsequent membership characteristics concern both the current composition of the network of the PKA and PKI and how the organisation of this network affects the engagement of the interviewees.

For ease of distinction Membership observes three different criteria. The first criterion deals with the link between the individual and the network: It looks at characteristics concerning social capital, trust and belonging. The second criterion describes general network characteristics. These relate to depth, stability, diversity, succession and trajectories of members in the network. As a third criterion the role of distance and artefacts for network dynamics is illuminated.



Figure 11: Criteria of membership

Membership:	*Social capital, trust and belonging*

Behaving counter common practices and sticking to the framework provided by permaculture needs a certain degree of mental strength and endurance. Social capital, trust and belonging depicts the social relation of the interviewees to their peers. It looks at the ties in the network and whether support through these is helpful for the interviewees in their daily practices.

An important aspect that influences how we connect to a community and also to its members is the extend to which we trust each other. For the network of permaculture teachers and also practitioners, it again needs to be differentiated between the internal network of the PKA and PKI on the one hand and the wider community of practitioners. Many interviewees state that they trust the network of the PKA and PKI. They confirm that it is a support for them in different ways. It is useful for them in terms of organisation and helpful contacts but also in more abstract terms: Simply knowing that members of the PKA and PKI support the same principles and act accordingly supports the interviewees in their practice. Experiencing this joint venture through practical work and knowledge sharing further strengthens these ties and keeps the members in the network together.

"Weil alle in dieser positiven Absicht handeln. Und natürlich ist es nicht immer leicht die Zusammenarbeit auf diese Art und Weise. Das Vertrauen ist aber wichtig. Vertrauen in den Prozess, in die gemeinsame Sache und in die Menschen."

"Because we all act with the same positive approach. Of course it is not always easy to work together in this manner. Trust is very important. Trust in the common process, in the common venture and the people." (Interviewee 10)

It was important to some interviewees to stress that the PKA and PKI represents an organisational structure whose processes they consider trustworthy. Although everyone can and should practice permaculture without external restrictions, the PKA and PKI offer a sound frame which the interviewees appreciate and want to support.

In general, working on the same thing together despite geographical distance is an important motivation for many of the interviewees to be part of the network.

Membership: *Social capital, trust and belonging*

"[...] dass wir zusammen an einer größeren Sache arbeiten. Wenn jemand in Berlin oder in Freiburg was macht, habe ich schon das Gefühl, ich bin ein Teil davon."

"That we work together on the same thing. If somebody does something in Berlin or in Freiburg, I do feel I am part of it." (Interviewee 8)

Also, being part of the network, means for the interviewees that they to do not have to explain certain aspects that would usually give rise to a debate or a misunderstanding. It gives a common basis of understanding and a similar approach.

"Dass man eine gemeinsame Basis hat, wenn man Sachen anfängt oder sich rein denkt."

"That you have a common basis, when you start something or consider something." (Interviewee 7)

Despite the misunderstandings that arise from the complexity of the framework, the ethical principles seem to unite the members in their constructive way to approach issues.

"PK nutze ich wegen diesen drei Ethiken, ẃegen dieses gleichen Verständnis. Auch wenn es von manchen Missverstanden wird, bei anderen Konzepten, da fehlt einfach die Ethik."

"I use [the framework of] permaculture because of the three ethics, because of this common understanding. Although it is misunderstood by some people. With other concepts the ethics simply lack." (Interviewee 8)

Especially different to mainstream practices is the strong emphasis on fair share and cooperation rather than competition. Being able to trust in this common recognition of equality, fairness and cooperation perceivably enables the interviewees to communicate and work together in an exceptionally free and light atmosphere.

Many mention the word relationship or connection ["Verbindung"]. Social support through the network and the feeling of not being alone, even though one is not around the corner of other like-minded people is a strong support for many interviewees.

„[...] mich zugehörig fühle. Es gibt auch Dinge die Leute raus hauen die ich nicht so toll finde, aber innerhalb der Akademie und des Vereins ist das eine Bewegung die ich unterstützen will."

„[...] Where I sense a feeling of belonging. There are things other people say which I do not really like but within the PKA and PKI it is a movement I want to support." (Interviewee 2)

In that way the community around the interviewees does not meet often, nor do people have to agree in everything. There are quarrels, misunderstandings and disagreements. However, many express that the constructive approach and ethical orientation which they experience and share nevertheless connects them in their efforts.

"Auch das Vertrauen dass auch Persönlichkeit ... und dass Egokrams auch gemeinsam eher in diese Richtung persönliches Wachstum getragen werden konnte. Dass wir auch auf der Ebene

Membership: *Social capital, trust and belonging*

schon so viel zusammene erlebt und gemacht haben. Sodass es wirklich tragende Freundschaften und Verbindungen geworden sind."

"Also this trust that personality... and these ego-issues could be taken towards personal growth. That we have experienced so much together on this level. So that it became strong friendships and connections." (Interviewee 4)

When it comes to examples of misunderstandings of the framework of permaculture, misleading application or a doubtful use of the word, several stress that the PKA and PKI should make its position clear as it is an important representation for them. Lately, there were cases with nationalistic attitudes and the use of the label "permaculture" for commercial businesses where a justified application is doubtful. These are points where the network currently discusses its position.

Outside the narrower "official" network, the attitudes and approaches differ more in what is understood under permaculture and how it is expressed.

"Da braucht es Grenzen vom Organismus. Dass das klar ist, dass rassistische, homophobe Kommentare nicht von der PKA und dem PKI vertreten werden ."

"There it needs borders of the organism. That it is clear that racist, homophobic comments are not supported by the PKA and PKI." (Interviewee 6)

In the context of social ties and relations, one of the biggest drivers and potentials can also have an ambivalent nature. Talking of the wider network of permaculture practitioners in general, one interviewee also raised the issue that the strong identification with the topic and the strong social relations can make it more difficult to work in a professional context because it is a mix of ideological, emotional and professional issues. This tension can also turn into a two-sided sword, briefly already mentioned in the challenges of the CoP. This is especially perceivable in debates on the internet where professional discussions can become emotional and even personal at times.

Being often in exchange with people in a quite anonymous way, the broader permaculture community depicts less strong ties and sometimes more characteristics of exclusiveness. Not everyone has the conviction that it needs an approach that respects people from all backgrounds. The interviewees have found their way of working with the discrepancy between current mainstream practices and their vision. While they are open towards different backgrounds and contexts, the wider permaculture community can exhibit more narrow or extreme point of views. This sometimes leads to discussions, debates and also less trust in the broader network. This has been noted by several interviewees.

Observing discussions in the wider network of practitioners on what is the authenticity with which somebody is „practising" permaculture, this issue becomes more tangible. It also entails the consequence of asking whether somebody cannot be part of the permaculture community. This discussion is unavoidable, as it deals with the question, what is the meaning of the community, of what it does and how this can be achieved or what is definitely not an option. Here, of course a bandwidth of attitudes is present. Most of the people also in the wider network of practitioners are inclusive and open to everyone that wants to participate for the common objective. However, some of the ones that let their voices be perceived on the internet are also of more exclusive

character in the wider network.

"„[...] merke ich das aus den E-Mails. Dass Manche sehr fundamentalistisch unterwegs sind. Und das sind dann auch strittige Punkte. [...] Wobei ich ja auch die Menschen im Blickfeld haben, die nicht PK leben. Und was machen die? Die sind ja auch nicht blöd, die möchten ja auch ihre Kompetenzen einbringen, in und für die Welt. Ich möchte das nicht so klein-karriert sehen. Sonst passiert es ja auch wieder, dass man von etwas überzeugt ist und schaut nicht, was die Überzeugung anderer ist und wie die helfen kann."

"[...] I notice it in some E-Mails. Some people are quite fundamental. And it concerns critical points. However, I also see people that do not live permaculture. And what do they do? They are also not stupid. They want to contribute their competences into and for the world, too. I do not want to see it that narrow-minded. Otherwise it happens again that one is convinced of something and does not see what other peoples' conviction is and how this can help." (Interviewee 1)

This is an important aspect that generally relates to the whole permaculture community of practitioners. It deals with the network alignment and also its exclusiveness. As learning processes require energy, the focus on specialising skills inside the permaculture community naturally comes with compromising other activities. However, how the result is handled in a network is a question of the overall alignment and imagination of the community. As this discussion commonly comes up it is a point that needs to be kept in mind. When certain voices become to loud, it is also a reason to distance oneself from the network:

„Es gab mal die Diskussion im PK Forum Newsletter, würde man mit OBI zusammen arbeiten, wenn die einen engagieren. Das ging richtig heiß her, diese Diskussion. Und ich denke, die Frage war völlig falsch gestellt. Für mich spielt nur eine Rolle, will OBI glaubhaft und ehrlich und transparent, sich zu einem nachhaltigen Unternehmen wandeln, in aller Konsequenz, was das heißt. Dann wüde ich natürlich mit denen zusammen arbeiten. Wenn die […] eigentlich nicht wirklch bereit sind, was zu ändern, an ihrer Grundstruktur, dann würde ich es nicht machen Irgendwie muss man die ja mitnehmen. Und ich glaube viele von den Permies haben in ihrem Garten auch viel Zeug von OBI und dann finde ich es erst recht absurd."

"Once upon time, there were discussions in the permaculture forum newsletter: "would you cooperate with OBI [a building supplies shop] if they hired you". That was a hot debate. And I think, the question was simply wrong. For it only plays a role whether OBI really wants to truly and transparently change to a sustainable enterprise, with all consequences, whatever it means. Then, of course I would cooperate. If they actually are not ready to change their structure then I would not. Somehow you have to take them along. And I believe many permies also have things from OBI in their garden and then I really consider it absurd." (Interviewee 9).

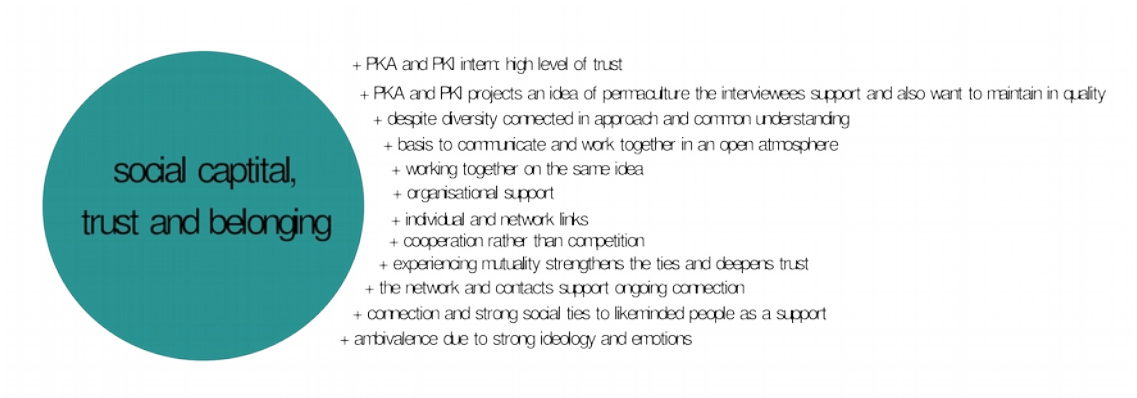
However, most interviewees agree as long as the mindset is similar – which does not only include people applying permaculture principles but also people that have a similar understanding and work for the same cause – they do feel that trust in a common understanding and approach facilitates the work.

„PK zu prakizieren und zu vernetzen. Dieses Miteinander. Und das funktioniert ganz gut. […] ich war noch nie in so gemischten Gruppen unterwegs, Herkunft, Alter, Bildunsgstand, wie in der

Membership: *Social capital, trust and belonging*

PK. Das funktioniert und ist eine wunderbare Erfahrung. Und PK darf man nicht auf Deutschland begrenzt sehen. Es ist eine weltweite Vernetzung, die ich lebe, spüre und wichtig finde.“

„To practice permaculture and to connect. This mutuality. And it really works quite well. I was never in such a diverse group, origin, age, education like in permaculture. It works and is a great experience. And you cannot reduce it to Germany. It is a worldwide connection, which I live, sense and find important.“ (Interviewee 1)



Membership: *Network characteristics*

These aspects are showing how a community is built up, which components it has and how aware it is of the connectivity and the development of pathways of its members. They all express how well the SLS is attuned to its members and through the connection of its members to its environment.

As mentioned before, PKA, PKI and the wider network have different functions and scopes. The PKA and PKI unites people that want to take part in the permaculture community in reality. Everyone can be actively practising permaculture on her or his own and still be connected to the wider community, diving in whenever it suits. Due to the free organisation, intentional groups are dependant on the ones that create them. Active participation and creativity of individuals are the main drivers for this.

The overall network is increasing in size. More PDC's are offered and also an increasing number of students is making their diploma. This brings about challenges for the network's capacity which can be seen in the organisational developments in the past years, where structures needed to adapt. This process is ongoing.

The further development of the open character of the network allows people from very different backgrounds to participate according to their interests and skills. New members potentially bring in their individual competences and further develop the community.

“Und das Netzwerk ist eine Bereicherung, denn durch jede Person, die sich da konstruktiv

Membership: *Network characteristics*

einbringt, kommen mehr Möglickeiten, wenn die Leute damit verantwortlich um gehen"

"And the network is an enrichment, because each person that constructively engages brings more possibilities, if people deal with it responsibly." (Interviewee 6)

What people especially value is the creative potential that is provided by the community in which members can find their own place. This way to work with each other, on the same level and aware of each others' needs seems to be an important aspect that keeps the community together.

„Dass ich gemerkt habe, ich kann mir meine Arbeitszusammenhänge, die Art wie ich arbeiten möchte, kann ich mir auch in der PKA gestalten. Und wir haben da auch so ein Verständnis von, ja, durch Gestaltung, zu einer Lösung kommen. Und das ist sehr schön."

„That I noticed that I can also design my personal work relations and the way in which I want to work. And we have kind of a common understanding to, through a constructive design process, come to a solution. That is very nice." (Interviewee 2)

However, the interviewees are people that already succeeded to find positions that give them the feeling they can bring in their potential. This leaves people unconsidered that were not able to find hold and bring in their skills in a way that they can sustain themselves and be a productive part of the network. This was also not the focus of this study. However, it is an interesting point, how the network in the end can facilitate participants to find points of longer lasting practical attachment through which people can sustain themselves. This is also an important point that plays into the dimension Identity.

Concerning the networks demographic development, many interviewees stress the openness to each individual's potential and capacity to participate:

"[...] das Netzwerk ist auch sehr vielfältig. Es gibt Leute die machen die Kurse mit und machen dann wieder ihr anderes Ding, Leute die wachsen rein, übernehmen Verantwortung und gestalten mit."

"The network is very diverse. There are people that participate in the course go and make their own thing, others grow into the system, take over responsibility and co-create" (Interviewee 10)

Although not having actively searched for new members but rather worked with the ones that come voluntarily and are willing to pay the PDC from their own pocket, the scene has grown on its own. However, many members regret that the nature of members is quite similar, internally stabilising the network rather than opening up new perspectives. On the other hand, people that come on their own also bring with them the openness that is necessary to consider new ways of acting. To a certain extent, the motivation of people to invest energy to learn and change is an important prerequisite for this fundamental change.

"Die sagen: „ich gebe das Geld aus, mache diesen Kurs", da ist ein gewisses in Frage stellen und Wandlungswillen vorhanden."

„The ones that say: „I pay the money, I take that course", there is a certain contesting and

Membership: *Network characteristics*

wilingness to change present“ (Interviewee 7)

On the other hand, an important aspect is how open − inviting and accessible − the network is. In general everyone agrees that people are very tolerant and open but many confirm that there is a certain homogeneity in the mindset of the participants. This means on the other hand, that despite a wide array of skills that are present in the network, the bigger fraction of society does not take part. This causes several interviewees to wish for more diverse participants in the PDC and the diploma programme both in their mindset and their professional background. However, this is currently only more or less attempted individually by the interviewees.

On the network level it becomes clear that the PKA has arrived at its full organisational capacity that is made up of education work and organisational issues. Reaching out to people that are more difficult to access (that do not come through their own initiative) is not on the agenda. As such, the network is currently to a certain extent internally focussed, being occupied with education and re-organising the structure.

The loose composition of the network also gives rise to concerns about the invested energy and the ease for members to be lost for the community. There are concerns that the network so far was not able to keep people in order to build up a body of representative examples. One interviewee describes it as follows:

„Wenn ich sehe, dass die Urspungsintention nicht verfolgt wird, wenn ich anschaue, wie viel Leute anfangen wollen und ich merke, es ist ein gewisses Wohlwollen da, aber dann sagen “ich will meine eigene Erfahrungen machen”. Da ist was stark egoistisches im Lernprozess, der sich nicht themenmäßig konzentriert sondern versucht gerade zu rücken, was in Schule und Uni falsch gelaufen ist. […] Und wenn man nicht von dem lernen will, was schon versucht wurde, dann kommen wir auch nicht weiter.“

“When I see that the original intention was not further pursued, when I look how many people start and I see there is a certain good will but then they say “I want to make my own experience”. That is an egoistic learning process which is not thematically focussed but tries to remedy what has gone wrong in school and university.[...] And if one does not want to learn from what has been tried out in the past, then we also do not get further.” (Interviewee 5)

One interviewee raises the concern that the education programme of the PKA might currently function more like a “water heater” [Durchlauferhitzer], educating people that look for something else and new, but that do not stay to further build up a body of knowledge, experience and functioning projects. One indicator for this is the lack in a data base of projects and learning outcomes from former projects. In that way, a trajectory in which members enter the community is really depending on each individuals initiative. This aligns with what is mentioned about the meaning of “small and slow solutions” and a wish for a certain coordination (under the characteristic “Coordination”) that supports the members in establishing a perceivable movement that slowly adds qualities that together give a more complete whole than the parts.

Others see it less drastic, rather stating that even if people do not pro-actively work in the permaculture community, the knowledge might find its way in other applications where it might be of equivalent use. Many mention capacity reasons as well as the very individual character of participants for key attributes that have an influence on the development.

Membership: ***Network characteristics***

"Vielleicht sind wir auch Einzelkämpfer"

"Maybe we are simply all lone warriors" (Interviewee 1)

On the other hand, owing to the diversity of people skills and interests, it is also mentioned that the size is giving rise to a diversification and also the establishment of sub-communities, both in terms of topics and geography.



Membership: *Distance and artefacts*

Distance and artefacts deals with the physical infrastructure that a CoP uses. How individual members are connected and communicate in the network plays an important role for the functioning of a CoP.

In the de-central organisation of the network the interviewees usually face distances between each other. In order to keep in touch, they use telephone calls and telephone conference, emails and an online network that is communication tool and data base simultaneously.

For information on different topics concerning permaculture in general there is also a mailing list on which everyone that is interested in permaculture can get access.

All of the interviewees that are still active as teachers confirm that they are very content with how smooth the communication over telephone conferences works. Although they would not mind meeting more often to actually work together and coordinate things in reality they agree that they found a good mode to work together over the long distance.

„Lieber wäre mir schon wir könnten uns öfters mal treffen. Ich finde es macht viel aus. Wie schnell man was abstimmen kann. Es wäre ein Vorteil, aber ich sehe es nicht als problematisch sich darauf einzustellen und die Möglichkeiten zu nutzen, die halt da sind.“

“I would prefer if we met more often. It influences a lot. How quick you can coordinate with each other. It would be an advantage but I do not see it as a problem to deal with the current status and to use the options that we have.” (Interviewee 6)

Still, the distance is an issue in terms of being isolated from each other for most of the year. Although communication works well for concrete activities, many interviewees would not mind, being closer to each other. Nearly everyone regretted the fact that the every-day business and the distance does not allow for more regular meetings in reality. Many also referred to their local network of like-minded people they can engage with more often in reality which gives them support.

While working together either for education purposes or for other joint projects, they meet in their respective teams which depend on the task at hand. Additionally there are many events in different formats (content-related, networking, strategic events) throughout the year, which they like to attend if time allows. Nearly everyone confirmed that they try to attend at least one event per year.



4.1.I.3 Coordination

Coordination

Coordination deals with a CoP's ability to organise itself across different members. The way it is distributed across members of a CoP may change over time.

The concept of permaculture and the core practices of the interviewees make it very clear that individual skills and competences are strongly supported. An open structure and space for participation and contribution makes engagement easy for individuals that are self-reliant enough. Thus, developments perceivable on a network level were going the course that was guided by active members.

"[...] bisher war Vieles so: „wer Lust hat was zu machen, hat das halt gemacht". Und es war auch sehr viel Freiheit."

"Up until now it was like: "who want to do something simply does it". There was also a lot of freedom." (Interviewee 2)

The PKA has already established a structure that offers resources for organisational and educational processes. With transparent lists in their online network, participants of the network can make use of resources that are commonly collected.

"Wir haben eine Art solidarische Ökonomie. Alle Überschüsse, die von Kursen oder Veranstaltungen übrig sind, gehen in einen Projekt-support-topf. Und den kann man auch nutzen. […] Und das ist schon so ein ganz gut funktionierendes Kreislaufsystem. Und da sind wir so ganz happy mit, mit unserer eigenen Ökonomie innerhalb unserer eigenen Akademie."

"We have a kind of economy based on solidarity. All surpluses that are left over from events go into the project support fund. And this can be used. It is a quite well working cycle. And we are quite happy with it, with our own economy in our academy." (Interviewee 10)

Concerning the coordination of network processes and strategies, the network is in development. It is apparent that the network is busy re-organising and experimenting with options that give the movement an appropriate structure and the right frame.

It became clear that a growing community also currently leaves space for guidance. Acting as an organism that comprises many people can be difficult, if guidance is lacking. The permaculture principle "Small and slow solutions" relates to the fact, that processes can be small and slow, but should add up over time. Several interviewees state that this kind of trajectory through more concrete strategies that guide the process is currently not yet commonly visible.

Especially where it comes to strategic decisions that cannot be taken on an individual level, there is currently a lack of orientation in this diverse community.

