



KNOWLEDGE BROKERAGE IN COMMUNITIES OF PRACTICE

Synthesis report on literature review

Draft version

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2011



'FOODLINKS - Knowledge brokerage to promote sustainable food consumption and production: linking scientists, policymakers and civil society organizations' is funded within the European Commission's SEVENTH FRAMEWORK PROGRAMME.

THEME: "Environment" ENV.2010.4.2.3-3 Brokerage activities to promote sustainable consumption and production patterns

The present report is a draft version; comments are very welcome and should be directed to the corresponding author: Sandra Karner (karner@ifz.tugraz.at)

Acknowledgement

We wish to warmly thank the interviewees, who kindly enlisted their time and provided us with useful information by openly sharing their experiences with Knowledge Brokerage:

Kevin Collins, Gerald Berger, Nora Brüggemann, Fanny Gleize, Piotr Magnuszewski, André Martinuzzi, Gerd Scholl, Michael Schmidt, Carlo Sessa, Adriaan Slob.

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Preface

The FOODLINKS project

The FOODLINKS project develops and experiments with Knowledge Brokerage activities as new ways of linking research to policy-making in the field of sustainable food consumption and production. The activities are carried out within three thematic Communities of Practice, each focussing on *short producer to consumer food chains*, *re-valuing food procurement*, and *urban food strategies*.

FOODLINKS is a collaborative project funded by the Seventh Framework Programme of the European Commission with the purpose of evaluating knowledge brokerage linking scientists, policymakers and civil society organizations. The project runs 3 years from January 2011 until December 2013 and is being carried out by a consortium of 14 partners (universities, regional and local governments and civil society organizations) from 9 European countries. The policy partners include the Province of Limburg, The Netherlands; the City of Malmö, Sweden; Scottish Government, Scotland; and the municipality of Tukums, Latvia. The research partners include Wageningen University, The Netherlands; the Research Institute of Organic Agriculture, Switzerland; Cardiff University, UK; Pisa University, Italy; the Baltic Studies Centre, Latvia; City University of London, UK; the Inter-University Research Centre for Technology, Work and Culture, Austria; as well as the Basque Institute for Agricultural Research and Development in Spain (Neiker). The Civil Society Organisations (CSO) involved include FRCIVAM Bretagne - a regional initiative promoting local sustainable development in rural areas in France and Via Campesina Austria, which serves as a grass roots representation for Austrian mountain farmers. Wageningen University is the project coordinator.

Aims and scope of this report

This document has been prepared as a basis to optimize the design of the FOODLINKS Knowledge Brokerage activities (KBA) among the project partners, which come from research institutes, policy and civil society organisations. It represents a conceptual framework for the design of the FOODLINKS Knowledge Brokerage activities, which has been elaborated on the basis of a literature review. In addition interviews have been carried out with participants from other Knowledge Brokerage projects¹ in order to explore how they conceptualised Knowledge Brokerage and to learn from their experiences with the practical implementation.

¹ Interview partners were from the following projects:

AWARE - How to achieve sustainable water ecosystems management connecting research, people and policy makers in Europe (<http://www.aware-eu.net>);

BESSE - Brokering environmentally sustainable sanitation (ESS) for Europe (<http://www.besse-project.info>)

CORPUS - Enhancing Connectivity Between Research and Policymaking in Sustainable Consumption (<http://www.scp-knowledge.eu>)

PSI-CONNECT - Policy science interactions: connecting science and policy through innovative knowledge brokering (<http://www.psiconnect.eu>)

DELIBPROCESSSCP - Identifying research needs and designing elements of deliberative processes on sustainable consumption and production in the demand areas food, housing and mobility (<http://www.scp-dialogue.net>)

CSOCONTRIBUTION2SCP - Partnering to enhance civil society organizations contribution to research in

The first section of this report gives a general overview on the concept of Knowledge Brokerage (KB); the second section outlines the concept of communities of practice (CoP), and the third builds on the conceptual framework of Social Learning (SL) and related learning theories. Finally we conclude on the relevance of these three concepts (SL/KB/CoP) for the context of the FOODLINKS.

I. Knowledge Brokerage

This chapter gives a general overview on the concept of 'Knowledge Brokerage (KB). It addresses theoretical and practical aspects of understanding of how to organize and carry out 'Knowledge Brokerage activities' (KBA). This shall serve as a basis for a discussion and an agreement on the key characteristics of Knowledge Brokerage we want to focus on within FOODLINKS.