"Das sind Fragen im Alltag, wo ich mir einfach zunehmends mehr Orientierung wünsche. Und das steht einfach an, diese Klärung, gerade, "Was wollen wir voran bringen?", auch die Frage "Wollen wir uns Schwerpunkte geben, wo wir Partnerschaften schließen und an die Öffentlichkeit zu gehen mit diesem einen Thema?""

"These are questions in every-day situations where I would increasingly wish for some orientation. That is needed, this clarification "what would we like to support?", and also "would

Coordination

we like to choose priorities where we go into partnership and reach out to the public with certain topics?" (Interviewee 2)

Since half a year, processes drawing on the model of sociocracy are applied. In this development, the network also formulated a vision and a mission (Table 4.1.2and 4.1.3). These are enlisted in the following. Subsequent targets have not yet been established.

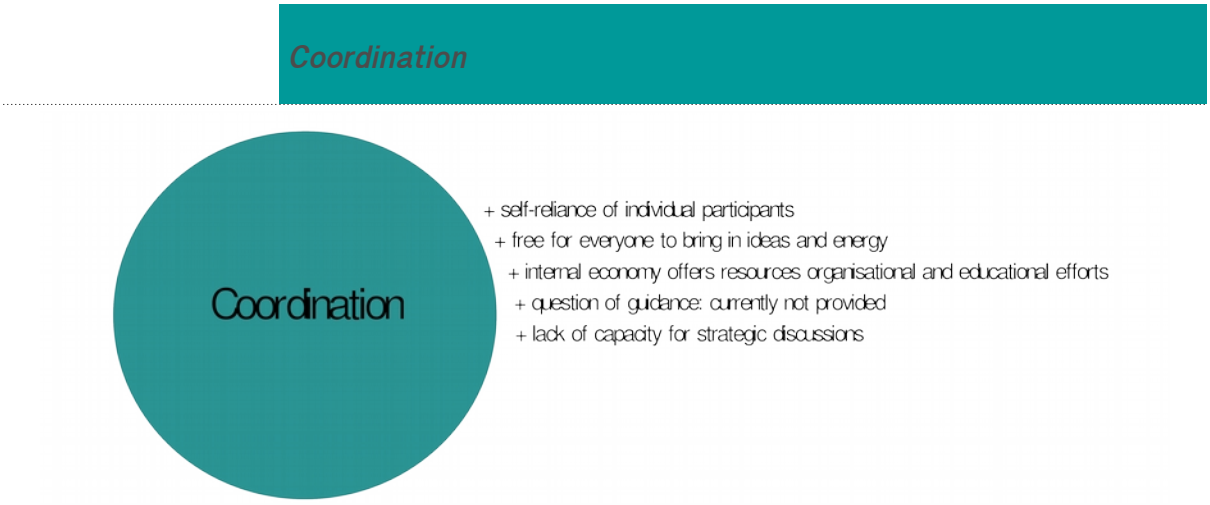
Table 4.1.2: Vision of the PKI formulated in 2016

Wie stellen wir uns die Welt vor, in der wir leben möchten? *How do we imagine a world in which we want to live?*
Wir leben in einer Welt, in der wir Menschen unser Eingebundensein in die Natur anerkennen und auf respektvolle Weise für unsere Bedürfnisse sorgen. Unser Miteinander ist achtsam, lebendig und solidarisch. *We live in a world in which we humans recognise our connection with nature and care for our needs in a respectful way. Our relations are mindful, lively and based on solidarity.*

able 4.1.3: Mission of the PKI formulated in 2016

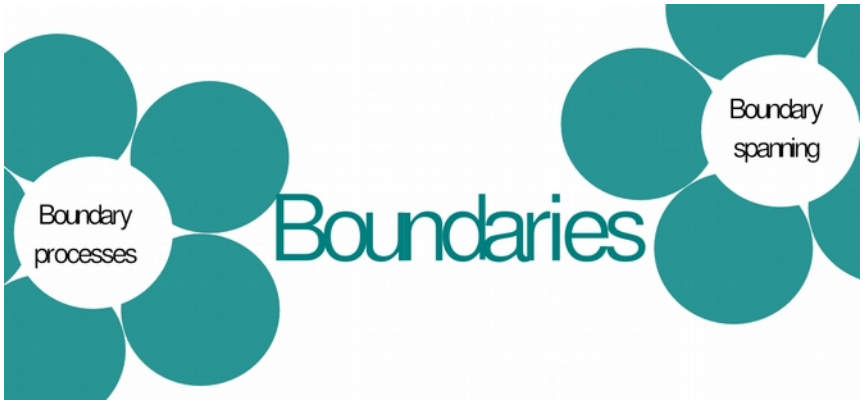
Unser Beitrag zu dieser Vision *Our contribution to our vision*
Als Permakultur Institut e.V. verbreiten wir permakulturelle Gestaltungsansätze und Praxiserfahrungen durch Öffentlichkeitsarbeit, Bildung und Vernetzung.
Wir unterstützen Projekte, Initiativen und Menschen, die sich der Ethik der Permakultur verbunden fühlen.
Wir entwickeln Permakultur weiter als eine Gestaltungspraxis, die durch ganzheitliches Beobachten, vernetztes Denken, kreatives Gestalten und verantwortliches Handeln zukunftsfähige Lösungen in die Welt bringt.
As PKI we disseminate permacultural design approaches and practices through public relations, education and networking.
We support projects, initiatives and people that feel connected to the ethics of permaculture.
We develop permaculture as a design practice that creates solutions for a possible future through holistic observations, connected thinking, creative design and responsible actions.

Finding solutions that are suitable simply takes its time, especially as the organisational structure is contrary to conventional structures and needs to be developed and sustained. Another challenge seems to be the lack of capacity for strategic discussions. Aspects of coordination at boundaries will be discussed in the chapter below.



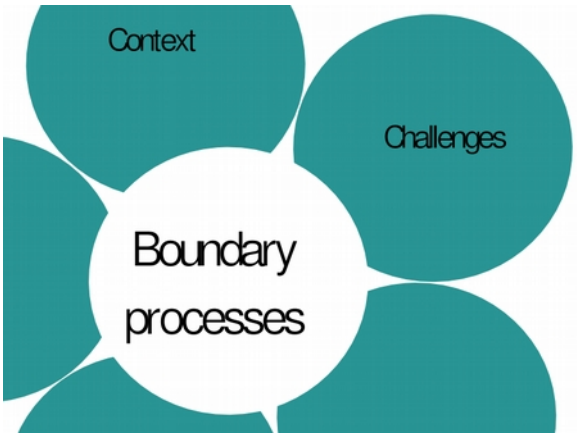
4.1.II. Boundaries

In the following I further elaborate on different characteristics of Boundaries as opposed to what makes up the CoP. The structural element Boundaries refers to where the competences and practices of the interviewees commonly encounter "different territory". Boundaries are very different in their nature, depending on the location, personal occupation and individual activities of the interviewee. For the in-depth analysis, characteristics are split into boundary processes in general and boundary spanning. While boundary processes are described by criteria that explain the general context and arising challenges, boundary spanning addresses the active participation at Boundaries. It is differentiated into three different criteria that Wenger deems relevant, namely: translation, coordination and alignment.



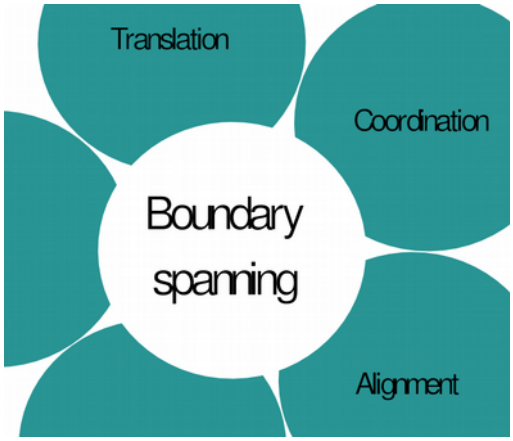
4.1.II.1 Boundary processes

Boundary processes present the many ways in which the interviewees engage with people from different fields that are not familiar with the framework of permaculture. At boundaries, tensions can arise. These can both be a challenge and an asset for learning potential. Thus, with the component boundary processes, the interactions between the interviewees with people from other social fields outside the permaculture network are described.



4.1.II.2 Boundary spanning

According to Wenger (1999), through a productive negotiation of knowledge and practices boundary spanners "can open new possibilities for meanings" (Wenger, 1999, p. 109). As a consequence, boundary spanning refers to practices that create new connections and effectively work with these. However this only works if there is also a way to moderate between these differences and the right conditions. Boundary spanning is an essential attribute of an SLS that interacts with its environment. In the following, I assess the interviewees' statements on their function as boundary spanners for the network of permaculture teachers. The detailed criteria are taken from Wenger (1999).



Boundary spanning: Translation

Boundaries are the encounters where different fields, experiences and expectations meet. Here, translation refers to the ability to find common ground and a shared language. By creating a common understanding and reasons for interactions, the tension between fields can offer new possibilities and learning potential for both sides.

The misunderstanding of permaculture as single expressions and certain methods shaped the past decades and the picture that permaculture in Germany got, owing to the rarity of good examples compared to many audible political and emotionally loaded debates.

In that sense, making the framework of permaculture accessible and translating less dogmatically what permaculture offers, namely, a systemic lens, a guideline for intentional design and a tool set, becomes more important if somebody aims to be understood correctly and wants to be addressed on the right level.

In the following, I address different issues that are of relevance in the process of translating between the fields. These mainly refer to ways of effective communication and the creation and direction of linkages.

Depending on the context, translation takes very different shapes through communication. One of it being that the word is not used while the framework and underlying principles are simply applied, integrating different aspects but not making the underlying theme explicit. This is often the case, when it is not explicitly demanded for a design according to permaculture principles in the first place but where more integration of some aspects and aesthetics are of primary interest for the customer.

“Die haben mich nicht als PK Designerin beauftragt sondern weil ich um die Ecke wohne und ich ihnen ein Angebot gemacht habe.”

“They did not contract me as a permaculture designer, but because I live around the corner and because I made them an offer.” (Interviewee 2)

However, several teachers mention the problem that although the access for instance through garden design is comparatively easy, often the customer or project partner does not request the full extent to which the permaculture framework can integrate different functions. Whether the interviewees accept the conditions depends on the context. This refers to the point that

permaculture design concepts are often not seen in their true value, considering all the functions they can integrate. The notion that not everything is immediately financially compensated makes them seem more expensive compared to projects that accommodate less functional relationships and are cheaper. This is certainly a strong reason why the integrative character in garden designs and agriculture is not often valued, neither under the economic paradigm where multi-functionally is not valued nor under the concrete market conditions.

Translating the comprehensive framework of permaculture design and the acceptance of wide system boundaries in a way that suits people with a different perception is difficult due to the topic's complexity. Currently, finding holistic solutions is something that is not socio-economically supported and is only realised through a strong relation to individual values and priorities. However, another interviewee puts it as follows:

"[Die Multifunktionalität ist] entweder ein Hindernis, oder der Grund, warum ich gefragt werde. […] Ich habe mal ein paar Jahre ganz normale Gartenplanung gemacht. Aber ich habe da keine Geduld für. Deswegen kann ich in anderen Arbeitsbereichen nicht Punkten. Denn Leute die mit nur einem einzigen Blickwinkel heran gehen, in der Regel einfacher zu Ergebnissen kommen. Aber eben auch dazu führt, dass man sagt, „danke, hatte ich schon genug, ich wollte ja was gerade was anderes."

„[The multi-functionality is] either a barrier or a reason why I am asked. […] I have done normal garden design for a few years. But I don't have the patience for it. This is the reason why I cannot score in some fields. Because people that apply only one angle are usually quicker in achieving results. But this also entails that one says: „Thanks, I did have enough of that already, I was actually looking for something else." (Interviewee 5)

So, on the one hand, the integrative qualities of permaculture design need to be demanded. According to the designer with a long experience in the professional field, this at least gained in some interest in the past years. Their planning bureau receives more explicit requests for integrated designs.

In the field of permaculture-inspired agricultural applications in Germany such as poly-culture or agro-forestry, the use of these words instead of the general framing as „permaculture" seems to better resonate, even with more conventional farmers. The recently founded Agroforst Kampagne [agro-forestry campaign] is an attempt to further use these topics to gain recognition.

Projects that encompass more of the social dimension find it increasingly easier to receive attention and recognition. This might come with the shift of the common mindset and also with the individual learning process of the interviewees, that themselves learn to adapt their language and reasoning in the context of their environment and identity. More on this aspect of individual coping mechanisms can be found in the section on Identity.

The aforementioned professionalisation and differentiation that is presently starting is a good indication of ongoing efforts to find the right language and by this translate and diffuse the knowledge and to work at borders. This is possible, as single permaculture practitioners can integrate the permaculture framework into their background. However, it is not always easy to appropriately translate these functions into a conventional context. Accordingly, it requires a certain confidence and spirit to negotiate suitable solutions. This is highly dependent on the knowledge of a certain field and a window of opportunity, in which new ideas are welcome.

„Win-win situations. In PK geht es eh darum, dass man nach solchen Situationen schaut, aber

Boundary spanning: Translation

dafür muss man das gegenüber halt kennen und dass man schaut, was kann der brauchen? Und das kann man nur wenn man aus dem Umfeld kommt. Und z. B. im akademischen Bereich geht das vielleicht auch nur, wenn man aus dem akademischen Umfeld kommt. Sonst kann man es gar nicht einschätzen. Ich denke dazu braucht es Leute die in ihrem Bereich Vorreiter sein wollen, diese win-win situation suchen und es dann auch schaffen.“

“Win-win situations. Permaculture is exactly about the search for such situations. But for this you need to know your counterpart and you need to look for what this person needs. And you can only really do that if you are from this context. For instance with the academic field it maybe only works when you are from academia yourself. Otherwise one cannot really assess the situation. I think you need people that want to be pioneers in this field and look for win-win situations and manage it. (Interviewee 4)

For this, the interviewees extend the scope of the context in which permaculture finds application in several directions. Four interviewees (2., 4., 6., 11.), mention their contact to wilderness and nature education networks, four would describe their work with external parties to be situated in the social field such as education and pedagogics (4., 6., 11., 12.), of which two also give seminars for volunteering programmes, community gardens and work with refugees. One has a editorial position on the topic of permaculture in a magazine. Two interviewees mention participation in the degrowth activities. Concerning design work with farmers and other clients, one interviewee each actively works in this field. Finally, one of the interviewees works as a consultant on participatory processes. Interviewee 1. and 12. also emphasise their connection to the social field of ecologically oriented people such as Demeter farmers and herb experts. Six of the twelve Interviewees (4., 5., 6., 8., 9., 12.) state that they are actively looking for new fields and working on translation into new contexts. Partner networks to whom several connections exist on individual and network level are the Global Ecovillage Network (GEN), degrowth, TTs and CSAs.

One aspect that facilitates communication according to the interviewees is the learning curve that comes with time and experience. Another means of communication is the conscious will to not judge other people but rather to try and understand where others are coming from and what their needs are.

“Ich denke, da gibt es einige, die können das gut vermitteln. Aber es gibt schon auch die in der PK, die eine sehr konträre Position vertreten und es auch in entrsprechender Weise äußern: Und das kommt bei den konventionellen Bauern nicht so gut an. Während, wenn man zuhört und heraus findet, was ist den wichtig bei anderen Positionen, auch die Bedürfnisse und Denkmuster und Erfahrungen... Und wenn man dann Antworten hat, sind meine Gesprächserfahrungen auch sehr positiv.“

„I think that there are some people that are good in communicating it. But there are also some that have a very oppositional attitude and also express it: this doesn't really resonate with conventional farmers. However, if you listen to someone and try to understand what is important to other people' positions, also needs and thinking patters and experiences... and when you have answers, then my experiences from discussions are very positive.“ (Interviewee 6)

This is an attitude that is strongly present in the network of the permaculture teachers. Interviewees confirm that throughout their development they had phases were they felt they have

to distance themselves more from opposite opinions. However, in the interviews it became clear that many learned ways in which to better discuss these topics. This is an important aspect to bridge boundaries and is briefly addressed in Identities.

The interviewees are very open to communicate their ideas to others:

“Außerdem sehe ich mich als Multiplikator. Ich sehe mich nicht als Missionar, sondern so wie ich PK erfahren habe, möchte ich es weiter geben. Dann kann jeder es für sich weiter entwickeln und umsetzen. Bei Missionieren stelle ich mich dar als wäre es jetzt die Wahrheit, da bin ich vorsichtig.”

“Also, I see myself as multiplicator. I don't see myself as a missionary, rather, like I have experienced it myself I also want to give it to people. Then everyone can develop it for his or herself and embed it. I am careful not to present permaculture as the truth.”(Interviewee 1)

In this way, many found their way how to communicate it well and how to position it in the other person's context.

„Die Leute sind erst einmal erschlagen, wenn man sich beschäftigt mit Umweltproblemen, sozialen Missständen. Und stehen dann da, “wo fange ich denn jetzt an?”. Dass sie wissen, “ich kann was tun, die Schwelle ist gering, ich weiß wie ich es angehe, ich kann Leute dazu holen, Wir können das kollaborativ umsetzen”. Dass die nicht mehr so viele Hürden um sich herum sehen.”

“People are first overwhelmed when they are confronted with environmental problems, social inequalities. And simply stand there: “where should I begin?”. That they know, “I can do something, the threshold is low, I know how to approach it, I can include other people, we can collaboratively work on it”. That they do not see so many barriers around themselves.” (Interviewee 4)

Still, several interviewees confirm that among the broader network, judgemental and reproachful behaviour towards people outside the network does occur. This tendency of some people from the broader permaculture community to intentionally judge the behaviour of others has probably been stronger noticeable in the past but is still an issue. This is perceived as a challenge to the ones that simply want to apply the framework in a way that integrates and takes people along with their individual skills.

“[...] wenn man Leute nicht mit Dingen vor den Kopf stößt, die sie nicht verstehen und eine Sprache spricht, die sie verstehen können, dann kann man die abgefahrensten, verrücktesten Sachen mit denen machen. Die lassen sich darauf ein. Grundsätzlich alle.“

“[...] if you do not alienate people with things they do not understand and talk a language they can understand, then you can do the craziest stuff with them. Then they engage in it. Principally everyone.” (Interviewee 9)

While some look for connections of like-minded people, especially two interviewees were more keen on the margins further away from the networks mental system. Overall, this gives a diverse orientation. Concerning the task to span boundaries, capacities are tight and bridging the gaps to people further away is still in its start. It is not yet approached strategically by the network.

Boundary spanning: Translation

Not only the question whether one should align with the conventional system are part of the discussion. While many actually see a purpose in working with municipalities and public funding in order to account for positive externalities that cannot be accounted for by commercial income, another problem is the respective recognition. One interviewee puts it like this:

“Wie ich es jetzt politisch betrachte, werden wir als Nichenakteure akzeptiert. Und wird bestimmt ganz toll gefunden, “die kosten ja nichts”. So sehe ich das. ”

„When I look at it politically, we are accepted as niche actors. It is probably viewed positively, „they do not cost anything“, this is how I see it.“ (Interviewee 1)

Thus, the direction in which the interest exists is very important. While working with people that actively look for a change works well and is based on interest from both sides, a more proactive engagement from municipalities and other project partners was not yet realised in experiences from the interviewees.

Due to its bottom-up nature, it is way easier to work with people that already have an affinity to permaculture than to actively confront new boundaries. Not even necessarily because of the experience of a refusal but simply because of indifference on the other side.

“Und das ist ein Spagat in dem ich mich befinde. Da muss man manchmal hingehen, so wie die Menschen leben und wie der Mainstream ist.“

„And that is like constantly doing the splits. You need to go where peope live and how the mainstream functions“ (Interviewee 4)

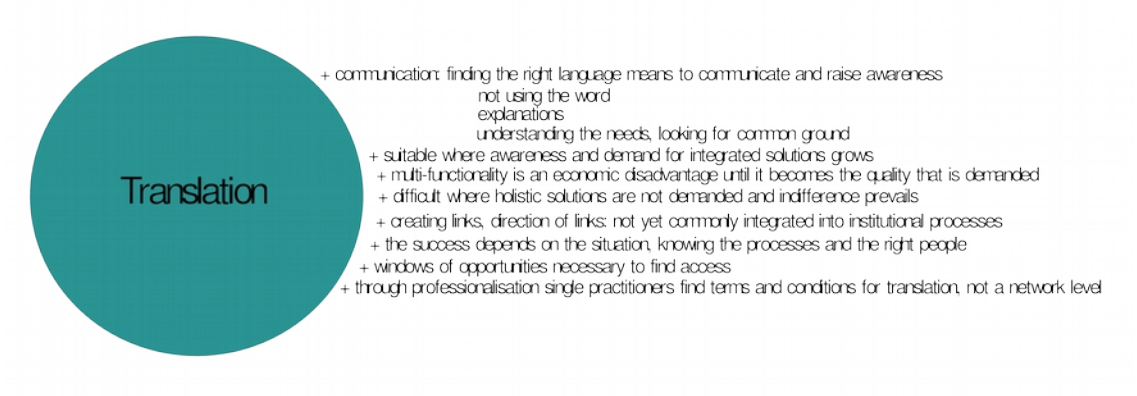
Currently, the interviewees confirm that in most contexts connections in more conventional insitutions still depend on personal connections. Knowing the process, how to get in touch and create win-win situations with people: knowing „the rules of the game“ is very important. However, due to the „unconventional“ nature of permaculture design it is not the only requirement. Especially in the fields that are less famliar with permaculture such as work with funding institutions and academia depended on more criteria in the past in order to offer points for succeessful access. Also trust in the people and mutual respect despite different understandings or simply lacking knowledge (Interviewee 8.), people in strategic positions that dare the unconventional and think beyond their usual tasks (Interviewee 11.), the right people in right places created links that currently develop. Thus, despite institutional links that slowly establish, the concrete support depends very much on emotional and intangible characterstics additional to the process knowledge.

„[...] denn es ist ja auch viel Anschubsenergie erforderlich, wenn man was Neues aufsetzt gerade mit Leuten, die nicht von selbst darauf kommen. Das haben viele ja gar nicht. Da braucht es viel Freiraum, Energie, Fördermittel, Finanzen. Oder die Leute arbeiten lieber da, wo sie sehen, da läuft es auch so, weil die Leute sind motiviert, die wollen mitmachen, mit denen kann man was umsetzen.“

“[...] because it does require a lot of energy initially if you start something new, especially with people which do no look for it themselves. Not many people have that [capacity]. You need a lot of free space, energy, funding, finances. Or people prefer to work, where they see it works, because people are motivated and want to engage, with whom you can really create

Boundary spanning: Translation

something." (Interviewee 4)



Boundary spanning: Coordination

Coordinating actions across boundaries refers to the community's ability to find ways to organise and distribute actions that bridge the boundaries.

As becomes visible in the many fields in which translation actually happens, the permaculture teachers and practitioners are busy at different edges of the movement to share knowledge and work together with other fields and disciplines. This depends on the respective individuals and their contacts. As they are single actors spread over a wide area, the interviewees are basically working on their own on these interfaces, lacking a wider strategic approach and support. Commonly mentioned as a reason, is that the network currently lacks in capacity outside the internal organisational fields.

„Also ich denke, da muss noch strategisch aufgebaut werden. In der deutschen Bewegung ist das auch erst einmal nicht der Fokus".

„I think it has still to be built up. In the German movement it is also not yet the focus." (Interviewee 4)

"Da gibt es auch Strömungen, wo wir noch nicht so wahr genommen werden, die aber total aktuell und relevant sind für die PK Bewegung. Da gibt es immer Einzlene die sich dafür interessieren, aber es fließt noch nicht so ein in unsere Arbeit." (Interviewee 10)

"There are fields in which we are not visible but which are totally relevant for the permaculture movement. There are single actors that have an interest, but it does not find its way into our work yet." (Interviewee 10)

Many contacts, be it media or from science are establishing on demand from outside. The interviewees can simply react to these calls. However, on a strategic level, there are not yet

Boundary spanning: Coordination

established routines that deal with these boundary processes.

„Es kommen immer mal wieder Anfragen, alle zwei Wochen wegen einer Master oder Bachelorarbeit. Aus jedem Berufszweig. Die kommen dann, suchen wer plant so etwas und stoßen auch auf uns.“

“Now and then, there are requests, every other week because of a Master or Bachelor thesis. From any background. They look for who plans something like that and find us.” (Interviewee 3)

The direction in which the PKA is looking for participants shows that they are currently not approaching new fields pro-actively.

“Wir machen aber nicht bewusst Werbung. Wir gehen nicht bewusst auf andere Institutionen zu. Wir arbeiten im Moment noch mit dem was zu uns kommt. Das hat sich so entwickelt. Es funktioniert. Manchmal sind vereinzelt Leute drin, die in der Stadtverwaltung arbeiten und es ganz interessant finden und da könnten wir auch gezielter auf die Leute zu gehen. Aber ich glaube, das ist wiederum eine Kapazitätenfrage.”

“We do not advertise consciously. We do not approach institutions consciously. At the moment we work with what approaches us. It developed in that way. It works. Sometimes there are people from city councils and find it interesting and there we could approach people more targeted. But I believe it is a question of capacity.” (Interviewee 10)



Boundary spanning: Alignment

Alignment across the boundary shows to which extend different fields find common ground. This is very important for a project in order to become effectively realised.

However, whether this is realised is depending on the context of the respective boundary. A problem upfront is surely that often other parties simply do not know what to expect. As many contacts are currently only establishing and examples are rare, every contact is a new balancing act between needs and wants. In general a good approach that is used by many teachers is to

Boundary spanning: Alignment

focus on what is the common effect different parties want to achieve and the search for win-win situations. However, this also gives rise to the question of power distribution in a project. For instance with the acquisition of free space for community gardens a common problem is the time span for which such a space is given. As long as permaculture teachers and social projects are not institutionally more recognised for their benefits this remains a delicate issue.

If permaculture teachers engage with municipalities and other actors, the slow pace and also the inaccessibility of formal actors becomes a challenge. This is also accompanied by some mistrust from the side of municipalities and other public actors, that simply do not know what to expect and have difficulties to agree to something they did not experience before.

"Das sind halt Mühlen die sehr langsam mahlen und das dauert halt sehr lange. Aber ich glaube auch, dass die Weichen gerade umgestellt werden und auch die Leute in den Ministerien offen sind. [...] Aber es ist eben immer auf das Engagement / Ideen einzelner Leute angewiesen, die sich dafür auch ein bisschen einsetzen und nicht nur ihren Job machen."

"These are mills that grind slowly, and it takes a lot of time. But I believe that currently some things change and that also people in the ministries are more open. […] But it also depends on the engagement and ideas of single actors, which are a bit more concerned and do not only do their job." (Interviewee 4)

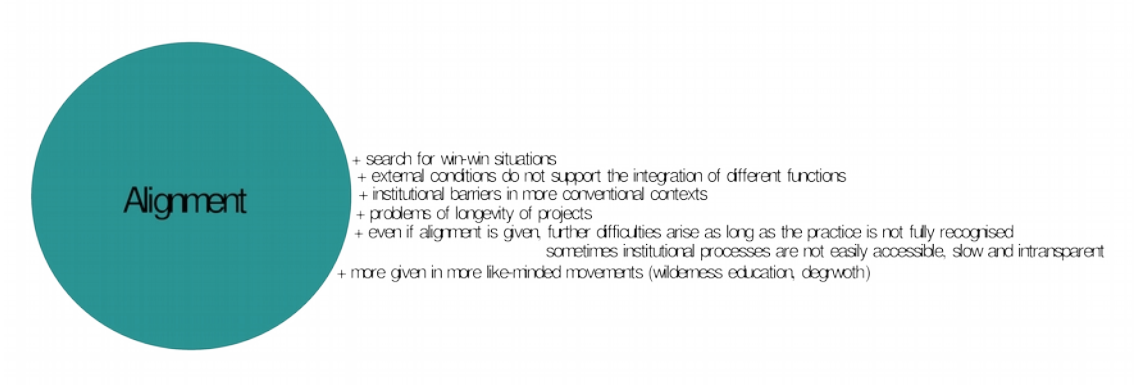
Another problem the interviewees confirm that if institutions agree to act benevolent, this often comes with personal ties and sympathy. In this way, it can work. However, independent from these additional "doors", no suitable institutional process has been shaped. From experience one interview reports that one way to counteract this circumstance is to build up good public cases. This creates local support for the project. For this, contectual undestanding is required under which conditions necessary exceptions can be made. This is far away from reliable processes in which both parties know what to expect.

One challenge for the interviewees and other practitioners alike is certainly that Germany as a highly specialised country with low prices and high wealth standards does not offer easy conditions for permaculture as an integrated agricultural approach or a way to reduce costs of consumption. In this way, which efforts and directions of applying permaculture in Germany are truly effective is an issue that concerns some interviewees.

"Aber als Berater komme ich dann zu den kritischen Punkten, dass sie es mit hohem Aufwand machen und dass es über einen kurzen Zeitraum mit viel Fördergeldern oder Praktikanten läuft, aber dann war es das auch wieder oder sie sich selbst ausbeuten […] Versorgungstechnisch lohnt es sich nicht. Gestalterisch kann man etwas machen, auf eine interessante Art und Weise, aber, […] dass es sich wirklich lohnt das oder jenes zu machen, ist es nicht unbedingt."

„But as consultant I occasionally enounter the critical points, that it sometimes works with a lot of effort and that it runs for a short time on funding or interns but then it ends again or they have to exploit themselves. From a point of view of provision it does not pay of. You can design something in an interesting way, but that it really pays of that you do this or that is not really given." (Interviewee 5)

Boundary spanning: Alignment



4.1.III. Identity



The structural element Identity is thus characterised through the perceptions of the interviewees. While building our identity we constantly deal with boundaries and define these in relation to our own position. In that way, it strongly relates to the interesting relationship between how the CoP affects the individual and how this shapes boundary processes and vice versa. Looking into the dynamic interactions with the CoP, the question is, how does the identity contribute to situated learning, the negotiation of meaning (does it allow for it?) and trust. This is mainly assessed in the dimension Home base. On the other hand, the criteria Multi-membership also looks at, how the individual relates to the actors outside the permaculture network. How do they manage with the embeddedness in their local structure and how do they deal with discrepancies that arise?

4.1.III.1 Home base

Home base

A home base guides the member of a CoP along its professional development, through support from peers that help to refine practices and competences. It is the space in which members can engage with peers, exchange experiences and define and develop necessary skills. In connection to their home base, members develop necessary skills, practices and competences relating to a CoP.

As mentioned before, the interviewees are constantly exposed to different communities with different attitudes, perceptions and underlying value sets. Interviewees confirm that they themselves went through different times along their learning pathways in the past. In the past some interviewees had phases were they felt they needed to distance themselves more from opposite opinions. Many actually went through a personal state in which they felt torn between their own ideals and being part of a system whose values they do not support. Many mentioned that by now through their individual development, the work and experience with the network and also the shift of mindset of the general public they feel more recognised and accepted than in the previous years.

Using the permaculture framework and getting to know like-minded people in the network supported them to further engage in the topics around permaculture. The social ties between people that practice permaculture are clearly perceivable in the network of the interviewees and also a driver for ongoing engagement, despite the challenges, problems and doubts.

„Und wichtiger waren eigentlich die Leute, denen ich begnetet bin, die mich begeistert haben und wo ich das Gefühl hatte, von denen kann ich echt was fürs Leben lernen.“

„And more important were the people that I encountered and that inspired me and gave me the feeling, from them I can really learn something for life“ (Interviewee 3)

Relating the meaning of the framework to the individual, it is perceivable that it allows the interviewees to find their way into action through a shared understanding, common approach and practices. This will be part of the following analysis in many ways. Having the community of permaculture practitioners and by this feeling supported in one's own decisions is a strong motivation.

“Die Motivation ist aber schon auch Teil einer CoP zu sein, einem Netzwerk von Leuten, die ähnlich denken und ähnlich an Sachen heran gehen.”

“The motivation is also to be part of a CoP, a network of people that thinks alike and approaches things in a similar way.” (Interviewee 2)

Many stress the creative process that is facilitated by the framework of permaculture and which helps them to find ways to express themselves:

„Ich glaube, wenn man selbst kreativ ist, schafft man sich auch sein Feld in dem man was machen kann. Und das braucht aber auch diesen Unternehmergeist. Ich weiß nicht, ob den jetzt jeder hat und ob man den automatisch bekommen, wenn sich mit PK auseinander setzt weil es setzt ja schon viel Kreativität frei. Aber es hat halt auch mit der eigenen Biografie zu tun.“

Home base

„I think if one is creative, one also creates a space in which one can do something. And there it also need a kind of entrepreneurial spirit. I do not know whether everyone has that or whether one develops it automatically when one engages in permaculture because it does release a lot of creativity. But it also relates to the own biography.“ (Interviewee 4)

This is a dominant statement that several support. The very individual way the framework of permaculture can be integrated in one's life supports people in finding their own way to express themselves. However, what is addressed in many quotes is the prerequisite that individuals are also self-reliant and individually able to draw connections in order to find effective ways to express themselves. Through the very practical and personal integration of permaculture practices, each member is responsible for the personal development. It is clear, that both individual curiosity and community support together guide members and allows them to further differentiate their skills and profile along their own personal way.

„Ja, auf jeden Fall, einmal Ermutigung. Dass ich weiß, “wir sind viele wir sind überall”. Manchmal sitzt man ja schon ein bisschen alleine herum, wenn man seine Sachen bearbeitet.”

“Yes, indeed, this encouragement. That I know “we are many and we are everywhere.” Because sometimes you sit there all alone and do your work.” (Interviewee 4)

The permaculture framework and the common spirit that is perceivable helps the interviewees to define appropriate practices, feeling they can find ways to contribute with their skills to a progressive development. In this way, the interviewees display an important criteria of a community in the relation to individual identities, namely, the ability to enable action and participation of individual members independent from in which environment they find themselves.

“Das ist für mich die Herausforderung, das macht auch Spaß. Ich bin halt so ein bisschen alleine in dem System. Wenn man sich umschaut, ich bin da halt weit weg von.”

„That's the challenge and that's also fun. I am simply all alone in this system. When you look around, I am very far away from all this.“ (Interviewee 8)

The connection to the framework of permaculture and the values that the interviewees internalised makes it also possible for them to work in environments that do not support the their ideas. Especially concerning the starting diversification of professions relating to permaculture, members can suffer from isolation in their own professional pathway. Still, due to the strong confidence and willingness to learn with the surrounding, this is accepted and even seen as a learning process.

„Hier ist es eher, dieses “jetzt erst recht!”. Leicht ist es nicht. Identität durch Abgrenzung. Ich lerne dadurch ein Bewusstsein für mich selbst, was für mich bedeutend ist. Ich muss mich ja immer wieder rechtfertigen. Das ist total hilfreich. Dann muss ich mir immer wieder klar werden, warum ich etwas anders mache als die Kollegen. Warum es für mich Sinn macht “radikal” zu sein. Aus deren Sicht. Aus meiner gar nicht.“ (Interviewee 8)

„Here is is rather a „Now especially!“ It is not easy, identity through draing boundaries. I learn to become conscious myself about what is meaningful to me. I regularly have to justify myself. That is very helpful. Then I constantly have to re-consider why I do things different to my

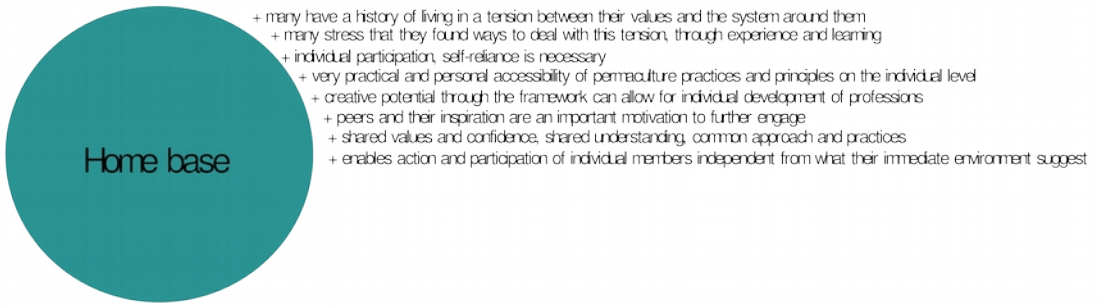
Home base

collegues. Why it makes sense to be to so „radical“ - Well, from their point of view. From my point of view not at all.“ (Interviewee 8)

All in all, the network and its benefits for the interviewees makes it worthwhile to stay connected even though it can be difficult at times and the distance to contacts in reality is sometimes far. However, many different communication practices such as the online and telephone communication make it possible for members to keep the ties that can be strengthened on duringn orjects, or on events and meetings.

“Ja, das ist mein virtuelles Dorf.”

“Yes, it is my virtual village.” (Interviewee 7)



4.1.III.2 Multi-membership

Multi-membership

Wenger says, “Our identities are nothing we can turn off” (Wenger, 2000, p. 239). In this way, being member in different communities continuously shapes our learning processes, being constantly switching between communities with which we identify to a certain extent and boundaries. Being a member of a certain community also influences our behaviour and learning processes in other communities.

The own conviction and the common spirit motivates the interviewees to engage into the further dissemination of the permaculture framework although it is not always easy to find public acceptance and recognition or even a professional job. However, the interviewees have at least partially found ways to also receive financial recognition of their application of the permaculture framework in many different professions. The interviewees are teaching and simultaneously working as permacullture designers and landscape planners, networkers between disciplines and interest groups, scientists, editors, and also support themselves through growing part of their food themselves. This usually diverse combination of professions is also part of the permaculture

Multi-membership

framework: „Use and value diversity“. In this way, the permaculture framework and also being member in the permaculture network can be easily integrated into very different ways to lead one's life and still stay connected. This is an important attribute of the Identity component of a community. Also, perrmaculture teachers and practitioners in the network have found ways to treat each other also in their work practice which makes it easy for them, to bring in their own identity. In this way, it is

“Was ich aber spannend fand, bei dem PDK damals. Dieses Soziale, dieses andere miteinander Umgehen. [...] Einfach die Art anders miteinander umzugehen und wertschätzend miteinander umzugehen. Und dass es immer so eine Lösungorientierung gibt. […] Und man macht dann bei Treffen eine “wie gehts Runde”, Also man kennt sich, auch wenn man sich nicht so oft sieht. ”

“What I thought was intriguing in the PDC back then was this social aspect, this treating each other different. Simply this kind of treating and valuing each other. And that there is always such a constructive approach. [...] And you start with a ““How are you?” round”, so you know each other, even though you do not meet regularly.”(Interviewee 7)

However, in these interviews it became clear that many learned ways in which to better discuss these topics. Over the years, the teachers found different ways to deal with the divide between personal values and what their surroundings suggests is right. This is an attitude that is strongly present in the network of the permaculture teachers.

Talking of multi-membership and the strength of ties to a community, on an individual level what cannot be neglected is the challenge that the interviewees face concerning the employment options as permaculture teachers and practitioners. A common challenge to everyone engaging in and working with permaculture are questions of time, resources and priorities.

If somebody aims to practice permaculture on a professional basis present examples are limited. The difficulty that comes with self-employment and the financial burden are an important factor. Germany as country of specialised disciplines offers difficult conditions for short-term success of permaculture. Additionally, entrepreneurial spirit is a skill that people need to develop in order to gain recognition in her or his profession. In this way again, successful multi-membership again depends on the individual's competences to really integrate the framework with her or his background. Looking at the teachers' employment profile it is visible that they usually have a diverse set of if streams of income. Not all of them with a connection to permaculture. It is comparatively rare that only one occupation is sufficient. This does not mean that a single occupation is even desirable. However, several interviewees mention the challenges to self-organise a steady flow of income that allows to satisfactorily concentrate on their profession. In this way, as mentioned above, they are usually part of several forms of employment.

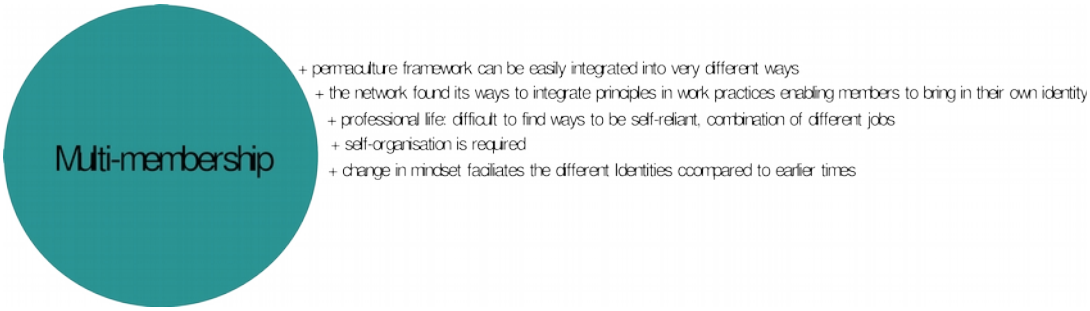
Extending the scope and interaction to the broader community, more issues add up, also projecting on the interviewees domain. What becomes less of an issue, but is still a challenge is the lack of recognition and sometimes even aversion in public perception that the interviewees face. In earlier times, permaculture was quickly related to radical and provocative behaviour of people that simply were against everything conventional. However, due to more good examples from around the world and growing awareness about the integrative functions of the framework this prejudice seems to decrease.

“Dadurch dass die PK ein ziemlich großes gesellschaftliches Interesse im Moment hat und

Multi-membership

dadurch auch eine Professionalisierung durch erfährt. Und das war vor zehn Jahren noch anders. Da hat man ein bisschen mehr darüber gelacht."

"Because permaculture is witnessing a big societal interest at the moment and a professionalisation is currently happening. That was different ten years ago. Back then, people have laughed more about it." (Interviewee 4)



4.1.IV. Evaluation: The interplay of the three structural elements

The questions at the outset of the in-depth analysis was whether the network of people that draw on the framework of permaculture design can be conceptualised and described as a SLS, specifying which characteristics it displays.

It was assessed whether core practices exist and how they link to the development of a CoP. Furthermore, it was investigated which boundary processes are active and which challenges these raise. It was also explored, how both the interviewees and the overall network perceive and react to boundaries, meaning people that are not familiar with the framework of permaculture. Finally, the structural element Identity further illuminated criteria that show how the individual combines aspects of the CoP with experiences from other contexts.

Applying an SLS lens, the interviewees, all teachers of the framework, certainly display several characteristics of a CoP. A solid base is provided by the interviewees' deep conviction that the three ethics build a basis for decision making. Despite its broad meanings, different ways to interpret these and different understandings that necessarily come along, the acceptance of this common basis ties members of the network together. Trusting in this common basic understanding supports them to go their way, to confront different opinions and to try out new approaches. Active participation through constantly and individually applying the framework in their daily life is another important characteristic of many interviewees. Through both aspects, the idea of CoP also shows that the interviewees link

both in virtual and practical terms to their internal network. Having in common the systemic and connected thinking, guided by ethical principles and common practices in which they apply the permaculture principles, they certainly share core practices.

Among many others, these are the emphasis on individual competence and practice of members of the community and reflexive social participation in the community. This is also expressed in the constructive problem solving approach that has been established in the PKA. It is also clearly visible that the permaculture teachers and judging from their narrations also many in the network, are eager to experiment and learn. In that way, a reflected approach, invitation for feedback and learning processes are certainly part of the community. Still, here it can and must be differentiated on many levels and to many degrees in which learning processes are actively cultivated.

As another attribute of core practices, the open and cooperative sharing of values, experience and expertise in both formal and informal ways among the community are strong contributors to the social quality of learning processes.

Interviewees share knowledge and meaning and also developed it further in the past. Belonging to the network responsible for education, they also further developed the way they share knowledge with their students by means of an educational reform. The ongoing organisation of the PKA shows that they also learn together how to develop an organisational structure that fits their needs as a social organism. This was stated as a good example by several interviewees, referring to the development of a good organisational structure that fits the needs based on permaculture principles.