We briefly outline the relevance of Knowledge Brokerage for linking science, policy and practice in order to enhance the use of research outputs as well as to learn about further research needs oriented towards policy and practice. We give an overview on how of Knowledge Brokerage may be generally conceptualised, at which levels it may occur, and which roles and strategies it might imply. Finally we present a list of lessons learned from practical experiences with Knowledge Brokerage building on facilitating and hindering aspects identified within these experiences.

Material referred to in this chapter is mainly drawn from literature; in addition the section about lessons learned includes information gained from interviews carried out with people engaged in Knowledge Brokerage activities.

I.1 Challenges in the interaction between science, policy and practice

The role of science in policy and decision-making has been an issue of intensive debate over the past decade, and the concept of Knowledge Brokerage has been developing in this context (Sheate & Partidario 2010). Shortcomings have been formulated as large quantities of knowledge produced for the benefit of policy (e.g. policy-oriented modelling in sustainability research²) are never used in that policy-making (In't Veld & de Wit 2000), or addressed as the problem of little effect (Weiss 1975). Such limited effectiveness may be on the one hand due to wilful neglecting (Owens et al. 2004), e.g. due to clashing political interests (Volkery & Ribeiro 2009³), on the other hand it may be also attributed to shortcomings in communication, different epistemological positions – including little consensus around basic terms and what is being addressed (Michaels 2009). For instance, both epistemologically and practically what constitutes

sustainable consumption & production

PRIMUS - Policies and research for an integrated management of urban sustainability (<http://informed-cities.iclei-europe.org>)

RespondeR – Linking Research and policy Making for Managing the Contradictions of sustainable Consumption and economic Growth (<http://www.scp-responder.eu>)

SLIM - Social Learning for the Integrated Management and sustainable use of water (<http://sites.google.com/site/slimsociallearningforiwm>)

² E.g. Sterk et al. (2009)

³ C.f. Magnuszewski et al. (2010)

science is contested, as are complex policy problems and the (policy) options for addressing them (Lovbrand 2007⁴). In this line evidence based policy principles and practices ('evidence-based' or 'evidence-informed' or 'evidence-aware') might be also contested (see e.g. Holmes & Clark 2008).

An answer to foster the utilization of research findings Knowledge Brokerage has been identified as a promising strategy (e.g. Slob et al. 2007, van Kammern et al. 2006, CHSRF 2003), in terms of promoting the interaction between researchers, policy makers and civil society by developing a mutual understanding of goals and cultures of participating actors to identify issues and problems for which decisions or solutions shall be developed:

"Knowledge brokering is one of the human forces behind knowledge transfer. It's a dynamic activity that goes well beyond the standard notion of transfer as a collection of activities that helps move information from a source to a recipient. Brokering focuses on identifying and bringing together people interested in an issue, people who can help each other develop evidence-based solutions. It helps build relationships and networks for sharing existing research and ideas and stimulating new work." (CHSRF 2003: ii)

Much of the literature dealing with Knowledge Brokerage assumes that knowledge is produced through research, and then needs to be transferred to the recipients for evidence based decision making and practice in order to tackle societal relevant 'real world problems'. However, some authors also address the issue of informing research about the relevance of research outputs for policy and practice through Knowledge Brokerage (e.g. Konijnendijk 2004, Holmes & Clark 2008, Michaels 2007). Scholars from science (and technology) studies (e.g. Gibbons 1994, Nowotny et al. 2001) go even beyond that, arguing that the knowledge production process itself needs to be considered being a social process. Political ideologies, values, education, professional training, work and non-work related experiences vary among individuals – including scientists, decision makers and others, and this shapes how they define and understand an issue (Kraft 2007⁵). Integrative mechanisms of knowledge production (e.g. transdisciplinary research, mode 2 sciences, co-operative research), knowledge exchange and integrated assessment and management approaches have been suggested as promising ways for bringing together such a variety of perspectives in order to address complex multidimensional problems – especially where social, political, technical and economic developments interact with elements of value and culture (see e.g. Stirling 2005). In such contexts, there is an increasing awareness for the importance of framing research questions that reflect the needs of policy and practice (e.g. Petrokovsky et al. 2010).

Enhancing the utilisation and 'public value' of research demands for mechanisms in the knowledge system, which include a more open dialogue of science-policy-civil-society interactions instead of solely unidirectional knowledge transfer. As a consequence there is a growing interest in engaging non-researchers in research using collaborative and interactive 'upstream' approaches (see e.g. Wilsdon & Willis 2004), but also in interpreting and translating already existing research outputs against the background of a specific societal, cultural or political context in order to achieve a useful application of research findings in policy and practice.

⁴ C.f. Michaels (2009)

⁵ C.f. Michaels (2009)

Multiple factors influence the way research is used by decision makers and different stakeholders (e.g. Gravel et al. 2006, Legare et al. 2006, Millner et al. 2006). The final uptake of findings in policy and practice is much more dependent on the context of researchers and users, and on relationships and mutual understanding than on the attributes of the research results (Landry et al. 2001, Armstrong et al. 2006). The transformation of knowledge into use is not a linear process, where knowledge producers inform users about facts (e.g. in the rationalist/positivist model), but is a complex route including complex sets of interaction between actors (Armstrong et al. 2006, Ward et al. 2010). As several authors argue, the quality of knowledge exchange depends on the type and quality of relationships between partners (e.g. Currie et al. 2010, Dobbins et al. 2010, Sheate & Partidario 2010, Ward et al. 2010), because – as defined in the research utilization theory (Hutchinson & Hubermann 1993) - knowledge may be considered a changing set of understandings shaped by those who both generate and use research. The implication of this is, that those supposed to use research outputs are more likely to do so if there is an identified need or incentive (Armstrong et al. 2006).

1.1.1 The science-policy-practice gap

The overall frame for knowledge exchange is built through the established knowledge systems, which includes how and by whom research demands are formulated (also through political decisions for research agenda setting), and how information is produced (which kind of knowledge has been considered, who has been engaged in the process?). Consequently the information might be more or less relevant or more or less tangible for the potential users. This system also refers to science/politics/public boundary arrangements. As Gieryn (1999) argues, such boundaries between science and policy and practice are socially constructed, aiming at an active separation between science, public knowledge and policy (Fisher 1988, Guston 2001, Jasanoff 1990). This separation makes the transfer, exchange and co-production of knowledge difficult, because there may be little consensus around what is being addressed (Michaels 2009), and how to address it. As argued by Galison (2008), scientific considerations and non-scientific considerations are not easily untangled. In this line - addressing in particular the limited use of research information by decision makers, the 'two communities theory' (Caplan 1979)⁶ states a fundamental gap between science and policy, which originates from researchers and policy makers inhabiting two separate worlds with different and often conflicting values, different rewards systems and different languages. Scientists and policy makers seek answers to different questions. Scientists are often less interested in the "big picture" or social aspects of their work. The focus of scientific research is usually very narrow and deep, partly as a result of the increasing specialization of scientific theory and methods (Magnuszewski 2010). On the other hand, for policy makers other issues may be more relevant.

Moreover, researchers and policy makers often operate on different time scales; whilst researcher often take years to complete research studies, policy makers and practitioners want answers quickly (Ward et al. 2010). Added to this each community speaks its own technical language (Choi et al. 2005⁷).

⁶ C.f. Jacobson et al. (2003)

⁷ C.f. Ward et al. (2010)

1.1.2 Actors' skills

Another general challenge relates to the lack of actors' skills in engaging in interactive relationships, in sharing knowledge (Michaels 2009), in understanding different protocols and practices (Clark & Kelly), but also infrastructure (Strauss et al. 2009) that would be necessary for co-operative activities. One of the reasons for the existence of actors' poor skills has been attributed to shortcomings in most educational curricula (see e.g. Millna et al. 2006, Lavis 2006), and in the career rewarding system of scientists. For instance, academia is missing a culture that nurtures scientists, via rewards and training, to engage in active communication with wider public and decision makers. At present, publication in peer reviewed journals is the mostly preferred and awarded communication route for scientists (Shanley & López, 2009). Besides this, working realities often do not leave any time and resources for activities going beyond the communities' 'core businesses' (Karner et. al. 2010).

One solution to bridge the gap between knowledge and action, and to link research outputs to policy and practice as well as research (agendas) to the need of policy and practice, is to use interventions like Knowledge Brokering as a catalyst.