Also, factual input and extending the focus does happen in smaller, self-organised subgroups. This is a sign that the network is looking for new directions. On the other hand, owing to the complexity, the de-central nature of the network and the succession of engagement, it is difficult to accumulate and keep this new knowledge with a more strategic approach. This makes learning activities a diverse approach, that could get more focussed by a more defined strategy and coordination under which efforts can diversify but still stay connected. If this is desired, a certain capacity needs to be build up and maintained in order to enable individuals to commit and contribute to the development of the community.

In the CoP dimension internally tensions can arise due to people's different attitudes in this diverse field. However, the culture of permaculture teachers is very open and inviting for discussions, aiming at solutions that everyone can go along with. This has proven effective in the past. The strong sense for experimenting and learning from feedback, problems and mistakes does its additional goods.

Boundary processes are very diverse and regularly challenge the interviewees in their mindset. However, having the connection to the CoP supports the interviewees to further develop their competences towards the CoP.

A quality of as well as a challenge for the network is the freedom that members have. It sometimes only loosely links individual experience and social competence, keeping some learning loops with the individual. This made it difficult in the past for the community to accumulate knowledge beyond the focus of the education programme and internal organisation.

Being a grassroots initiative that is geographically spread, the mind, the capacity and time for coordination is restricted. Strategic events and discussions are hold, however, these strongly relate to internal organisational topics. Several interviewees confirm that this is due to capacity reasons. This makes it difficult to approach and reach out to other sectors. Respective difficulties arise, for one reason, because translation work at boundaries simply needs capacity in form of knowledge, resources, contacts and time.

Another reason not internal to the network but an intrinsic aspect of the complexity of permaculture is its disposition to lead to many different interpretations, applications and also misunderstandings. This represents a key challenge to an effective communication with external actors. Due to the high tension between what the interviewees practice and preach and what the surrounding system represents, many additional challenges arise. These express themselves on different levels, also reflecting on the CoP and Identity dimension. The many ways to misunderstand the framework and meaning of expressions of permaculture and the indifference towards the strong ethical orientation are main points.

Translation at boundaries starts to develop with a wider scope, however, this is closely linked to certain individuals. Here, alignment and compatibility strongly depends on the context. Looking at the Identity dimension it becomes clear that the network of permaculture practitioners is both a motivation and means for the interviewees to further engage in permaculture. In this way, it is visible that the building of community and developing and sharing of common knowledge and practices is strongly supported by feeling related through shared values, understandings and meanings. Gaining in supporters, further defining internal processes and having a more sympathetic environment, the network is certainly spreading its antennas. It is slowly building sub-communities that look for new areas in which a more thorough translation through differentiation and specialisation can open up perspectives.

Tables 4.1.4 - 4.1.6 summarise the key findings concerning the different structural elements and their characteristics.

Table 4.1.4: In-depth Analysis - Results: CoP

CoP – characteristics	**Criteria**	
Core practices	• Definition and meaning	• Very different definitions exist, core definition given in framework that aligns all interviewees

CoP – characteristics	Criteria	
	• Competence	• Several theoretical and practical competences integrated in the framework • Emphasis on individual learning, system thinking and process understanding • Principles such as cooperation and integration are core values in the PKA and PKI
	• Repertoire and relevant knowledge	• PKA-intern certain values, attitudes and approaches are shared, steadily in development through the PKA, everyone can contribute with individual skills • Importance of individual learning: responsibility to collect the knowledge that is required and document developments • No designated capacity to accumulate learning on a network level in order to keep and develop it • No network approach to integrate external expertise, up to individual initiative
	• Common goals and visions	• Diversity of goals, alignment in the three ethics
	• Learning energy	• Strong emphasis on the individual level; with an internally directed perspective on the network level: organisation and education • Less apparent network learning energy towards external contexts and input
	• Internal challenges	• Capacity: Self-organisation of employment, matter of time, resources and priorities • Diverse wider network of permaculture practitioners with different values and approaches; integrative character more apparent in close internal network: different opinions on professionalisation and funding
Membership	• Social capital, trust and belonging	• PKA and PKA network relate more specifically to shared values and understanding, the network and contacts support ongoing engagement of members, • Common understanding and like-minded people, experiencing mutuality strengthens the ties and deepens trust • Ambivalence due to strong ideology and emotions
	• Network characteristics	• Growing network

CoP – characteristics	Criteria	
		• Divers but homogeneous: Many different backgrounds with very similar orientation and attitude • Question concerning the long-term connectivity to members • Engagement depends on own initiative • Sub-communities slowly form • More segregative and judgemental attitude of some participants in the broader network
	• Distance and artefacts	• De-central organisation, often long distances and only occasional meetings • Well organised with communication processes and tools to deal with distance
Coordination	• Coordination	• De-central, coordination on individual level, no coordination for broader strategies on a network level perceivable

Table 4.1.5: In-depth Analysis - Results: Boundaries

Boundaries – characteristics	Criteria	
Boundary processes	• Contexts	• Manifold experiences with people from other backgrounds and with a different mindset, in private and professional life • Wish for more examples that people can simply experience
	• Challenges	• Complexity of the framework, different values and behaviour supported in society (quick fixed, competition, disconnection, specialisation, efficiency), misunderstandings, effective communication is difficult, institutional organisation and economic system does not account for multi-functionality
Boundary spanning	• Translation	• Different coping mechanisms, awareness grows, where there is indifference in institutions translation is difficult, understanding the context is crucial to integrate new ideas, access to institutional processes comes over individual contacts and win-win situations • through individual professionalisation terms and conditions are defined, growing field
	• Coordination	• Currently not focus of the PKA network

Boundaries – characteristics	Criteria	
		• Individuals and small groups create linkages to their contacts: knowledge sharing and coordination happens on an individual level, but a network approach is not in the focus
	• Alignment	• Not given with many conventional fields • If alignment exists, problems of compatibility arise: institutionalised processes are sometimes slow, intransparent and not easily accessible • Alignment with other like-minded movements is more given and interest exists

Table 4.1.6: In-depth Analysis - Results: Identity

Identity – characteristics	Criteria	
	• Home base	• Strong link to individual practices helps to embed the framework in each individual • Creative potential to embed the framework individually in a profession • Strong ties to the network through shared values and understanding, common approach and shared practices • Network connection supports action and participation of individual members independent from what their immediate environment suggest
	• Multi-membership	• Network-internal ways to integrate principles in work practices supporting members to bring in their own identity also across distances • Professional life: difficult to find ways to be self-reliant, combination of different jobs, self-organisation is required

4.1.V. The three modes of belonging

After a detailed description of different aspects that play into Wenger's structural elements, the three modes of belonging are applied. This also aims at offering some orientation based on the results of the analysis. According to Wenger (2000) the three modes of belonging can give guidance for relevant points, opportunities, possible directions and also ways to focus the efforts.

4.1.V.1 CoP and the three modes of belonging

Concerning the CoP, Wenger has specified Joint enterprise, Mutual engagement and Shared imagination as driving forces in the development of the SLS.

Joint enterprise

The CoP builds the container for knowledge, shapes learning events and processes and defines what is "competence". Each CoP has its own degree to embody and maintain learning processes, so to say "a spirit of inquiry". Wenger calls this learning and development Joint enterprise.

The permaculture principle "Small and slow solutions" relates to the fact, that processes can be small and slow, but add up and stimulate change over time. Several interviewees stated that this kind of trajectory through more concrete strategies that guide the process is currently not yet commonly visible. Starting to define the vision and the mission, the PKI is going in the direction to provide this structure (alignment). For the following formulation of targets it might be a good advise to look into ways that can bring people together with their own interests and topics and still give them the chance to feel that they work more effectively and concrete on different functions such as building up knowledge (also through factual input from other fields), boundary spanning and translation to different fields in order to facilitate functional relationships also between the members.

This might also support that participants find easier access, stay with the organism and can contribute easier (engagement), as it becomes more concrete for each person what they actually can contribute (imagination). The independent learning that is a prerequisite in the permaculture education programme sets individuals free to apply their skills ans knowledge according to their abilities and preferences. However, for this to happen in a way that it is also of support the CoP of permaculture practitioners individuals also need to have ideas how this can be realised. This is developing in its own time. Alignment, imagination and engagement are reflexively shaping each other. Without being aligned enough under a common direction and able to imagine concrete steps that are helpful to fulfil the functions, engagement easily stays at the individual level and does not diffuse into the organism's experience and knowledge.

On the other hand, engagement brings about new challenges and issues that are feeding into the component of imagination and sometimes make it necessary to adjust strategies. The orientation of the interviewees to work with principles and frameworks rather than rules and facts is a base that can allow for flexible approaches, still serving a bigger picture.

Gaining more capacity is also a function of finding the right way to support the work on a community level. Here, diversity of incomes as support is also a good principle, but should allow for covering functions and distribute them effectively such as organisation, education but also guidance of the organism.

Having events that are held with bordering organisations be it from the degrowth movement, wilderness education or even from further outside such as municipalities or organisations from the agricultural or the process consulting field can open up these fields for common imagination. Embedding the evaluation of former projects and the functions of alumni are good ways to link participants to a history and give them the feeling of the succession of the organism on a bigger scope than their individual perspective. Directing the focus of engagement also to building up a feeling for interfaces at the margin of the organism through exchange programmes or concrete projects can help to identify next steps and actions that can be taken with more support from other organisations.

Mutual engagement

A community is as strong as its sense and effect of community allows for. This is generated over mutual engagement, practising and effectively interacting with each other. It does not only refer to physical encounters and interactions but also to the trust to individually contribute to the common enterprise. This engagement, being physical and more abstractly connected, sharing knowledge and different perspectives as well as abilities and competences also gives the community the quality of its diverse members' skills. These are shared through mutuality and motivate the individual to further participate and contribute for the bigger picture.

In their past, some interviewees state that they had troubles with certain interpretations and attitudes. The body of the organism certainly grows and it seems that despite difficult times also the structure is looking for a good shell that allows for the special way to cooperate with each other. Having further developed the social part of permaculture in the past decade, social capital is very rooted in the organism. Principles concerning cooperation, observation, personal reflection and negotiation are an integrated part of individual as well as community practices (engagement). With increasing numbers of participants also in organising and coordinating positions within the organism, trust in the internal processes can grow. With the change in public perception, the organism might have the chance to direct the focus of attention to interdependencies and dynamics on a bigger scope than internal organisation and the education programme (imagination).

It is good to keep in mind, that for an organism to grow qualitatively rather than only quantitatively also different functions and functional relationships need to be recognised. All kinds of skills and competences are required, coordinators, networkers and boundary spanners, not forgetting people that document and care for the core processes, used artefacts and the history. However, this can only happen if the organism finds a way to distribute and share these functions in ways that individual capacity allows and that the collective can give the frame for. Likewise, it becomes apparent that covering functions and distributing them effectively among members in order to work together at boundaries did not yet happen in a way that is present on the network-level. The willingness to better connect is present but currently it depends on individual members to take initiative, which itself highly depends on the capacity each person is able to give. This is closely connected to guidance both in form of alignment and finding the right enabling structures that can support individual work in favour of collective goals.

Shared repertoire

A community's development depends on its ability to critically reflect on its own repertoire and practices. How reflected on and aware of its repertoire a CoP is, shows how it understands its own state and is able to uncover assumptions, identify patterns and become aware of possibilities for further development.

The PKA has been described as "social and economic garden", this is a strong representation of what the permaculture network stands for. The shared repertoire describes the means by which a community functions, is hold together but also whether and how it allows for self-awareness.

Due to the situatedness of many people in another locality, the shared repertoire is important to keep members close to each other even if geographically distanced. Most interviewees confirmed that this works well. Their shared practices, similar understandings and unique language only further supports this, in this way, their shared repertoire aligns them despite long distances and different professions.

Having a healthy mixture of events that cover internal as well as external relations in order to further advance the repertoire is very important for a community. This is also in development. In the future, nurturing the collective approach to constructing show cases, establishing relationships and learning from what has already been done can be directions for the organism to aim for, if a frame is provided that allows the development of the respective capacity.

Still, the pioneer's work at boundaries can give rise to different learning processes, both in terms of understanding how to deal with and approach boundaries but also between the parties that are involved at the boundaries. Making these individual experiences and knowledge available, keeping it in the network and developing it over time to suit the SLS of permaculture teachers and the broader network of practitioners can help each individual to approach boundaries with more guidance.

Looking at the criteria of ecosystems many interesting points arise. An organism has its boundaries. However, when it grows, also its boundaries can extend. For this, the shared repertoire can also be extended from individual practices and a shared language to more community-related functions that enable individuals to participate in the community organism. This can only happen with a community approach to the CoP's imagination: trust and interest in the common goals and process steps on the way. Integrating components into the shared repertoire that keep in mind, document and learn from the past as well as offer and elaborate perspectives onto the future can help with this.

4.1.V.2 Boundaries and the three modes of belonging

Coordination at the boundaries on a broader level does not take place yet. Networking is done and the interviewees have their own contacts to different fields also in their professional environment, but the interviewees confirm that there is no network-internal approach to it.

Being torn between many different developments in the growth of the network, both adapting knowledge to be of use at boundaries and on the other hand to bring in expertise and experience from other fields are part of the learning process of an SLS. Through active engagement with boundaries actually many of the interviewees already manage to feed in their knowledge from permaculture into different boundary processes. Individuals take it on themselves, which on the one hand allows them to do what they consider good ideas fully able to rely on their expertise and experiences, on the other hand they are quite lonely in their attempts and some wish for more knowledge exchange and cooperative work with others that engage in similar ventures.

Concerning the alignment with partners at the boundary, there are several problems. Often other parties simply do not know what to expect. Focussing on what is the common effect different parties want to achieve and looking for win-win situations is one way of the interviewees to deal with the respective context. However, if power distribution is uneven and processes are not institutionally established, as is often the case, longer term cooperation remains a delicate issue. As seen in the situation with municipalities, the inaccessibility of formal actors becomes a challenge. Often joint projects depend on individuals that act benevolently. This is both an opportunity for changes and a barrier, as, so far, each time it depends on the situation and the contact person.

Additionally, a challenge for a more common imagination is certainly the current economic paradigm that often restricts a recognition of social and ecological benefits. On the other hand, this challenge can turn into an advantage if parties are looking for quality and integrated, multi-functional solutions. Concerning cooperation with either their local network or other networks, imagining what can be done at boundaries is more tangible for the interviewees. This can open up new fields of knowledge.

4.1.V.3 Identity and the three modes of belonging

With the element of Identity, Wenger directs to a community's ability to support its members in different ways in developing a convincing practice of the community which they can embed in their life. To link and stay connected to its members is an important trait for a community in order to allow for the ongoing development with and through its members. For instance, Wenger writes (2000, p. 242) „our identities shape the social structures we live in“. If members of a community feel taken seriously and appreciated for their background and skills it is easier for them to also engage in a productive way and effectively bring in their competences.

Concerning alignment, what the interviewees confirmed is that they are aligned through the common understanding and simulatensously the opportunity to individually apply the framework of permaculture. Additonally, the network found ways to integrate principles in work practices, supporting members to bring in their own identity also across distances.

Likewise, engagement in the network is open to everyone. However, engagement across communities is more difficult if one is not accepted or cannot feel at home in mainstream society. It is still a challenge, to find ways to be self-reliant in the professional field.

Conerning the imagination, the network is certainly a big support for the individual. On the other hand, the strong difference to understandings and practices of the surrounding pose challenges. However, in the past years, the external mindset changed towards more understanding compared to rather opposing and judgmental attitudes before.

4.1.VI. Intermediary summary

The first question at the outset of the in-depth analysis was, “How can the permaculture network be analysed as a conceptualisation of Social Learning Systems?”. The network of permaculture teachers has been conceptualised as an SLS that displays core practices and boundary processes, which meet at the individual identity of each interviewee.

Core practices where analysed which resulted into their very own constellations of joint enterprise, mutual engagement and share repertoire. Boundary processes and identity were assessed using the three modes of belonging: alignment, engagement and imagination.

In this way, the network of teachers certainly functions as a form of an SLS displaying many characteristics of a CoP, having both strong core practices in form of alignment, engagement and imagination and active boundary processes. However, boundary processes are less guided over network dynamics. They are more linked over strong individual ties. Table 4.1.7 offers a short summary of the different points that were raised above.

Table 4.1.7: Intermediary summary: The three structural elements along the three modes of belonging

Boundaries – characteristics	Alignment	Engagement	Imagination
CoP – Joint enterprise	• Broadly aligned through ethics, more strategic alignment that allows concrete joint actions is currently lacking	• Everyone can participate, whether these activities build up through joint efforts is less clear	• Very intangible, which offers little guidance for concrete decisions
CoP – Mutual engagement	• The structures flexibly develop, depending on everyone that engages. To keep people aligned in a network, also the capacity and frame needs to be suitable to provide for the tasks that come with it	• Framework and open space allow for each individual to engage with individual skill	• Vague on the network level, which gives space for individual creativity which is individually very free
CoP – Shared repertoire	• Very perceivable, despite disagreements: the spirit, common understanding and approach support sharing and developing of knowledge	• Present on both individual and network level	• Very intangible, integrating experiences from the past and perspectives on the future on the network level might be of support for each individual
Boundaries	• Degree of alignment differs at different boundaries, easier were common ground is more perceivable, less clear and balanced in institutional contexts, often depends on benevolence of single actors	• Slowly developing in a more explicit way	• Current economic paradigm as a barrier for common imagination • Easier with like-minded networks
Identity	• Alignment is given through common understanding and practices • Alignment in mainstream society is less present due to different values, understandings and practices	• Engagement in the network is possible • Engagement is more of a challenge to combine values with mainstream society and embed it in professional environment	• Network supports shared imagination • Imagination is more difficult in mainstream society, however, lately, the common mindset changed positively

Chapter 5 Discussion: Permaculture as a transition niche

In this chapter I discuss in which way the lens applied in the in-depth analysis is a useful add-on for the study of niches that promote social change. For this, I relate the findings to other studies and relevant literature in the context of sustainability transitions. Finally, I reflect on the conceptual framework and the methodology and give recommendations.

In their pursuit of elaborating and practising alternative living concepts and projects (joint enterprise), the framework provided by the permaculture principles and the ethics (shared repertoire) and their shared network (mutual engagement) facilitate the interviewees' every-day practices in different ways. It is visible that, already, practitioners and teachers of permaculture draw on a framework, education body and network that supports them in the cultivation and growth of a wider community of permaculture practitioners.

It becomes clear that the SLS adds interesting dimensions to the analysis of niches. The in-depth analysis shows that the structural elements and criteria as defined by Wenger open up a different analytical access to a network. In this way, it is a productive addition for our understanding of niches and niche-internal dynamics, linking the network to individuals.

The element of the CoP shows, that the interviewees are aligned through broad but strong visions. Learning processes are visible on different levels, ranging from the individual to network-internal learning. Also, through the changing mindset, new potentials for broader learning processes slowly emerge.

However, for the dissemination of knowledge and practices and learning processes on another level, a wider array of conditions and factors play an important role that are independent of the internal dynamics of the network. To zoom further out of the picture, this part of the thesis examines the wider societal context in which also permaculture practitioners are embedded. Here, insights from the interviews are combined with findings from previous research. I also critically review the complementary quality of findings from both frameworks.

Table 5.1 gives an overview on the organisation of this chapter. First, using the Strategic Niche Management (SNM) framework, I draw conclusions from the current configurations and conditions of the SLS. Second, looking at possible niche-regime interactions I integrate the information from the in-depth analysis into the MLP approach and compare the two analytical lenses.

Following the MLP discussion, I briefly point out implications for analysis of the diffusion of knowledge beyond the boundaries of grassroots movements. First, I refer to the meaning of the SLS for a further consideration of the role of agency in sustainability transitions. Second, I briefly address

which implications arise for the monitoring of radical social innovations. Finally, I summarise, how the two frameworks can strengthen each other and propose an integrated framework that considers agency-based dynamics and social learning processes in niches, in order to better account for an understanding of the further diffusion of knowledge independent from institutionalised processes.

In the last part of the chapter, I propose theoretical and methodological recommendations for science as well as practical recommendations for the permaculture teachers and their network and end this chapter with reflections on the framework and methodology.

Table 5.1: Overview on this chapter

Discussion: Permaculture as a transition niche
Where niches and SLS meet in reality Positioning the SLS as a niche in transitions, what are implications and discussions from literature and which insights do the results of the study offer?
Implications for the analysis in the MLP + SNM applied + Niche-regime interactions Potential for the analysis of social dynamics and the diffusion of niches The meaning and implications for monitoring social innovation Summary: An integrated framework
Recommendations
+ For research + Permaculture network and practitioners
Reflections
+ Framework + Methodology

5.1. Where niches and SLS meet in reality

The analysis of niches emerging from the field that analytically deals with processes in sustainability transitions has already gone a long way. With time, it has at least developed the ambition to extend from assessing the development and diffusion of technological innovation to also examining the dynamics that occur in matters of social change for a wider system's change.

In the chapters above I already elaborated on the relevance of a closer examination of internal processes of grassroots developments and simultaneously the need for analytical concepts that take relevant dynamics with a wider system's perspective into account. The latter point strongly connects to external factors that originate from the surrounding socio-technical system or even from an overarching level such as the current value system.

Overall, this stresses the potential benefit of applying a multi-level perspective (MLP). In this regard, the concept of SLS and the niche analysis from SNM are complementary in many ways. Hence, in the following I discuss implications of this multi-levelled approach and an integration of the two frameworks, with the goal to use this complementary quality. I perceive a complementary quality in any form that adds helpful insights to the monitoring of how new practices can diffuse into application with a wider scope or to see more differentiated where challenges arise.

5.1.I. Implications for the analysis in the MLP

In the following chapters, I outline and apply the usual approach of SNM in the MLP based on the information from the in-depths analysis. Then, I discuss resulting niche-regime interactions. Both sub-chapters aim to explore the in-depth results of the SLS in the context of their embeddedness in the bigger socio-technical system around. This is done in order to get a better idea of the usual scope of the SNM.