1.2 Knowledge Brokerage as potential solution for bridging the gap

Knowledge – Information – Data

Before addressing different types of Knowledge Brokerage, we would like to address the notion of 'knowledge' and briefly outline the relationship between **knowledge**, **information** and **data**. These notions represent different levels of the knowledge hierarchy:

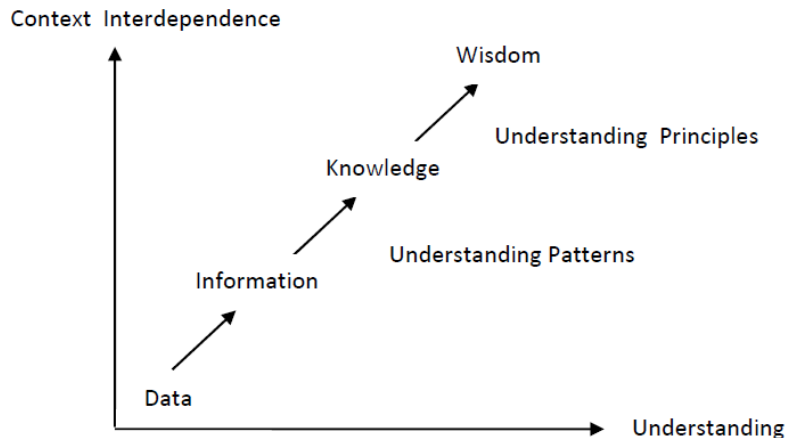


Figure 1: Representation of Data, Information, Knowledge and Wisdom (after Bellinger 2004)

While data can exist in any form, usable or not, and it does not have meaning of itself, information is data that has been given meaning, relevance and purpose by way of relational connection. This 'meaning' can be useful, but does not have to be. Knowledge, on the other hand, is a much more elusive entity; it is the appropriate collection of information that has a meaning and is useful. Knowledge implies information that has been processed through learning

to be able to be recalled and so create understanding and insight (Bloom et al. 1956⁸). While data and information are mediated by our already existing knowledge and concepts, knowledge may be viewed as person-dependent and to some extent subjective.

Types of knowledge

Knowledge may be divided into two main categories: knowledge can be seen in a spectrum where at one extreme end we find the ***tacit*** and unconscious knowledge and at the other end the ***explicit***, structured and coded knowledge (Polanyi 1967⁹). The differences between these two types of knowledge are described in Table 1.

Properties of Tacit Knowledge	Properties of Explicit Knowledge
Ability to adapt, to deal with new and exceptional situations	Expertise, know-how, know-why and care-why
Ability to collaborate, to share a vision, to transmit a culture	Coaching and mentoring to transfer experiential knowledge on a one-to-one, face-to-face basis
Ability to disseminate, to reproduce, to access, and to reapply throughout the organization	Ability to teach, to train
Ability to organize, to systematize; to translate a vision into a mission statement, into operational guidelines	Transfer of knowledge via products, services and documented processes

Table 1: Properties of tacit and explicit knowledge (Dubois & Wilkinson 2008: 25)

Tacit knowledge refers to intuitive, hard to define knowledge that is largely experience based, and it is often context dependent – including cultural beliefs, values, attitudes, mental models, etc. as well as skills, capabilities and expertise (Botha et al 2008¹⁰). It is hard to communicate and deeply rooted in action, commitment, and involvement (Nonaka 1994¹⁰), and it is much more difficult to grasp this more subtle form of knowledge than what we may know explicitly. Consequently tacit knowledge cannot be managed in the same way as explicit knowledge. While explicit knowledge is formalised and codified and fairly easy to be identified and stored in a mechanical or technological way, like in texts or information systems, tacit knowledge is in the minds of human beings, which poses a certain challenge in sharing such tacit knowledge. Since it is internalized, it cannot be shared that easily and there are different standpoints in regard to the externalisation and codification, which might be necessary to transfer tacit knowledge. While some scholars believe that this would not be necessary anyway by arguing that it is not important whether the distributor of tacit knowledge is conscious of the knowledge or not (Polanyi 1958, 1966⁹), others believe that it must be made explicit for being shared (e.g. Nonaka & Konno 1998⁹).

⁸ C.f. Sheate & Partidario (2010)

⁹ c.f. Haldin-Herrgard (2000)

¹⁰ c.f. Frost 2010

However, for sharing and managing tacit knowledge specific methods need to be applied, e.g. activities like apprenticeship, direct interaction, networking and action learning that include face-to-face social interaction and practical experiences (Haldin-Herrgard 2000). As for instance Bate and Robert argue, interaction between people is vitally important to sharing tacit knowledge:

“Tacit knowledge can only be ‘passed’ from one person or place to another if a social network exists. Indeed, the ease of transfer depends entirely on the quality of the source-recipient relationship and the strength and denseness of that relationship. For knowledge exchange of this kind, therefore, there needs to be strong personal connections, a high degree of cognitive interdependence among participants and shared sense of identity and belongingness with one’s colleagues and the existence of cooperative relationships” (Bate & Robert 2002: 659).

In regard to sharing tacit knowledge, Currie et al. (2009) explicitly underline the value of Knowledge Brokering through situated interactions – as taking place in Communities of Practice. Situated interaction is highly relevant, since this type of knowledge is embedded in practice itself and is not amenable to articulation or codification (Polanyi 1966¹¹). Likewise Clak and Kelly emphasise the potential of Knowledge Brokerage (and knowledge transfer) to “move tacit knowledge into utilitarian outputs” (Clark & Kelly 2005: 35). They also refer to the significance of organising Knowledge Brokerage within Communities of Practice as a way of nurturing new knowledge or sharing existing tacit knowledge within a process of situated learning.

Furthermore one can distinguish between the so called **expert knowledge** and **‘lay’** (Wynne 1989) or **‘local’** (Fischer 2000) or **‘indigenous’ knowledge** or **expertise** – both could be as well tacit as explicit. This distinction refers to a kind of hierarchy in officially acknowledged expertise: while the lay knowledge is the informal knowledge of lay people, expert knowledge is formally defined and widely recognised as a kind of objective form of knowledge (e.g. scientific knowledge), thus often being referred to as more legitimate – especially in the context of policy decision making. However, the epistemic value of lay and local knowledge is increasingly valued in several research and policy fields - especially in the context of bearing complex decisions or to better understand, assess and handle complex issues (e.g. Brush & Stabinsky 1996, Carolan 2006, Janse & Konijnendijk 2007, Slob et al. 2007).

1.2.1 Linking Research and Policy

Magnuszewski and colleagues elaborated a conceptual framework for policy-research interaction, which proposes that Knowledge Brokerage may affect the policy process at different stages. As depicted in Figure 2 (Magnuszewski et al. 2010), Knowledge Brokerage may enhance the science policy interactions by:

- exploiting the body of scientific knowledge, which shall induce the production of policy relevant scientific knowledge.
- distilling relevant scientific knowledge, and by providing it to policy makers policy development may be affected.

¹¹ C.f. Currie et al. (2010)

- reframing policy problems, and sometimes through Knowledge Brokerage new or hidden problems may be discovered.
- redefining information feedback, which may affect politics, cultures and mental models in a way that influences policy development.
- challenging dominant (and often unconscious) individual mental models, which may create space for new and innovative solutions.
- facilitating the generation of research questions being in direct response to upcoming policy problems.