5.1.I.1 The SNM applied

In this chapter, the conventional components from SNM are discussed in order to explore the complementary qualities of both frameworks. This is done by a description of a broader "Network formation", a discussion on the alignment of different "Expectations and visions" between regimes and the niche and a brief recapture of "Knowledge sharing and learning processes" emerging in relation to dynamics on a broader network level.

Usually, in the SNM, it is differentiated into different domains such as policy, public, research and technological domain (Quist, 2007, p. 75). Due to the strong focus on social change and the wide scope in this thesis, more general dimensions such as culture at large, structure and technology are selected as a sufficient frame for a differentiation between the different fields to explore these directions. The aim is to offer ideas about a possible extension of the analytical view on a system's level. Table 5.1.1 depicts a summary of the different categories.

Network formation

The aspect of "Network formation" refers to the development and quality of social networks. This is an important element in the SNM, as it assumes that the extension of networks of actors that participate also potentially expands the availability of different resources for niche-innovations.

Internal network dynamics have already been matter of analysis in the in-depth analysis. Despite its highly de-central nature, the connections in the network of permaculture teachers and their work practice are well established and information flow well. Also through boundary processes, links to other fields have already been illuminated. In this way, network formation is already addressed within the SLS. However, the SLS framework does not apply a systemic lens to different interest groups of the external contacts.

In this regard, the conventional SNM perspective allows to deal with contacts to different fields in a more systematic way. The domains public and media, political-institutional contacts, research and education and economy and agriculture can help to differentiate into reactions and developments in different social fields that mutually influence the overall establishment of a discourse emerging from a niche over time.

Concerning the field of the **public perception and cultural change,** Network formation is very interesting in the context of permaculture teachers and practitioners. With the focus on SNM characteristics it would have been difficult to find analytical components that sufficiently assess the network's and individual's links to the de-central and global grassroots movement. These connections are realised beyond manifestations at certain places or concrete interactions and events. Nevertheless, interviewees showed that their connection and practices are closely linked to these de-central developments in less tangible ways. Rather, these connections offer virtual space for a community that has similar ethical orientation in many different places. This results in a spreading of permaculture practices independent of institutional borders and on an individual and societal level simultaneously.

Concerning more concrete connections, it turns out the German network's organisational capacity and internal values have so far prevented the search for formalised resources outside its own community. The network of active members that work together strategically on topics is very small. Furthermore, especially the de-central organisation of the participants also spreads resources across long geographical distances. This increases the networks surface on the one hand, but also makes the establishment of strong local links and more differentiated practices more difficult that would have perceivable results beyond their direct application. I consciously say "perceivable", as the scientific method is not able to assess the impact that tacitly diffuses through individuals and expresses itself in less apparent ways that nevertheless can – in a process – have a strong influence on an

individual's mindset and lifestyle. However, as many interviewees stress the absence of many good examples in the German area, the organisation of more working and lasting projects is something the teachers and practitioners obviously wish for.

The **media** takes note of permaculture practices in several ways. For instance, radio and TV journalists occasionally show interest in the topic, apparently often reaching out to projects that are accessible over the internet. This however, does not happen on a regular basis. Its impact however is perceivable as it actually leads to an interest of more people. In that way, there still seems to be a point for more public presence and education in order to reach more people that are open to the idea of permaculture but have simply not heard from it yet. On the other hand, looking into more alternative media such the German journal Oya, permaculture is established in form of its own column for information on permaculture. Also, internationally there are many information to be found and already manifold manifestations of permaculture practices in recognised projects, be it communities, companies or agricultural projects.

So far, in the **political-institutional field** permaculture has gained little recognition. However, opportunities to receive funding over the federal volunteer service exist and were used already. Also, in some places permaculture finds its way in the context of urban planning in form of community gardens and other organisations. One example of an integration into a municipalities practice is the project "Lebenswelten - Arbeitswelten" in Andernach which works and further trains people that are permanently unemployed in gardening working with permaculture principles. Also, gardens working together with refugees are increasingly seen at the moment. However, how institutional links can be used in more established and less volatile ways will only show in the future.

Due to the complexity of the word and its many difficulties with misinterpretations, the word permaculture is not always used in these processes. This also entails it is less recognised in places where there is no knowledge of the concept yet. Through the Institut für Partizipatives Gestalten (IPG) for instance, features from the permaculture design approach have been put into a shape that can support municipalities and organisations in structuring their decision making processes in favour of participatory processes.

Application in the **economic sector** is not commonly found in broader scale agriculture. However, to a less explicit extent, permaculture design already has a comparatively long history in landscape architecture, able to capture interest through aesthetic and simultaneously meaningful design. This is visible in its expression as integrated design option for small-scale application for private customers such as higher class gastronomic businesses and private gardens. Here, usually the result draws on functional relationships between different components such as the connection of cycles in the agricultural practices, agro-forestry, polyculture design and multi-functional parks and landscape design. Still making up only a small fraction in Germany, demand for these services is currently increasing and the network sees more potential in the future.

Furthermore, good connections commonly exist to more ecologically oriented agriculturalists, such as Demeter farmers, with whom also PDCs are organised. Several interviewees stated they also keep friendly relations with them, coming from a similar background and sometimes even sharing the same profession.

The connection to **education and research** also happens in several areas. One aspect is of course the training of the single person and the ability to apply permaculture in one's own life. European exchange programmes were already granted for education purposes of the PKA. Also, the accreditation as a project for the UN-Dekade Bildung für nachhaltige Entwicklung [Education for Sustainable Development] shows the recognition of the PKA guiding principles in general. Furthermore, the increasing number of research requests on permaculture indicate the growing interest.

The growing establishment of courses both inside the PKA as well as a growing interest at universities is further proof of that.

Additionally, more linkages to other related networks emerge, for instance to alternative education system and other ecological and social movements such as Transition Towns and the degrowth movement. So far, similar to connections to organic farmers, this is visible on the individual level through personal links to networks. For a more thorough approach in the form of funding options capacities are currently still low but perceived to be growing.

Voicing and shaping of expectations and visions

Expectations and visions are seen as very important in the facilitation process of transitions that draw on multi-stakeholder and participatory processes in complex contexts. Next to aligning people or seeing where fundamental differences and challenges occur, they can help to identify the next steps, for instance by means of the backcasting methodology (Quist, 2007). During the in-depth analysis, more insights into expectations, visions and also perceived leverage points were described. With a transition perspective, these visions and changes are used to look into possibilities for alignment and challenges extending the perspective onto other actors.

All interviewees have in common that they do not imagine a certain picture as a vision. It is more about the fulfilment of different functions and a value orientation along the three ethical principles. The respective changes do not come with only a few barriers. However, despite their radicalness compared to mainstream practices, more and more movements actually agree to at least some of the propositions. Thus, it can be further differentiated in different fields and who are the respective actors that need to be aligned for a certain case.

For a change of our economic system currently more and more lobbies form. Both the degrowth movement and the developing concept of an Economy for the Common Good [Gemeinwohlökonomie] are good examples for possible “alliances”.

Not only practising and teaching the framework of permaculture but also using it to form a more meaningful economic system certainly is an important development in the future, if the way we live together should fundamentally change. Issues such as economic growth, the distribution of income and power but also the possibility to sustain one's life with other practices than market values currently allow for are all interesting fields in which permaculture can contribute to a constructive discourse.

With this actually many movements align, the degrowth movement and transformational studies are the ones that even use similar vocabularies. The idea of "concrete utopias" and learning spaces from the degrowth movement is one example, where skills can be developed. Social laboratories are concrete manifestations of this idea. Learning how to position the permaculture movement in these growing spaces and cooperate with similar groups is an interesting field for the future.

Concerning environmental discourses, especially the increasing relevance of climate change and climate protection mechanisms can become a chance for the permaculture movement. Integrating different matters at once that can reduce carbon emissions and offer local and regional solutions can become of more interest in the future for municipalities. Regarding expectations and visions of the conventional agricultural sector, currently, the divide is very wide. For big-scale agricultural enterprises to become interested into small-scale integrated solutions, the present institutional set-up and orientation of farmers and supply chains would need to change both in scale and approach. Looking at small-scale farmers and CSAs on the other hand, already good examples exist. It is interesting what growing economic pressure on the one hand and increasing soil erosion on the other hand will demand from both small-scale and big-scale agricultural enterprises. For different possible developments in external factors the scenario planning methodology might be an interesting tool to test different pathways in which the permaculture network can find ways for better orientation and alignment of decisions.

It is also perceivable as times change and a certain urgency for new solutions develops, some "windows of opportunity" might open in the future. One example is the currently perceived refugee "crisis", where government and municipality are becoming more aware and are more willing to try out new approaches in some areas.

Knowledge sharing and learning

Closely linking to what has been pointed out above, with respect to learning processes, Holling's system perspective is helpful to further illustrate the challenge (Holling, 2001). It connects to the relevance and meaning of transition theory and analysis methods. According to Holling, our current problems of climate change, resource scarcity and our food system are recognised because of the anticipation of a crisis or transformation. In that way, these developments can simultaneously be

perceived as the greatest threat and the greatest opportunity. Assuming that change by design rather than disaster is the preferred development, the removal of the usual constraints opens space for changing or re-structuring existing practices and conditions. Higher order learning is nothing else.

Aspects of learning have already been matter of some discussion above. In this chapter I try to synthesise the different learning processes and relate them to theory. I do this by first looking at the internal learning processes and challenges and then at the external ones.

Concerning internal processes it is obvious that the network of permaculture teachers has managed to establish a system that is well connected despite its very de-central organisation. The interviewees also confirm that a mind shift has happened in the past years and that a wider interest starts shaping, both as a function of growing media that represent permaculture practices more authentically and because of external developments that influence peoples' attitudes and perceived needs.

Already, small learning centres exist, teaching the permaculture design principles that stretch across social and ecological values to a growing amount of participants and also to more future instructors. Putting these principles and the growing community into the picture of social practice theory these institutions can help to establish new practices in the future. This happens with time, the growing demand of courses shows its potential. Still, the small capacity that is currently visible shows that cultivating sources of income that offer stability is a slow process and difficult due to the nature of the network. How capacity can also be increased by spreading it effectively across the growing network is a learning processes the community is currently actively practising.

Furthermore, another factor is commonly mentioned but nevertheless cannot be stressed often enough. Learning must be a continuous process, perceiving a situation, how this can be used to change and implement this change and learning how to keep this processes alive in continuity. Thus learning is a recursive way of being and doing. Michael (1995) writes in his essay Learning in Turbulent Human Ecology: “learning means learning content and just as important learning how to learn to attain these learning requirements. These are radical and upsetting processes that presage radical and upsetting consequences.”. For the internal part of the network, learning processes are obviously a core practice that is lively and recursively applied. However the angle and scope can be extended in the future along the line of learning how to institutionally grow - qualitatively not only quantitatively. This also entails a more outward directed view and a willingness to learn with other institutions. However, linking back to above, as learning takes energy, also ways need to be found that build up this capacity for organisational learning. Thus, complementing the practice, which is obviously a deeply rooted part of permaculture teaching, by aspects of community organisation, orientation and guidance can receive more attention in the future.

Here, it becomes interesting what CRISP (2014, p. 6) suggests concerning the challenge of the institutional embedding of these niches. They describe the need for *niche developers* to "build-up a public and political case for support and to exploit tensions in the regime" (CRISP, 2014, p. 6).

For this I refer to the master thesis of Max Gaedtke who already proposed an orientation according to the "Promotorenmodell" that allows to better distribute tasks and in that way spread capacity, link to like-minded developments, access other fields by speaking the right language and thus - through a growing surface - gain more public recognition. Also conclusions from this thesis align with what the former master thesis states. It is not about strengthening only the individual as a change agent, but about supporting the individual in a way that it can constructively strengthen the community in its function as an organism with different functions.

The organisational structure allows individuals to contribute freely from their background, however, the overall problems of lacking capacity (for one reason) led to a restricted strategic discussion about new fields in the past. Main focus were internal organisation as well as the internal adjustment of the education programme, rather than more strategic debates about where to work together on boundaries.

Additionally, the geographical disconnection can be seen as an additional barrier as it leaves many interviewees on their own, facing similar problems but also having to work them out separately. This could be supported by a growing number of regional professional centres in which local knowledge can be built up and spread across more people. Here again, the design of supportive structures might be necessary in order to stabilise the centres in which positive externalities are an important part of the ventures' identity.

Over the past years, also the network learned to differentiate and fine-tune personal communication. Together with the growing awareness about permaculture projects this can help to better communicate with municipalities and other institutions about the needs and requirements that need to be met in order for cooperation to become effective. Also, with a growing network surface more links can be established to different positions in established institutions. By learning which concepts are valuable and can be translated at which interfaces, a body of a more commonly understandable language and methods can be built up.

Several barriers have been identified by the interviewees, encompassing internal and external challenges. Not to re-invent the wheel with every participant that enters but to create practices that help permaculture practitioners to sustain themselves is an important aspect to support stability. Finding ways that allow individuals to not exploit themselves and instead to direct the focus of attention and their skills on the advancement of the application of permaculture design not only in their private life but also professional context is an interesting learning field.

Looking beyond the network's boundaries, the changing public perception and many developments that accompany this mind shift give a chance to identify suitable “windows of opportunity” that offer a good frame to link relevant skills to present discussions. This can further establish the image of permaculture and the contact to institutions that can help to further manifest permaculture practices in broader societal contexts.

Concerning linkages to the conventional agriculture sector and respective learning outcomes, little changed in the past years. This aligns with what Ingram et al. (2012) concluded in their analysis of ties of the permaculture network in England to the conventional Agricultural Knowledge System. Too strong are current market forces and too different “the language” that is spoken. On the other hand it is doubtful, whether the network could have developed so uniquely, would have been the access to the conventional system focus of more attention.

Lately, however, with increasing permaculture practitioners with a background in agriculture or research, the vocabulary and openness grows that allows for a fine-tuning to needs and wants of the agricultural sector. The agro-forestry campaign [Agroforst Kampagne] is one indicator.

Table 5.1.1: Summary

	SNM applied		
	Network formation	**Voicing and shaping of expectations and visions**	**Knowledge sharing and learning processes**
culture and public, media	Occasional interest from established media Use of own media, connections in the alternative media network	Changing attitude in the public mindset, increasing demand	Establishment of a positive attitude towards permaculture in the media Alternative media integrate the topic
political-institutional field	Linkages slowly emerge Single institutions and municipalities work together with permaculture projects	?	Municipalities start to work with permaculture designers Institutionalisation of processes is not yet present: dependent on sympathetic individuals in the right positions

	SNM applied		
	Network formation	**Voicing and shaping of expectations and visions**	**Knowledge sharing and learning processes**
economy and agriculture	Conventional agricultural sector does not show interest Projects in landscape architecture and urban planning Private customers look for integrated garden solutions Consultancy service developing	Rarely recognition in conventional institutionalised system under the term "permaculture", economic concepts are incompatible	Re-framing and translation of knowledge according to different disciplines needs
science and education	Own education programme, internationally recognised in the permaculture community Developing connections and demands in science Connections to the alternative education network	The image of permaculture and the growing presence in science diminishes prejudices that were constructed in the past	Permaculture is increasingly addressed in sciences
Conclusion	Internal growth Current capacity is met, slow development of network capacity External network contacts are growing through individuals	Not aligning a lot with conventional sector, mainstream economics and politics More alignment with alternative network	Wider system's learning processes on an abstract level: More acceptance and acknowledgement Receiving institutional recognition is still difficult

5.1.I.2 Discussing niche-regime interactions

In transition theory, as formerly mentioned, a niche is a protected space influenced by and situated within dominant regimes. Regimes and niches are analytical concepts to explore the interplay of established set of rules, practices and values with technical and social innovations that challenge the present dynamics (Ingram, 2015). While niches represent the sheltering space for different practices

(Grin et al., 2010), regimes make up the prevailing rules, dominant institutions, network relations and present practices in our overall socio-technical system. In that way they stand for everything that represents and re-inforces the “normal” ways of doing things in different fields.

Regime-internal processes are more likely to have only limited originality and satisfy first order learning processes to fix problems within the regime, while actually contributing to a further stabilisation.

It is assumed, that if the conditions are right, niches can influence current regimes (Verbong et al., 2013) or even build up new regimes with their own sets of rules and mechanisms. These reflexive influences between establishing niches and dominant regimes are taken into focus through the MLP.

In this sense, combining the SLS with this extension of scope, can highlight implications for the development of a wider socio-technical regime that integrates the application of permaculture practices. As such, it can build on what has been investigated in detail, with the aim to take into account what can support the establishment of a well attuned network of permaculture teachers and practitioners alike, based on present internal characteristics, already existing connections and external pressures. Figure 12 shows an overview of how the SLS and SNM overlap and how they are situated in the MLP.

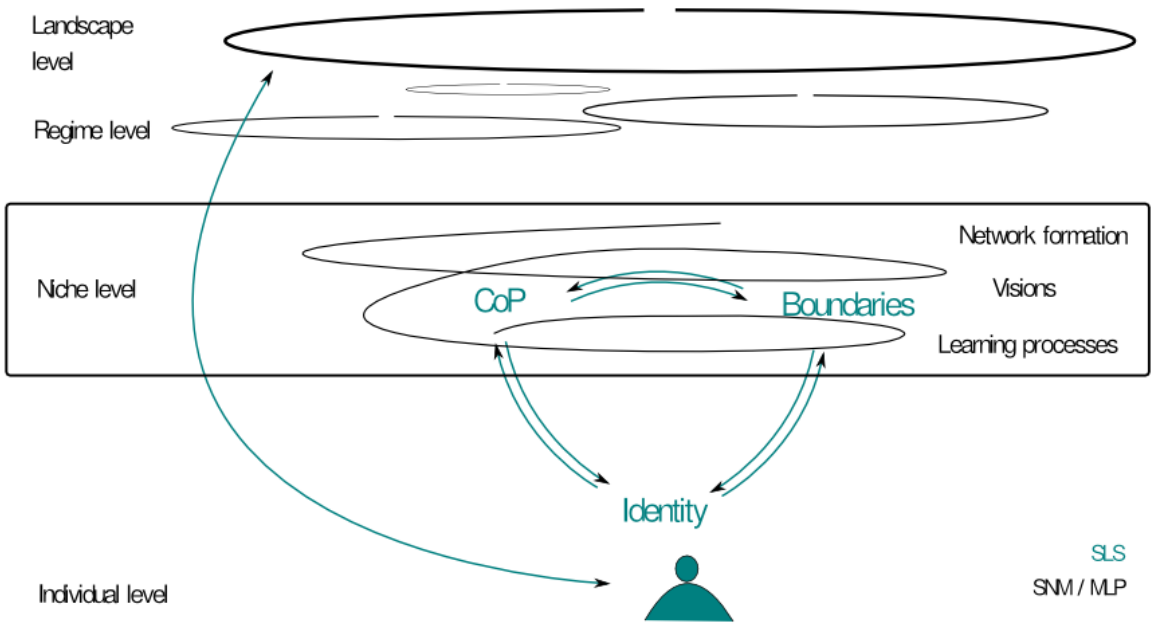


Figure 12: SLS and SNM combined in the MLP

In the context of the multi-functional character of permaculture, different regimes are concerned. Despite common assumptions, permaculture is far more than an agricultural practise. In fact, it is a systemic lens through which relationships can be identified and disciplines can be combined in order

to make up a more complete whole with many different functions. The different occupations that the permaculture teachers have show the niche's diversity. From working with the "green permaculture" such as gardening, the agricultural sector and landscape architecture, over research and media, to the more "social permaculture" such as network-internal and external education and social work. Please note that this is not meant as a division, as many teachers actually apply a "polyculture of occupations" in which they integrate different fields. However, as these occupations confront different regimes, it is important to point these out.

Having identified that the agricultural sector is not the only targeted regime of permacultural practices, traditional technical factors are not enough to take into account. It seems that some practices applied in permaculture can diffuse into the agricultural sector through growing environmental pressures such as soil erosion, water scarcity and land scarcity that make efficient and effective growing practices with less resources more attractive. However, before this can happen on a bigger scale, other external factors and mechanisms need to change, in order to make these agricultural applications accessible and feasible for more farmers.

As a result, the German permaculture network in particular, can be seen as a niche that currently experiments mainly with aspects of social change and different practices. Especially the regimes of education and how our communities and institutional settings function can be affected. Consequently, of relevance are cultural and behavioural factors that shape personal and cultural values (and the underlying question "what drives people?") and reflexively interdependent structural factors that are a result of these values and shape these simultaneously. This again refers to what Giddens describes as the duality of structure.

The structural organisation of the de-central network itself shows a new way how self-organised communities can work out. Within the niche, the issue of capacity and how it is distributed across actors is important as well as the institutional capacity visible in the coordination of projects with other partners. Looking beyond the niche towards regimes and the wider societal context, another factor is dominating the discourse. It concerns the innovativeness of the organisation and the question, how and to which extent it can be compatible with the broader system's structure, and whether this is actually wished and supported, by either side. The question of the innovative potential is separately discussed in the section below. Figure 13 gives an overview of the different challenges that came up through the different perspectives.

Due to the well known lock-in effects such as the pressure for economies of scale, re-inforcing rules of the established institutions and the embedded knowledge and networks in the prevailing structures cause and continuously re-inforce the trajectory that our society is currently pursuing. Not only the technical and institutional structure but also the present social norms as well as the ruling market system define values and our perception of what is legitimate, satisfactory or successful.

Correspondingly, our lifestyle routines and norms reflect and re-inforce themselves again. This is a big challenge to the niche in which permaculture expresses itself. In this respect, some of the barriers have been highlighted in the previous chapter.

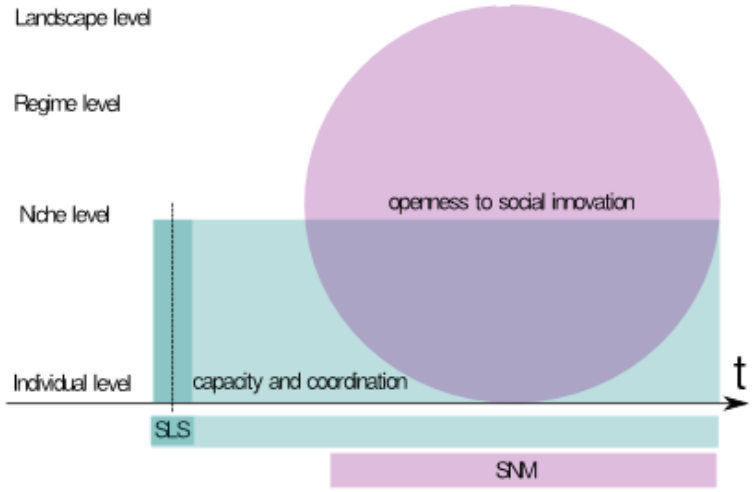


Figure 13: Relevance and scope of challenges in niche-regime interactions

5.1.II. Potential for the analysis of social dynamics and the diffusion of niches

The bridge between the systemic lens of the MLP and dynamics on a very personal and interpersonal level through the SLS perspective is especially helpful if social and behaviour change is in the interest of the analytical observer. While the MLP hardly considers implications for the individual, its motivations and drivers, SLS allows to assess the connection from the individual level to a network level, separate from physically tangible factors. Considering aspects of the SLS builds a bridge between the network and personal mind- and value set, looking into relevant conditions of these connections.

The strength of the SLS lies in the clear view onto the ideas and practices which the interviewees share and the meanings and values they jointly create. Extending the angle to both face-to-face interactions, looking at the emerging shared body of values and culture and also the virtual connection further illuminates how practices are maintained, reproduced and developed independent of institutional processes. In this way, also the diffusion of meanings from individuals to a broader network and back is put more into perspective.

Despite their indifferent and sometimes unsympathetic environment, the interviewees prefer to engage with their network, even though distances are sometimes far. It is visible both in the criterion of Home base as a part of the Identity and multiple CoP criteria, that the network, its values, knowledge and organisational efforts are crucial for the interviewees' further engagement.

Here, the information that is retrieved through the in-depth interviews relates to both theory of social practices (Shove and Walker, 2007; Røpke, 2009) and social learning which state that behavioural practices simultaneously are shaped by and shape our environment in which they are embedded. As our life by now does not only happen in our immediately perceived surrounding, the interplay between our physical environment on the one hand and the perceived potential that we can already access through a broader connection that digitality allows for is highly relevant.

According to Shove and Walker (2007) "Image", "Skill" and "Stuff" strongly influence how practices develop. Strong ideas and motivations (the Image) and the know-how (the Skill), can help to at least compensate the lack of appropriate infrastructure (Stuff) to a certain extend. Furthermore, mentioned already in the literature review, Staats et al. (2003) have already made some attempts to see how a stronger confidence through group support can decrease perceived barriers (our daily lock-in's) that can otherwise too easily keep an individual from changing habits and aspects of lifestyles.

Correspondingly, with a strong identity, a connection to a vision and a virtual community comes a potential to embed practices in our daily life through routines and strong values even though one faces a conflicting environment.

As an implication for research, this also means that in a world that is connected beyond our immediate reality, this gives new inspiration on how consumption practices and social innovation can be better recognised throughout the transition process, despite the current infrastructure and value system. This is an aspect of network formation that builds up slowly and implicitly on a more abstract level out of the scope of this investigation. Applying the SLS perceptive helps to focus in more detail on these abstract, intuitive aspects and tacit knowledge than the theory of social practice that has a more general, practical frame. This can be of use for GLAMURS.

In this way, also visions play an important role, that give both orientation and alignment. These, as well as how they are enacted upon, is seen in more detail in the SLS. Another aspect is that the SLS as an analytical means for sustainability transitions is two-sided in its usefulness. It gives a status and highlights challenges that can be forwarded to other positions in the institutional fields but it also helps grassroots initiatives to constructively observe their own dynamics. As a consequence, it also represents a means to investigate into initiatives in a reflexive way, using information but also handing over constructive feedback connected to a methodology.

Another very interesting point is its function as a lens that can observe social networks of individuals independent of institutionalised processes, accommodating more intangible and informal network processes before the actual creation of new rules. In that, it adds an interesting perspective to current gaps in the SNM approach as it further illuminates agency independent from fixed, already established rules and positions (Pesch, 2015). The identity and CoP approach enables a closer look into motivations and real barriers. This is a complete different lens for a complete different context: Identity and Home base offer many insights that concern degrees of learning and leverage points for radical innovation as they connect to values, independent from institutionalised professions. This can be especially of interest for research programmes that investigate into individual drivers, motivations and also facilitating means to adapt lifestyles and user or prosumer behaviour. Programmes such as GLAMURS can benefit from these insights.

5.1.III. Meaning and implications for the analysis of social innovation

Both dealing with network characteristics, connections and processes, the MLP and SLS offer a common basis for analysis, creating a link between internal and external learning processes. Innovation studies and the related discipline of transition management use a systemic perspective in order to decipher a system's dynamics in a multi-level layer with the purpose to better understand trajectories of change processes. While the SNM perspective in the MLP offers very relevant points for learning processes and processes of institutionalisation, the SLS directs the focus on how the permaculture network functions as a CoP and manages learning internally. It becomes visible in the in-depth analysis, the individual agency as well as motivations and processes outside institutional settings are a special contribution of the SLS. Looking through both lenses together, several interesting points came up concerning the analysis of social change and innovation processes. In the following, I briefly illuminate different aspects.

One point concerns the power distribution. Permaculture teachers are usually tolerated by more powerful actors. This can either be expressed in indifference towards their practice or support through cooperation as long as a clear goal is perceivable. However, even if the will for cooperation is given, permaculture teachers and grassroots initiatives in general encounter many challenges concerning the compatibility with existing rules and structure. Also the interviewees confirm that if institutions agree to act benevolent, a pre-condition are often personal ties and sympathy, social capital so to say. However, independent from these additional "doors", no suitable institutional process has been shaped. Here, Madsen and Noe (2012) already identified the lack of clarity about roles and institutional structures and cultures which are well known constraining factors in a participatory processes. The conclusion of this thesis entails the question in which way innovation is, from a political or research institution's point of view, desired and whether a real effort to learn from radical innovations is truly supported. In this sense, trajectories of sustainability innovations can be

very different, relating also to the degrees to which learning is actually realised (Smith and Raven, 2012). A closer examination of boundary processes could shed more light on processes and barriers and which leverage points for change exist.

Talking of radical innovation, also another point becomes increasingly apparent: "To which extent is innovation possible in a certain system's scope?". Radical grassroots movement are obviously a good cultivation ground for change as they provide a sheltered space for new practices. However, talking of the diffusion of such practices, the compatibility with the prevailing regimes in the overall system becomes a key issue. In the case of social innovation very different driving forces come into play than with technological innovation. The underlying dynamics of radical innovation and the challenges of a broader system's change become more illuminated through a detailed look into how different the contexts really are. It is clear, that mechanism of adaptation as a scheme or trying to pick out things that fit into the conventional system is not only very difficult due to the internal dynamics that create and sustain this space for alternatives but also totally counteracting the original idea and underlying motivation of the framework of permaculture. The interviews show that, so far, even where interfaces to institutions existed, often permaculture teachers were rather tolerated than embraced for their innovativeness. In this way, the permaculture community in Germany stayed in relative isolation. It can be doubted that the community of people practising permaculture would have developed in its unique way if it was more exposed to the conventional way things are done, for instance in terms of its internal organisation of the community or the exposition to the forces of the current market system. The radical nature with which conventional assumptions are not only questioned but actually implemented in a different way naturally comes with many obstacles. On the other hand it truly offers different ways of doing things, according to a value set that is seriously taken into account.

The discrepancy between internal focus and exposition through boundary processes and how it is dealt with is highly relevant and reoccurring feature of research into grassroots developments that start from the bottom-up. In the following I describe how the SLS and MLP can contribute to this discussion. First, I zoom in on the more individual level that necessarily accompanies any notion of social change, which is predominantly contributed by the SLS framework, then I direct the attention to the niche-regime dynamics concerning radical innovations and social change coming from SNM and the application of the MLP.

The aspect of tacit knowledge and lasting change through a Community of Practice and values has briefly been addressed under network formations. Change in a mindset and reflexively also in the approach to life is a process. Thus, its emergence cannot be analysed through only certain infrastructural and institutional expressions in reality. The interviewees stated it countlessly: long-term change is a process, and as such represents a *function* dependent on many different aspects that accumulate and dynamics that slowly emerge. Change is not a product that can be simply extracted through a certain mechanism. This makes the interviewees' attitude understandable that the success

of their effort does not have to do with quantity or the trademark “permaculture”. The success is the change in an individual's mindset that can emerge through a mesh of different dynamics in a personal processes. Two examples should be mentioned here, one on the level of the individual, one on the level of the community.

Many interviewees described the internal discrepancies they had with living in an social environment they do not ethically support and their step-by-step process that guides them into the ability to act according to their conviction and deal with their social environment in a constructive way. Second, the network of permaculture teachers itself sees every step as only a step in a process that is constantly looking for appropriate solutions. The way in which conflicting issues are constructively addressed within the teacher's network and in which the PKA and PKI keep developing their institutional structure is one expression of this. This shows that on a wider scale, eventually, this individual recognition of the principles of change can lead to visible expressions in the way we organise ourselves in a social context. In this context it is interesting, to further investigate the mechanisms more differentiated that support this change. Here, experiences from other social grassroots initiatives can become valuable.

Looking into dynamics of SLS brings together guiding principles that in their interplay create possibilities and space for desired effects. In that way, analysing social change comes with new perspectives that need to be considered in order to really connect to the factors that make up an individual’s consistent mindset and behaviour. Through the focus on social learning another level than institutional links is accessed. It connects our consciously perceived reality to less tacit factors that nevertheless − or even because of this − contribute to deeper learning processes whose real impact is only realised with a longer term perspective and in many different ways.

Another fundamental issue that became clearer through the SLS perspective relates to the normative character and methods of transition studies. These have the ambition to guide processes of social change through the understanding of these dynamics in radical grassroots movements. However, actually comparing underlying guiding principles, values and applied mechanism to the established system is difficult if the outcome of both systems is so fundamentally different and the scope is undefined. It is easy to judge the discrepancy between a system's compatibility and its unique functions that can contribute to another quality dimension which are not a prominent part in the current system. On the other hand, it is as important to see the positive results in such a different approach and to further investigate, not how to assimilate any system, but to learn from the good parts of both. This has already been concern of some research, such as investigations about which trajectories niches can take in dependence on their compatibility. However, an awareness of the consequences of this discrepancy especially concerning a deeper-situated social change is highly relevant. How to appreciate effects that can arise in very different ways and manifestations from such developments, rather than reducing new practices to their incompatibility with current practices is an important question in future innovation research.

The way to deal with each other in collaboration projects is especially of relevance where actors meet from different backgrounds. It needs to be understood that practices are different, on either side. In order to "co-create" projects that are embedded it requires a community approach that takes people along (e. g. Scharmer and Kaufer, 2013). In this regard, not only the permaculture network needs to make clear how exclusive it should be, also collaborating institutions need to be aware that permaculture initiatives have different characteristics and needs. Exploiting them for their short-term benefits will not lead to a desired longer-term change. Thus, one indication of this analysis is that there needs to more discussion of how the playing field on which grassroots and institutionalised bodies potentially meet can be levelled.

Pesch (2015) writes that "the normative task of researchers on sustainability transitions is to identify ways with which unsustainable lock-in patterns can be overcome". Talking of social change, these lock-ins are deeply rooted. A constructive and effective process is a long-term development that affects individuals and organisations (and their very core) alike and will not spare anyone to question the way we currently look at things, act, interact and organise ourselves.

Both looking at the individual and organisational level, the SLS combined with a MLP and SNM opens up very interesting points for a more thorough discussion. As Krausmann and Fischer-Kowalski (2012, p. 362) state in their article on Global Socio-metabolic Transitions: "Although the historical perspective shows that technological solutions have often come into play in the past, it also reveals that these very solutions create new types of problems and that a spiral of risk continues to turn", if we do not really change the way we take decisions and behave, we have not understood our current mental lock-in effects and do not counter-act the fundamental causes in the challenge of a development towards sustainability. For this, both a different recognition, understanding and treatment of underlying social dynamics in our complex system is crucial. In this regard, also the way we currently practice science and how it affects the way we think cannot be evaded in the discussion.

5.1.IV. Summary: An integrated framework

Seyfang and Smith (2007) conclude, the view on the niche and related regimes needs to be broadened in order to encompass both technological as well as social negotiations. The field of social change through the framework of permaculture is an interesting field for investigation as it does not primarily target technical solutions but rather a shift in each individual's mindset as well as different approaches to the societal and organisational playing field and education. In this way, also the analysis of other grassroots initiatives can benefit from the findings from this thesis.

In this sense, it becomes apparent that the structural elements CoP, Boundaries and Identity can supplement SNM in different aspects. It can positively contribute to visions and expectations, delivering more concrete information. Likewise, it offers valuable insights into network formations.

On the one side, it does so in terms of diffusion among individuals through shared values, practices and a shared development of meaning, also creating a link to lifestyles. Connecting to individuals through the element of the CoP gives detailed insights into what motivates and facilitates participants to engage. In this way, it observes more intangible underlying values and dynamically links these to behaviour, independent of already institutionalised processes. This more differentiated perspective is especially allowed through the focus on the feeling of belonging to a certain organisation and the underlying conditions that inhibit or facilitate this feeling of belonging. Over each individual, the idea of the Identity can further elaborate how strong these linkages are and where facilitating conditions lie. On the other hand, Boundaries further highlight the processes and challenges where the understanding of actors is not necessarily the same.

In this, it is a consistent and flexible framework which gives more insights on concrete challenges in different contexts: internally in the network as well as with external actors. It thus makes more explicit, where there is potential for different parties to share knowledge in the future and what are facilitating conditions and main barriers for these practices. Building a community, reproducing the knowledge and further developing it in certain directions is an important aspect contributing to the replication of niches in the first place. Being a small group, teachers and practitioners need to establish new configurations, internally and also in the institutional field around them. In this way, the agency-based approached of the SLS allows the consideration of community building and informal learning processes. It shows where knowledge is reproduced and shared, and where connections arise.

Through the attention given to the interplay between individual and network it can link intangible and social values and organisational characteristics alike, making an observation of the creation and diffusion of meaning and practices possible. Figure 14 summarises the complementary qualities which SLS could add.

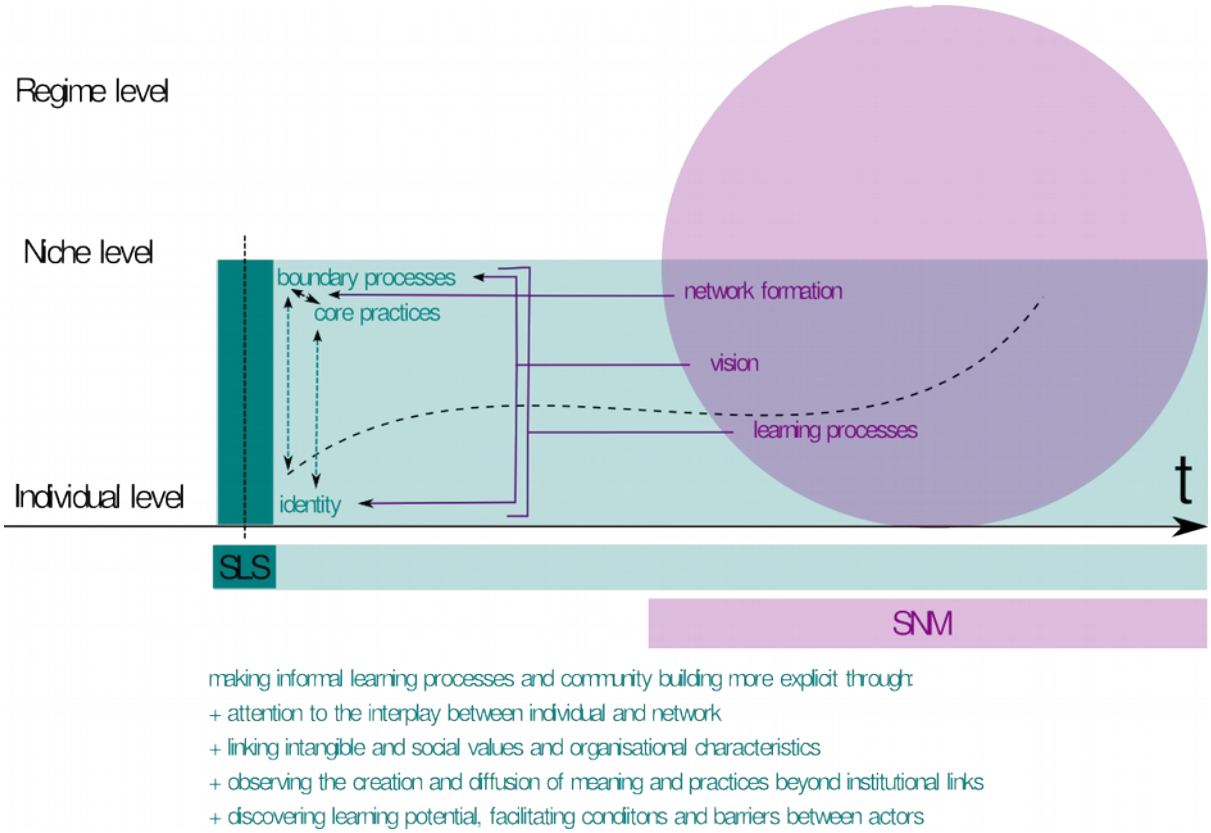


Figure 14: Complementary qualities that SLS can add to SNM

As a consequence of the different findings above, I propose an integrated framework. One suggestion is a differentiation into Boundaries in the component network formation, accounting for both (or several) sides of selected boundaries. For the boundary processes, especially criteria concerning boundary spanning are of interest. Furthermore, the component vision and expectations actors can be extended to comprise more characteristics of core practices. This part of information can also be retrieved for different actors. Overall, the strong emphasis on learning processes and also directions for the considered CoP can help to highlight helpful and inhibiting and facilitating conditions and to give recommendations for progressive directions. The further consideration of the structural element Identity can help to identify facilitating factors and barriers for a strong connection to a CoP and how individuals can be supported to bridge gaps between boundaries.

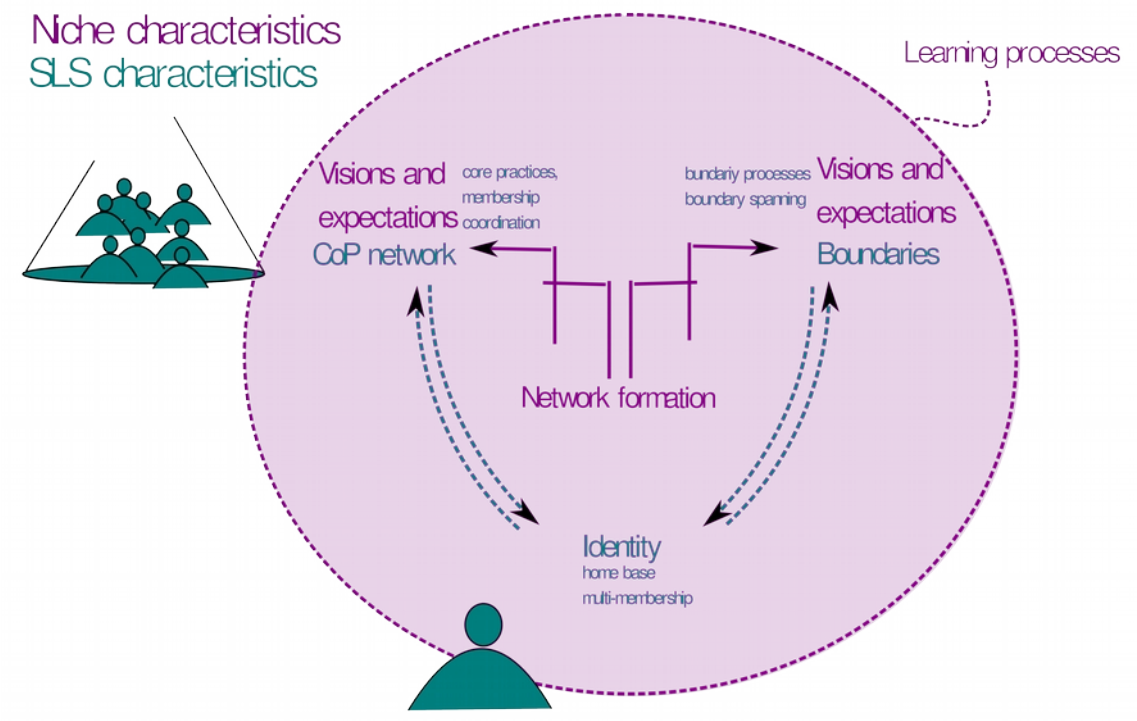


Figure 15: Integration of structuring elements of the SLS into a modified SNM

Being embedded in the component learning processes, this comprehensive extension of the framework could function as a close-up perspective that fits into the broader SNM framework. Additional to what is proposed above, it is also possible to use the analytical characteristics on either side of one concrete boundary. While the component visions and expectations and network formation could be complemented by more detailed characteristics concerning both CoP and Boundaries, a new perspective would be useful to account for the individual identity (Figure 16).

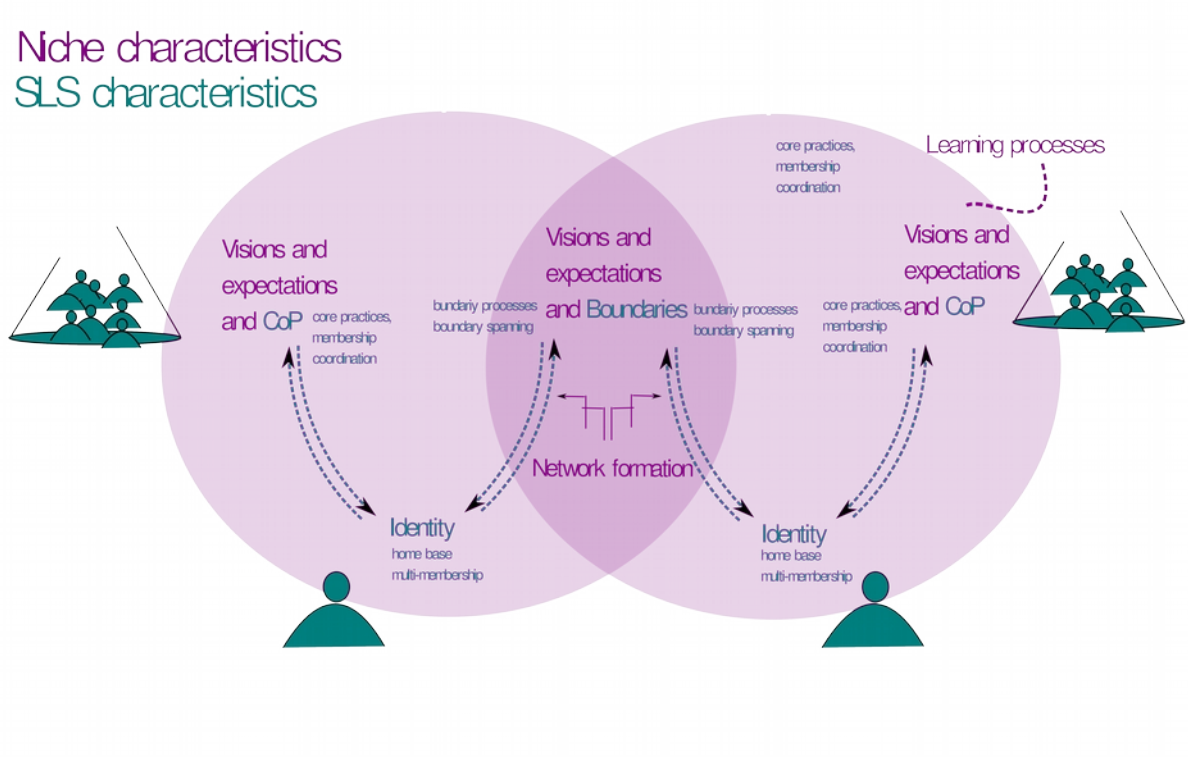


Figure 16: Proposal of a framework that closer assesses learning processes at a certain boundary based on the overarching SNM components

5.2. Recommendations

5.2.I. Theoretical recommendations for the integrated framework

In the chapters above, I compared the information that is addressed by the two frameworks. Often I encountered instances where one framework can benefit from the other. The SLS and SNM frameworks offer interesting links between internal and external learning processes. On the one hand, they direct the focus on how the permaculture network functions as a CoP and manages network development and related learning internally. On the other hand, the SNM perspective in the MLP offers relevant points for broader learning processes, in terms of values and practices as well as concerning the institutionalisation of processes.

As a consequence, especially dealing with dynamics around social change and changing behaviours but also radical innovation in a system, the MLP and SLS framework have a complementary effect that can be of value for further studies. Defining niches as CoP is interesting as it offers new perspectives on processes and strategies of institutionalisation. For this reason it might be of use for GLAMURS, offering a lens to link individual lifestyles to community dynamics: The CoP offers

interesting new analytical dimensions, relating to dynamics that help individuals to stay connected to a virtual network despite an opposing environment. More has been elaborated above. However, there are other analytical criteria that have not been explored in this thesis. These might also offer points for further insights.

Applying a focus on Identity can be of interest for future analysis as it offers more detailed access to what is important to individuals and how they are bound to a network. Here, not all dimensions of Wenger have been applied. As a recommendation, in order to further support and monitor the growth and distribution of a network of a grassroots initiative seen as a CoP, it might be very interesting to further investigate the "Trajectory" dimension. Trajectories, according to Wenger (2000), describe the possible routes that can lead individuals through a CoP. These indicate orientation for the individual in terms of pathways which they can imagine and take in the following, connecting them to the CoP in different ways over a long-term development. For the question, how the individual can better be embedded in boundary processes, the dimension of "Multi-membership" allows to see in more detail, how easy it is for an individual to share its competences and experiences in different networks. Of special interest is, when members of a CoP can successfully integrate and make use of different memberships. It becomes visible from the interviews that the permaculture practitioners sometimes face strong opposition or indifference and misunderstanding. Finding effective ways to use their creativity both links them to the CoP but also gives them the opportunity to refine their skills in their professional practice. For this, constructive boundary processes where "generative tensions" allow a suitable balance between competences and different experience are important. Wenger mentions several facilitating conditions for this effect:

- interaction (intersection of interest and activity)
- common ground and also open engagement where the differences lie
- willingness to suspend judgement and see the competence of the community
- translation in order to allow for meeting of the different competences and experiences

Thus, looking closer at both sides of the boundary and the conditions behind is necessary in order to identify leverage points. Putting this perspective into relation with power distribution and motivations might even add more insights.

Additionally, what is certainly of interest for research with a more agency-based approach are Wenger's three modes of belonging. With alignment, engagement and imagination, the framework helps to identify important relationships and can dynamically open directions for development.

For Boundaries, of future interest could be investigating more thoroughly on dynamics regarding specific regulations and responsibilities. For instance, it came up that the multi-functional qualities of permaculture in urban systems, such as the connection between environmental and social qualities

can help to deal with different challenges in urban development at once. However, as municipalities often do not have suitable positions or do not know of possibilities, the interfaces and barriers on different side could be taken into account. This can be especially interesting if both sides of the boundary could be considered. On the other hand, institutional linkages that already emerged and conditions facilitating these developments can be relevant to see where change processes already take place and which conditions supported these. Through the close but differentiated link with internal and external processes, more insights on change processes could be gained through this perspective.

Beyond the SLS' analytical components that look at internal dynamics, the more systematic and broader approach of SNM allows the recognition of more general but also valuable developments. Domains such as the public and media, political-institutional contacts, research and education and economy and agriculture are helpful to differentiate into reactions and developments in different social fields that mutually influence the overall establishment of a discourse emerging from a niche over time. Further investigation of these and also a more thorough consideration of the context and different regimes and landscape pressures are interesting follow-up questions.

Concerning the broader system's innovation, for instance through diffusion, the compatibility with the prevailing regimes in the overall system becomes a key issue. However, due to the lack of accountability of agency of actors that are not yet part of the institutional apparatus, this has seen little recognition so far. Using elements from SLS such as the analysis of core practices can help to further illuminate the challenges that give rise to this incompatibility in order to find ways to also cope with these.

Trying to put radical innovation into focus, differentiating into different degrees of learning in order to reflect different levels on which a change is actually stimulated seems necessary. Taking the permaculture movement into focus, the level on which change actually needs to be achieved lies beyond certain regimes. Such a deep-rooted framework and ethical principles cannot be easily adapted and integrated. This is certainly a field where a lot of questions are not answered.

5.2.II. Practical recommendations for the network of the PKA and PKI

Situated learning happens in individuals while they interact in a local and participate in a virtual network simultaneously. As stated under Joint enterprise as one of the ideas for a well-connected network, it is necessary to accommodate and share different functions and functional relationships. With this comes a need to distribute these functions in ways that individual capacity allows and that the collective can give the frame for. How the different functions can be distributed in a fair and effective way without loosing the common direction is certainly a key issue if the network wants to grow qualitatively.

Concerning the diversification of the network, another interesting aspect for the future is how the professional background of the members can be linked to the permaculture community and made accessible for the network. Perceivable from the interviews is that this is currently depending on the individual initiative and ability to effectively link different fields. Not necessarily bad, this can make it difficult for some participants to stay connected over a longer time, not being able to find an appropriate position between the different professional fields.

Both points are closely connected to guidance, in form of alignment and finding the right enabling structures that can support individual work in favour of collective goals. Here, diversity of incomes as support is also a good principle, but should allow for covering functions such as coordination and organsation and distributing them effectively. As already concluded by Gaedtke (2013) the key issue is not necessarily to strengthen the individual as an individual change agent, but to support the individual in a way that it can constructively strengthen the community.

For guidance of the community, both Wenger's three modes of belonging for the internal organisation as well as the consideration of external dynamics and “windows of opportunities” for community efforts can be of interest.

What has been mentioned under recommendation for further research can also be helpful for the network. Wenger's criterion „Trajectories“ which describes the pathways of individuals through a community could be an interesting component for further exploration. These Trajectories show how easy it is for an individual to imagine and go certain pathways in a community. This allows a contiuous and simultaneously adaptive development which facilitates the long-term connection between the individual and the community. It can be of relevance because currently the network of permaculture teachers and practitionners witnesses an increasing participation. However, two points were raised that also stress the difficulty to make people stick over a longer times. One is the flow of members through the community, entering and then leaving again. This also links to the second aspect, namely the lack in good show cases and represenative examples that did not grow proportionally in the past. Thinking how this imagination of trajectories can be faciliated in the future, can be one point upon which the network can further reflect.

5.3. Reflections on the conceptual model and research methodology

5.3.I. Reflections on combining SLS and transition studies

Integrating both frameworks comes both with many insights and challenges. In the following, I specify on different aspects of the framework. What is certainly a challenge for all different aspects is the very flexible and dynamic way the different factors play together. In general, finding an effective way to organise and identify the different influencing factors on the one hand and still keeping and making their functional relationships apparent is a big challenge.

5.3.I.1 CoP

One remark concerns the analysis of a culture that is so different to conventional systems. As it has its own set of rules and guidelines, it also gives rise to possible misunderstandings. Trying to assess communities with a scientific approach in a given time frame is challenging and cannot really do justice to such a diverse culture. This links to the question, what studies can actually achieve which direct their focus of attention onto sustainability transition.

Concerning the analytical framework, the selected components were defined very broadly. In the in-depth analysis, the difference between competences and repertoire and relevant knowledge were not very clear. The idea of these components was to further see whether there are certain skills and knowledge that the CoP members share. However, in this case, as understanding directly linked to practical competence, the differentiation was not very apparent. Also, investigating into more distinct fields of knowledge would have gone too far. Talking of analysing bottom-up initiatives, merging these components or defining more clearly what each of them means for a community could help the analysis to more clarity.

5.3.I.2 Boundary processes

A very interesting aspect is alignment at boundaries. Here, it becomes very clear that the SLS framework considers agency, however, how it is applied in this thesis it does not allow for the consideration of power distribution, which has already been mentioned by Smith et al. (2005) to have a strong connection. Also this thesis concludes that power distribution is a big impediment when talking of grassroots initiatives. These are often dependent on other actors being sympathetic towards their needs and interests. In this way, a further consideration of power distribution is certainly helpful and interesting.

5.3.I.3 Identity

The concept of Identity is the one that is elaborated and discussed the least. This has at least three reasons. First of all, the scope of this thesis which is simply not enough to illuminate all aspects adequately. Secondly, also in the literature it is the least clear topic as it relates to many different fields as a foundation, while in transition theory a thorough conceptualisation has not been investigated yet. Thirdly, being a very personal topic it lies out of my personal scope and capabilities to derive justified conclusions from it. However, an integration in the assessment was attempted in order to explore whether it adds a helpful dimension to the analysis.

5.3.I.4 Validity

As a combination of two comprehensive systemic framework is not trivial it needs to be stressed that the scope of a master thesis is not satisfactory to provide a clear conclusion on the aspects that were discussed. Based on only twelve interviews that concern very personal perspectives, there cannot emerge any definite answers. Neither was this the intention at the outset. On the other hand, a first combination of these two complementary perspectives onto the same context shows the potential for more insights onto network dynamics of often disregarded grassroots initiatives and the challenges they face. It also combines an institutional perspective with social dynamics and the aspect of agency, which cannot be neglected dealing with the matter of a change that goes beyond what technological innovation can achieve on its own. It thus highlights the challenge of our global, multi-disciplinary problems. Not arriving at a clear answer gives rise to interesting follow-up questions and further clarifications that were suggested above.

5.3.II. Reflections on the methodology

5.3.II.1 Interview guide

From a design point of view an important question is how to limit the amount of empirical material accordingly in order to provide answers to the research questions and make the analysis process manageable and transparent (Fink, 2004, p. 148). This has been considered upfront, however, lacking experience prevented a clear distinction in useful and too much information upfront. Collecting qualitative data in interviews simply is a time consuming venture, especially if pathways for exploration of what has been said are open at the beginning of the investigation. This comes with a lot of information that are difficult to handle, on the other hand, it offers a lot of insights, that cannot be predicted upfront. This requires trust in and growing experience throughout the process.

Furthermore, concerning the formulation of the questions, it can be assumed that if questions were phrased less open and more directed towards a certain issue, then, answers would have been more concrete. On the one hand, this open survey offered a very exploratory investigation of the different elements and factors of the community of permaculture teachers. On the other hand, the lack in opportunity to quantitatively weigh the interviewees attitudes for a convergence of individual opinions into more general statements strongly restricts this investigation's representativeness. Surely, it offers interesting points as an orientation for factors that can be viewed in more detail. Still, up to now it remains an exploration of individuals' attitudes.

5.3.II.2 Action research

In order to understand the deep values that lie underneath the superficial differences, a certain depth is necessary. Thus, in my opinion it is important to ask, how (with which approach and attitude) innovative developments that do things differently are investigated towards their potential to grow and spread their ideas and practices. Talking of diffusion of knowledge of radical innovations such as grassroots initiatives, the real potential comes through their strong core values that gives them confidence to act based on their own set of values, beliefs and guiding principles. In this way, the SLS theory is open enough to account for some of these dynamics. This takes time and an open mind in order to be able to adapt to the self-organising mechanisms of such grassroots initiatives. In that way, one question concerns which characteristics the discipline of science needs to encompass in the future in order to deal with more interdisciplinary contexts and social dynamics, bringing different strings together and being sensitive to the initiative in the focus of the study. How this interdisciplinary stream of science develops in the future is a very interesting field.

5.3.II.3 On the relevance of this field of research

It becomes clear that these considerations really draw on research concepts from a diversity of research fields. As Pesch (2015) states, this gives rise to the question of the validity of respective results. Indeed, the specialisation of scientific fields has created a tremendous body of knowledge applicable in very different fields, making it difficult to access for somebody not originating from this very background. Transition theory and a system's perspective nevertheless combines perspectives, approaches and tools on different levels in order to make sense of socio-technical processes. As a consequence, this broader scope naturally comes with restrictions in the details that can be accommodated with adequate validity. This represents a great challenge, easily ending in open threads. On the other hand, it in itself is a lens through which very different fields can, in their specialised nature, contribute again to a broader view of overall dynamics. In that, transition theory and its application, like permaculture, can make sense of information that otherwise is lost between

different sectors. It can thus add value to concepts through drawing connections and synthesising fields instead of further strengthening this divide. Especially concerning the question how objective science can possibly be and how normative it should be, this field of studies can be very valuable.

Chapter 6 Conclusions

In the past, scientists in transition studies developed the ambition to extend from assessing the development and diffusion of technological innovation to also examining the dynamics that occur in matters of social change for a wider system's change. The question at the outset of the analysis was, can the Social Learning System (SLS) perspective contribute aspects of analytical relevance to the monitoring of niches? This thesis proposes that the perspective on Social Learning Systems offers interesting insights into dynamics of a grassroots initiatives.

First, a conceptual framework was elaborated that combines aspects that are of interest for both frameworks. Then, through an in-depth analysis this analytical framework was tested. This was done based on the network of people in Germany, that relate to and apply the framework of permaculture through practices, in their every day life and their professional work. The internal dynamics were analysed, relating core practices and boundary processes over the individual identity of its members.

Then, in the discussion, it was asked how the network's boundaries can be put into the perspective of the bigger socio-technical system in which the community is embedded by extending both the time horizon and the scope of analysis. Aspects of this perspective are discussed, explicitly relating these to approaches usually applied in transition studies on the level of Strategic Niche Management (SNM). Furthermore, implications for the analysis of social dynamics and diffusion of practices as well as for the research of social innovation were discussed.

Both the in-depth analysis and the discussion have identified several dynamics that shape the development of the network of people that relate to the framework of permaculture in Germany. Using theory on SLSs for the in-depths analysis as a base for the broader analysis of the movement and its embeddedness in current socio-technical regimes offers interesting analytical perspectives. It gives detailed insights into internal dynamics that also play into developments at a broader level.

Looking at practical interaction and individual agents, it becomes more clear how a vision leads to operationalisation, sharing and further development of practices: Being situated in an unsympathetic or indifferent environment, the structural element CoP and Identity allow to look what motivates and supports people in the mutual creation of shared meaning, values, knowledge and competences. This is highly relevant as it alludes how individuals and the community transforms visions, motivations and meanings into practices, independent of institutional processes and in this way illuminates how new rules can be established through community dynamics.

The structural element of Boundaries indicates clearly were main discrepancies and challenges arise. Characterising boundary spanning, it further points out facilitating and also challenging conditions for individuals in a network and the network itself to further extend and spread practices. As a consequence, this framework offers insights, how diffusion which takes place independent of institutionalised processes can be further assessed. In this, it offers a relevant add-on to current

transition studies. Both dealing with network characteristics, connections and processes, the MLP and SLS offer a common basis for analysis. However, as becomes visible in the in-depth analysis, the individual agency as well as motivations and processes outside institutional settings are a special contribution of the SLS. In this, an integration of the two frameworks is proposed that examines more distinctly social processes as a close-up analysis, embedded in the conventional SNM components.

Two more interesting points offer additional relevance for the research into sustainability transitions that are informed by practice. First, applying a systemic perspective that links individual, local and network-internal dynamics to external socio-technical factors, it can be discussed more differentiated where there can be opportunities in the future. This gives access to dynamics through which change and radical innovations can happen. Especially the context of radical innovation is made more explicit through a detailed look into how different the context and as such also the potential for innovation is, keeping in mind that in order to realise learning processes, there needs to be tension that still allows for a common understanding and productive exchange. Second, for the initiatives as centre of the study the three modes of belonging allow to indicate possible facilitating and inhibiting factors as well as future directions that can be of interest.

Through these different insights on several levels, many points have emerged and have been further elaborated, also comprising a proposal of an integrated framework. This can be followed up in future research.

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Chapter 8 Appendix

8.1. Elaborating on transitions and SLS

8.1.I. Visions

In this respect, van der Helm (2009) characterises visions in the field of future studies on the base of three of their key features:

- they make a strong or explicit statement about a different nature of the *future* (with parts that are not existing, yet)
- they become especially useful when they refer to preferred futures and refer to *normative idealisations* of the future, paying respect to the context and uncertainties at hand
- a means for change into a *desired direction* that generates energy and commitment in a certain direction, being able to converge our action

8.1.II. Networks

The concept of self-organisation of complex systems states that actors in systems develop interactions in accordance to boundary conditions that are outside their control (Boons, 2008). Self-organisation is a lens through which a system's development can be analysed in terms of its ability to create a purposeful order. This perspective is applied to assess boundary conditions and their ability as well as restricting character to stimulate systems that are comparatively autonomously but work in concert with goals aspired by policy makers. Here, different governance types in the networks have been identified that display different characteristics and call for different actions.

In this regard, another helpful concept relating to dynamics of networks of *institutional capacity.* Institutional capacity describes the ability of a community (consisting out of different stakeholders, such as companies but also municipality or other interest groups) to achieve and maintain a certain degree of organisation that is necessary to enable collaboration between the participants. This organisational state is needed to overcome barriers that could otherwise function as an impediment to the construction and maintenance of networks. According to Gibbs (2003) these barriers can be of various natures, for example in the technical, informational, economic, regulatory, motivational dimension.

Furthermore, Gibbs describes institutional capacity by highlighting three different characteristics. A network should depict both *relational* and *knowledge* resources in terms of trust and a strategic planning process as well as a capacity to *mobilise* the other actors. Thus, by the participants ability

to link (by communication and mutual understanding) actors in a cohesive way and to provide mechanisms by which a vision can be created (through planning and a collaborative approach) and pursued (adequate influence and resources), a network is more likely to hold together and evolve in a common direction. *Long-term relationships (experience and routine)* that already exists among the actors can help to further develop a network (Gordon and McCann, 2000). However, this also requires some guidance in terms of an external pressure, an actor that facilitates communication and information exchange as well as an agency (any kind) that shows some leadership (Spekkink, 2014).

Caniels and Romijn (2008) developed a typology for networks and sort these according to several relationship types:

- co-operation in terms of ongoing knowledge building
- incidental contact between the actors concerned
- mere financial (donor) relationship (hardly associated with knowledge transfer)

Which of the above mentioned components are used specifically, depends on the function of the network and the applied analytical perspective. The following Table 8.1.1 gives a condensed overview of the reviewed characterisers.

Table 8.1.1: An overview on components that are commonly used to describe and characterise the network

Composition and structure	**Network actors**	**Activities and resources**	**Dimensions of barriers to effective networks**
Organisational form and governance type **Alignment** **Distance** **Diversity** **Boundaries and boundary conditions**	**Organisations, groups or Individuals**	**Activities** events with different duration and depths **Resources** *Relationships* between actors: • one-directional or two-directional • relationships of different nature and depth • can be related to an intensity or simply assessed on its presence Different *assets* such as • financial and physical resources • human: labour, knowledge, access to networks, relationships, social capital • relational, knowledge, mobilising resources	**technical, informational, economic, regulatory, motivational, lack of institutional capacity**

8.1.III. Learning processes

While first order learning leaves tacit knowledge unaffected and only causes changes within a narrow problem definition, higher order learning processes lead to changes mental frameworks of actors, providing also opportunities for the creation of alternative behaviours, practices and even values (Table 8.1.2). Here, the tacit knowledge plays a fundamental role.

Table 8.1.2: Levels of learning

First order learning	
	Evaluation of solutions, instruments, strategy outcomes using a given set of goals
Higher order learning	
	Problem definitions, goal settings and strategy evaluation based on a given value system and background theories
	Learning about background theories and value systems
	Learning about fundamental understandings of social order (also political ideologies) in society at large

Having talked of selection pressures in niches before, in the case of learning another consideration should be added, which makes a brief excursion into institutional theory necessary. Through pressures, processes of *institutionalisation* and *de-institutionalisation* can happen, which is nothing else than how transformative processes and innovations are conceptualised. All actors are exposed to these pressures and try to comply with these in order to gain legitimacy. Here, the cognitive, regulative and normative dimension all refer to different parts of the institutional setting. This helps to further clarify in which dimensions changes can arise through learning mechanisms. While *cognitive* aspects refer to the belief systems, problem agendas and search heuristics on which we base our interpretation of problems, *regulative* aspects relate to laws and regulations. The *normative* aspects are all social rules to which we try to comply in a social system in order to be a legitimate part of it. (Quist, 2007)

8.1.IV. CoP

Looking at these characterisers, different mechanisms can support the various functions of CoPs.

- *Events* can support the purpose of the Community of Practice. Important are the right type, rhythm and allotted responsibilities and natural cycles of communities in order to identify what is necessary in order to keep the right momentum.
- *Leadership* refers to the right degree of guidance for a Community of Practice in order to develop appropriately. The form of leadership will change over time.
- *Connectivity* enables the relationships between the members and combines means of communication and interaction over and across multiple media.
- *Membership* implies that the composition of the CoP determines the operations, its accessibility by others and the public perception of that respective CoP.
- *Learning projects* are practices that purposefully deepen the learning processes. Finally, *artefacts* are products, resources, tools and skills a Community of Practice uses effectively for its purposes.

8.1.V. Boundaries

The following dimensions can help to analyse boundary effects. Whether boundary processes can be accessed by different practices/disciplines and allow coordinated actions characterises the *coordination* dimension of boundary process. The right degree of coordination and routinisation of boundary processes enables to accommodate different practices without overburdening with irrelevant details.

The dimension of *transparency* defines, how understandably the practice across boundaries are constructed. This offers participants access to the meaning of a coordinating mechanism.

Finally, connections across border can be one- or two-dimensional. This is nothing less than a reflection of the inherent power distribution and can reinforce or bridge the boundary. This is characterised through the dimension of *negotiability*.

Also here, different mechanisms help constructing a learning system across border for effective functioning and interactions. Bridging the boundaries happens over

- *brokers* between communities: They can create connections, engaging import-export, rather stay at boundaries than move to the core of practices. Necessary requirements of brokers are enough legitimacy and some distance to bring up new things. However, their value can easily be overlooked (homelessness, invisibility). So one necessary question is whether their value understood and supported.
- *boundary objects*: artefacts, discourses, processes can enable multiple practices, negotiate their relationships and to connect their perspectives according to the situation.
- *interactions* (encounters, practices, peripheries / meeting points): bridge boundaries and provide *boundary encounters* where people from different backgrounds meet. They can also be observed in established *boundary practices* that help to institutionalise the connection of different disciplines and groups. The idea of *periphery interactions* are mechanisms a CoP draws on in order to deal with, inform or even internalise "outsiders" without having to go to far out of the core practices in order to accommodate for external demands. These can be websites, facilities such as help desks, introductory sessions or even apprenticeships systems.
- *cross-disciplinary projects:* invite disciplines to meet and to – together – negotiate their respective competences with one another in context foreign to any specific discipline. This active confrontation can create learning loops and new insights for all participants.

8.2. Where niches and SLSs meet in theory (extended)

Most apparent is that both concepts assume a system's perspective, acknowledging the reflexive dynamics in socio-technical systems, reinforcing or contradicting certain processes and practices of each actor. Especially the emphasis on enabling and inhibiting features such as the belief system, resources, artefacts, infrastructure and the perceptions, actions and roles of other actors overlap in both frameworks.

However, Wenger's approach to SLSs clearly sets learning interfaces and processes of a knowledge community into the main focus, whereas the niche analysis tries to identify dynamics with a broader scope, both in terms of who is reached and with which perspective on time. While the SLS approach generally takes into account different aspects and assesses these according to their quality and interrelated dynamics, the niche approach is used with a broader target group and time frame.

Especially focussing on the question, how ideas and alternatives can further grow out of protected spaces, the niche approach takes into account the dominant regime and society at that time in order to identify how to actually affect sub-systems to change in future developments. (Quist, 2007)

Thus, this combination of a detailed analysis of the status quo in learning dynamics depending on specific conditions coupled with an outlook into broader dynamics in the future seems an interesting opportunity.

Of interest is also the option that with SLSs is possible to zoom in on the individual level and its reflexive relation with a community. This dimension of individual learning has not been widely investigated in the framework of transition studies, yet. One exception is Vercauteren et al. (2013), where concepts of individual learning such the ones described by Shove and Walker (2007) or Røpke (2009) were related to grassroots innovations in the transition arena.

Acknowledging the social dimension of learning processes provides the option to see the complexity of a system consisting of different actors, with own interests and reflexive interactions. This is generally supported by social sciences that define individual learning as the generation of meaningful knowledge in a given context (Flick, 2009) and offers a perspective to problem solving that stresses the opportunity to learn in the specific context.

Both concepts have many aspects in common, sometimes originating with a different purpose in mind, thus under different terminology and focussing on slightly differing aspects. In the following, both frameworks will be compared based on their concepts on a range of criteria, an overview is provided in Table 8.2.1.

For the framework on SLSs it has been specified, where necessary, whether the relevant concepts predominantly refer to the individual or the organisational level. Despite many overlaps and analogies this distinction into individual and organisational learning is especially of relevance in the SLS framework in order to adjust the analytical lens more appropriately (Parson and Clark, 1995).

8.2.I. Comparison of concepts

Table 8.2.1: Comparison of concepts on learning processes in both frameworks

	Innovation and transition studies	**Social Learning Systems**	
Terminology collected		**Individual learning**	**Organisational level**
Learning processes			
Scope of learning processes	The dimensions of learning processes is applied on all levels of the MLP, however, it usually starts with learning on a group / niche level	Applied on individual and organisational level as a the result of the three modes of belonging and the three structural elements	
Nature of learning processes	1st order / higher order learning Cognitive, normative, regulative Institutionalisation	Interplay between competence and experience Learning as an issue of engagement in and contribution to their CoP	Interplay of core processes and boundary processes Interplay of participation and reification Learning as an issue of refining practices ensuring new members

In order to become more clear about other similarities and differences of both frameworks and to select the relevant requirements for the conceptual framework of this thesis, another short excursion into some more literature can help to identify the right angle of analysis.

Knowledge sharing and management in an organisational setting has also been investigated by Ipe (2003). It has been concluded that knowledge sharing is a function of the nature of the knowledge, the motivation to share and the opportunity to share. Factors under these categories have a big influence on knowledge sharing processes. Inkpen and Tsang (2005) complement this by investigating social capital and structure knowledge sharing in *cognitive* (shared goal and culture), *structural* (network characteristics) and *relational* aspects (trust).

Together they come to the conclusion that learning potential also depends on the environment, highlighting the enabling structure with its embedded social capital, motivations, expectations and trust as determinants for successful knowledge sharing. This nicely relates and supports the network, vision and identity and learning dimensions in the niche description.

In the following an overview table shows the different aspects meaningful to knowledge sharing based on the relevant aspects in the literature that was reviewed.

It needs to be mentioned that the following conceptualisation relates to mere theoretical decisions which aspects are addressed by which concept, with the goal to identify an appropriate angle for analysis within this thesis. Building upon the conceptualisations of the frameworks and empirical implications of the theory above, there is no other objective criteria for the quality of these identified aspects and the respective framework.

Table 8.2.2: Comparison of concepts on knowledge sharing in both frameworks

	Innovation and transition studies	**Social Learning Systems**	
Terminology collected		**Individual learning**	**Organisational level**
Opportunity to share			
Purposeful and relational learning channels	Network, the role of mediators	participating in CoP in interplay with boundaries	SLS and boundaries, nested in all levels and guided by participating in CoP, brokerage and boundary objects
Enabling and disabling infrastructure	Infrastructure in the socio-technical system, the role of mediators (and mediating tools)	Artefacts and processes, within the CoP and at boundaries	
Space	Space is determining processes and possibilities	Some processes are spatially bound (engagement) and others are connected over the community (alignment and imagination)	
Motivation to share			
Motivations	See Visions	Individual identity in reflexive relation to CoP	Identity of the CoP
Identity	See Visions	Core concept as one of the structural element of an SLS	

	Innovation and transition studies	Social Learning Systems	
Terminology collected		**Individual learning**	**Organisational level**
Visions	Key concept useful on different levels and for various purposes, e. g. used as a narrative for a desired change	Constructed through the three modes of belonging in the tension between CoP and boundaries	
Social capital, trust and cohesion	Resources	Important contributing factors in a CoP visible in the three modes of belonging	
Shared goal	See Visions	Identity and core practices, imagination across borders	
Shared culture	See Visions	Activities in the CoP, Alignment and imagination	A CoP and its identity and imagination
Shared structure	Network (alignment)	Core practices and boundary processes of a CoP, Alignment	
Nature of knowledge			
Tacit and explicit knowledge	Plays into the characterisation of visions and expectations	Defined by shared repertoire in the CoP	Translation at boundaries
Value of knowledge	Not defined ?	Defined by shared repertoire (expertise) in CoP	Translation at boundaries through brokerage and boundary objects such as mediation tools

Next to the different influencing factors on knowledge sharing, both frameworks also fundamentally draw on the actors networks. Although they are defined in different analytical concepts, the characteristics are depict significant similarities. Table 8.2.3 gives a brief overview on important network criteria used with slightly different specifications in both frameworks.

Table 8.2.3: Comparison of concepts of network characteristics in both frameworks

	Innovation and transition studies	Social Learning Systems	
Terminology collected		**Individual learning**	**Organisational level**
Network characteristics			
Scope	The dimension of the network is applied on all levels in the MLP, from individual (rarely) to the system's level.	Applied on the individual and the organisational level	
Relationships	Resources (financial assets, physical assets, social capital, …) Legitimacy One-directional / two directional	Identity and trust in CoP and at boundaries Legitimacy One-directional / two directional	
Activities	Events and activities shape the process Different activities support different relationships	Core practices and boundary processes. Important aspect of all modes of belonging, most obvious in the dimension of engagement Different activities support different relationships	
Composition	Network characteristic: actors and their discipline and background	Individuals in CoP and environment	CoP and boundary processes
Alignment / Alternative views	Network characteristic: actors and their motivation / vision / expectation	One of the three modes of belonging and influencing the boundaries processes through the identity.	

8.2.II. Overlap

With this crude inventory of concepts it can be seen that indeed both frameworks have many features in common sometimes with a slightly different perspective or emphasis. This overview also becomes helpful in the development of the analytical framework. It needs to be emphasised that the presented aspects should not be seen as linear in their relationship to each other. This holds true for both frameworks. Rather do the different concepts relate in interdependent dynamics to each other.

Even though the conceptualisation of SLSs might not have been tested in analysing the transition arena as such, elements from both theoretical concepts have already been combined in research. In the field of management and organisational studies, the concept of CoPs has been connected to network theory, for instance by drawing on social network literature (Schenkel, 2002) which is also used in transition studies. Re-constructing social networks is a helpful step in order to account for the

structure of communicative processes. This is an essential perspective as they form and shape the *shared repertoire* of an informal knowledge systems. In the study by Schenkel (2002), structural properties were identified that are also used as variables in literature on transition studies and niches. These were *connectedness*, *distance*, *density*, *core/periphery structure*.

Concerning interdisciplinary learning systems in the context of more sustainable development, Gluch et al. (2013) have characterised the interactions and processes related to knowledge sharing among practitioners and scientists in a consortium as a learning system over several years. Of special interest was how knowledge sharing between different professional groups and practices may be facilitated. Matters of interest were the *different perceptions* on the topic (*the knowledge field*) in question, their *personal engagement and sharing experiences* in the arena and their *organisation's view on the participation.* The investigation drew on in-depth interviews combined with field studies and observations of arena activities. The outcome was that knowledge sharing depends on how suitable the different groups are engaged by the appropriate tools that are sensitive to their respective community.

Directing the angle onto innovation, with his emphasis on boundaries as one structuring elements Wenger stresses the need for disparate perspectives as defined by Granovetter (1973) in order to learn progressively in a changing environment: The configuration of strong core practices and active boundary processes realises the learning potential of a CoP. That boundaries are both learning assets and liabilities is also realised in the field of transition studies and for instance supported by Cuppen (2012) with her emphasis on confrontation and constructive stakeholder dialogue on wicked sustainability issues. Looking into how this framework can be applied to bottom-up initiatives, Ingram et al. (2014) have tested the concept of CoP on the permaculture design practitioners in the UK. In this case, the matter of attention was the balance between core practices and boundary processes. In the focus were the *methods and preferences for learning* of the participants, *sources of information sources and inspiration* and *interpretations and understandings of permaculture practice*.

Also, the TT movement in the UK has been the focus of an assessment of Seyfang (2009).

However, despite his approach which combines several level of the social system, so far Wenger's framework has not yet been related to sustainability transitions and the MLP. One reason can be the existence of other similar concepts such the ones described by Shove and Walker (2007) or Røpke (2009).

Table 8.2.4: Scan of relevant studies drawing on theory on SLSs

Context	**Focus of attention** *indicators*	**Source**
Network analysis of informal knowledge	**The emergence of a shared repertoire.** *connectedness, distance, density, core/periphery*	Schenkel (2002)

Context	Focus of attention *indicators*	Source
sharing processes	*structure*	
Knowledge sharing between different CoPs	**Effective facilitation of knowledge sharing between different professional groups and practices.** *different perceptions on the topic (the knowledge field) in question,* *personal engagement of the participants and sharing experiences in the arena* *their organisation's view on the participation*	Gluch et al. (2013)
Group of permaculture practitioners as CoP	**Examines the nature of learning processes: The configuration and interplay between core practices and boundary processes.** *Situated learning and the core practices of a CoP (mutual engagement, joint enterprise, shared repertoire).* *methods and preferences for learning of the participants* *sources of information and inspiration* *interpretations and understandings of permaculture practice* *joint visions, influences of networks, personal experiences and reflections* **Boundaries and boundary processes.** *network boundaries* *perceptions, attitudes and approaches* *operationalisation of their goals*	Ingram et al. (2014)
	Key questions **to which extend does internal social coherence create boundaries?** **To which extend does renewal and opening bridge boundaries?** **How does CoP/boundary relationship influences a potential connection?**	

8.3. Interview guideline

The interview guideline is split in Questions and [Sub-questions, if required]

Introduction
Um sicher zu stellen, dass nichts verloren geht, würde ich dieses Interview gerne aufnehmen, ist das in Ordnung? Alle Namen werden später anonymisiert. Außerdem ist es die Absicht dieser Abschlussarbeit, auf eine objektive Weise den Status Quo darzustellen. Zöger nicht zu fragen, wenn du eine Frage nicht verstehst. Ich schreibe meine Masterarbeit auf Englisch, deswegen entschuldige ich mich schon einmal im Vorraus, sollte es ein paar komplizierte Übersetzungen geben, bitte frage sobald etwas unklar ist. Manchmal kann es vorkommen, dass Fragen ähnlich formuliert sind. Das ist, um sicher zu stellen, dass viele der Schlüsselkonzepte auch wirklich erfasst werden. Diese Abschlussarbeit läuft im Rahmen des Masterprogrammes Industrial Ecology, ein Studienprogramm, eine systemische Wissenschaft, die sich mit Transformationen auseinander setzt. Die Arbeit forscht unter der Annahme, dass ohne soziale Veränderungen unsere Gesellschaft nicht nachhaltig leben können wird. Einleitung: Ich nutze das Analyse-Tool „Community of Practice“, grob heißt das, wo Praktizierende Permakultur (PK) für sich selbst sehen und anwenden (im Leben und davon Leben/Erwerb). Weiterhin, wie Lernprozesse geformt werden und wie es im Netzwerk aussieht: wie sich PK-Interessierte im größeren gesellschaftlichen Feld organisieren. Der Kontext der Arbeit ist das Netzwerk derjenigen die Permakultur Design Prinzipien anwenden. Methodisch charakterisiert sie das Netzwerk der Permakultur-Praktizierenden als ein Wissens-Netzwerk, eine sogenannte Community of Practice. Das Ziel der Analyse ist, zu veranschaulichen, wie Permakultur-Praktizierende sich selbst sehen, wie sie sich verbinden und kommunizieren (innerhalb des Netzwerkes als auch nach außen) und wo Lernprozesse stattfinden und statt finden können. Um den systemischen Blick auf die gesellschaftlichen Prozesse auszuweiten, beschäftigt sie sich weiterhin mit Zukunftsaussichten und Hindernissen sowie Potentialen. Deswegen sind eure Visionen als auch die gegenwärtigen Barrieren auch relevant. Die Arbeit wird vorraussichtlich im Juni abgeschlossen sein.
General Information
Erst kurz zu dir, wie heißt du (das ist nur für mich um es zu sortieren), wie alt bist du und wovon lebst du?
CoP / Identity
Ist es dir möglich, zu beschreiben womit du dich konkret im Feld der PK beschäftgst [sowohl generell für dich und konkret in der professionellen Praxis / Erwerbsarbeit] ? Was macht für dich die Permakultur aus? [Was ist bei dir die Motivation dazu?]
Würdest du sagen, es gibt so etwas wie Hauptziele in der Permakultur-Bewegung?

Hast du eine persönliche Vision der Anwendung von PK? [Vision, Hindernisse, Stellhebel, Du musst nicht sagen, wer wo steht, was wo wächst, sondern eher, wo siehst du Stellhebel hin zum sinnvollen Wandel]
Du gibst Designkurse, Würdest du sagen es gibt etwas was in einen Curriculum rein muss (was gefördert / realisiert werden sollte), und (2) gibt es gewisse Dinge bei denen du hoffst, dass es Studierende mitbringen?
Wie (und wann) bist du zur Permakultur gekommen und wie hat sich deine Beteiligung entwickelt (gab es markante Punkte)? Zum Netzwerk kommend. Ist das Netzwerk der Permakulturpraktizierenden wichtig und hilfreich für deine Initiative und deine aktive Beteiligung [welche Art und Weise]? [erfüllst du eine gewissen Rolle im Netzwerk?]
[Was ist dir an der Gemeinschaft besonders wichtig?] [Spielt dabei Vertrauen eine wichtige Rolle? Ist es wichtig für deine Arbeit ?]
[Im Netzwerk: Gibt es Dialoge, was das größere Ganze ist? Gibt es Strategietreffen?] [Gibt es Disukurs darüber, was sich ändern muss?]
Mehr dazu: Gibt es eine gewisse Gruppierung (e. g. Arbeitsgruppen) / Richtung in der PK-Gemeinschaft / Richtung zu der du dich besonders zählst? Gibt es auch Uneinigkeiten (wiederkehrende Konfliktpunkte) innerhalb derjenigen, die PK anwenden?
Hälst du Qualitätssicherung und auch wissenschaftliche Beleuchtung für wichtig, sowohl in Bildungsarbeit als auch in der praktischen Anwendung für mehr Glaubwürdigkeit? / Gibt es Rechtfertigungsansprüche/-anfragen? [Steht das auf der Agenda?]
Jetzt ein paar allgemeine Fragen zur Kommunikation / Zusammenarbeit im Netzwerk: Spielt die Distanz für deine Arbeit eine Rolle? Wie bleibst du in Kontakt mit anderen Praktizierenden? [Welche Infrastruktur, usw.]
An welchen Ereignissen / Veranstaltungen nimmst du teil? Welche sind besonders wichtig für dich? [Welche Art haben diese? (Vernetzung, Strategie, Training, … kurzfristig, langfristig)]
Boundaries / Identity

Nun zu deiner Arbeit mit Menschen außerhalb des Permakultur-Netzwerkes. Hast du in deiner Arbeit viel mit Leuten zu tun, die nicht Teil des Netzwerkes sind? In welchem Kontext? Kriegst du dabei Unterstützung durch das Permakultur Netzwerk? Reicht diese? Gibt es mit Externen viele Verständnisprobleme in deiner Arbeitswelt?
Gibt es Inspiration für dich wo Permakultur gut anwendbar ist, oder bereits angewendet wird? [Denkst du es braucht mehr Anwendungsbeispiele?] [Ergänzung: was sind Hindernisse? Was müsste sich verändern damit es mehr geben kann?]
Gibt es Aktivitäten (mit Menschen außerhalb der Permakultur Gemeinschaft) die du hier besonders sinnvoll für deine Vision / Arbeit findest? Was ist deren Effekt?
Fällt es dir leicht, diese Kontakte (für Zusammenarbeit) herzustellen und aufrecht zu erhalten und ist die Zusammenarbeit gut? Gibt es davon genug? [Wer initiiert diese? Von wem gehen die Anfragen aus und woher kommen die Mittel? und gibt es dabei Herausforderungen?]
Bekommst du dabei Unterstützung? Würdest du dir mehr Unterstützung wünschen? [In welcher Art?] [Würdest du sagen, da kann noch mehr im Netzwerk gearbeitet werden oder ist die Verteiliung ganz gut?]
Final comments
Gibt es noch Herausforderungen über die du reden willst?
Gibt es noch etwas, was du gerne erwähnen würdest? [Anregungen, Kommentare, mehr Infos, feedback...]
Kennst du jemanden, mit der oder dem ich auch reden sollte (durchaus auch mit einer anderen Haltung)?

8.4. Data collection

In order to compare the insights from the different interviewees a template is used, containing information on:

- the interviewee's age, financial model

- the interviewee's motivation, understanding of permaculture and practices (identity)
- the interviewee's position and role within the permaculture internal and local network (core practices and boundary processes)

The following tables depict interviews that were already performed and future interviewees for the first part of the thesis.

Table 8.4.1: List of interviewees and their background in the problem definition phase

Name	Occupation	Institution / Background	Diploma	Region
Robert Strauch	Permaculture instructor	Permakultur Akademie Deutschland	Yes	Branden-burg
Max Gaedtke	PhD student, permaculture design in urban planning	University of Göttingen	In the process	Göttingen
Hannelore Zech	Practitioner	Mienbacher Waldgarten	In the process	Landau
Harald Wedig	Permaculture instructor	Permakultur Akademie Deutschland	Yes	Bad Kreuznach
Sina Goudarzi	Permaculture instructor Permakultur Akademie: Finanzplanung and Controlling	Permakultur Akademie Deutschland	Yes	Freiburg