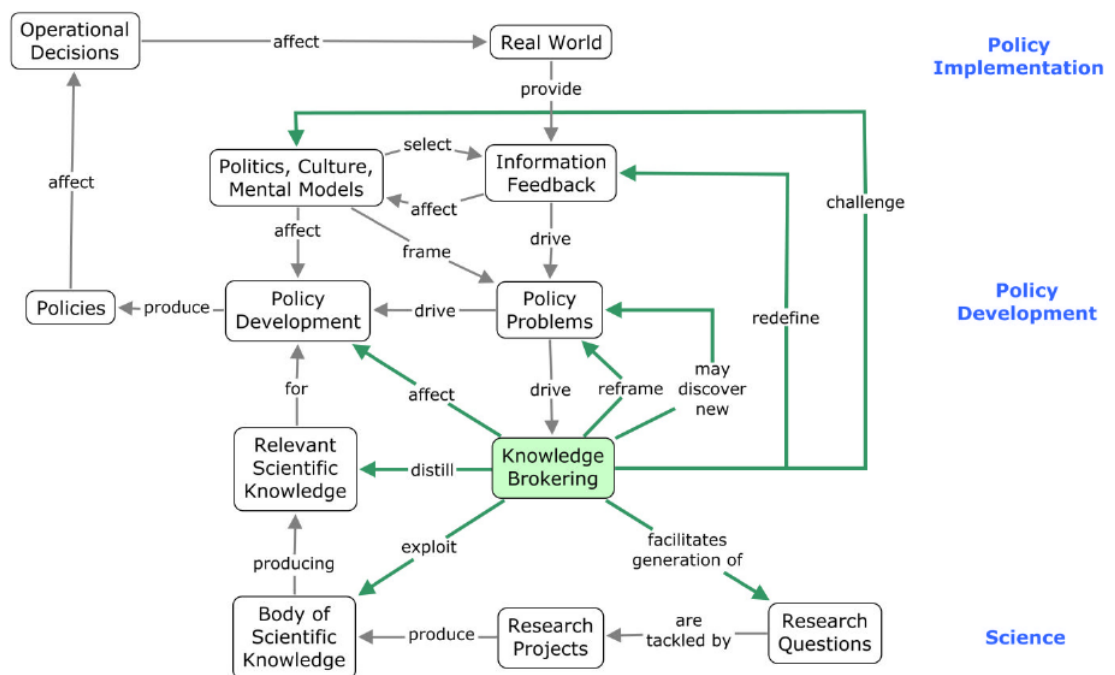


Figure 2: Conceptual framework for policy science interactions enhanced by Knowledge Brokerage (Magnuszewski et al. 2010: 38)

1.2.2 Different Knowledge Brokerage concepts for different purposes

Knowledge Brokerage is not a new concept. As described by Lomas (2007), for instance already in 1906 the University of Wisconsin created its extension division to support agricultural liaison officers linking local farmers and university researchers, as they still do today.

On the one hand the term 'Knowledge Brokerage' or 'Knowledge Brokering'¹² has been and still is used to refer to a broad range of intermediary activities, fulfilling several purposes; on the

¹² Within FOODLINKS we use the term 'Knowledge Brokerage', which is synonymously to 'Knowledge Brokering' as often used in the literature.

other hand activities that might be considered being Knowledge Brokerage – or at least include brokerage activities - are not always explicitly named ‘Knowledge Brokerage (Brokering)’. The range of descriptions encompasses many terms suggesting a focus on specific activities, like science/policy communication, knowledge transfer, knowledge exchange, knowledge translation, knowledge sharing, knowledge dissemination, knowledge interaction, knowledge intermediation, knowledge mobilisation, or knowledge management. Table 4 in the Annex gives some examples to illustrate the diversity of – sometimes even conflicting - definitions.

However, the meaning of Knowledge Brokerage as used in the literature could be generally understood as an intermediary activity that takes place between and within the spheres of science, policy and civil society in order to bridge the research-to-practice gap (e.g. Roxborough et al. 2007) or the knowledge-to-action gap (e.g. Strauss et al. 2009) or more generally to manage the boundaries between science, policy and practice (e.g. Michaels 2009) and to link the producers and users of research (Ward et al. 2010). Such intermediary activities are designed to build relationships and foster effective knowledge exchange, and several authors emphasize the focusing on interpersonal interactions in these activities (Roxborough et al. 2007).

The purpose of Knowledge Brokerage activities is often related to support the identification, access, assessment, interpretation and the utilisation of research findings for evidence based policy making, and the uptake in practice, which addresses an interaction with relevant stakeholder groups or the public in general. However, on the other hand Knowledge Brokerage also aims at meeting shortcomings in terms of ensuring that policy- and/or practice-relevant research is carried out – e.g. through the identification of practice and policy relevant research questions (e.g. Konijnendijk 2004, Holmes & Clark 2008, Michaels 2007, Mitton et al. 2007).

According to the diverse purposes Knowledge Brokerage is expected to fulfil, the conceptualisation differs. Based on a review of literature dealing with environmental issues, Magnuszewski et al. (2010) distinguish between two main groups conceptualising Knowledge Brokerage slightly different:

- 1) The first understands Knowledge Brokerage as a concept that improves science communication in both directions. Here Knowledge Brokerage aims to increase the utilization of scientific information in decision making (and practice) by facilitating knowledge exchange through dissemination of research findings, synthesizing existing knowledge and the “translation” of scientific information.
- 2) The second group doubts that improved communication alone would make a difference – acknowledging the complex process of using knowledge. In their point of view Knowledge Brokerage is about (re)framing translation and interpretation of knowledge in order to increase the acceptance and use of scientific information by policy makers (and practitioners). In such a viewpoint the “*discursive dimensions of knowledge*” (Magnuszewski et al. 2010: 24) is considered, and the framing of knowledge could be defined as “an activity of selection, organisation and interpretation of a complex reality so as to provide guideposts for knowing, analysis, persuading and acting” (Rein & Schon 1991: 263¹³). Moreover, this approach implies the acknowledgement that the use of scientific information in policy making itself can be seen as a political act. That does not only refer to what kind of information is used in policy making, but also in which stage of the policy process to use it – the agenda setting, decision making,

¹³ c.f. Magnuszewski et al. 2010

implementation and evaluation. One of the main challenges is to make sure that the knowledge transfer is synchronised with emerging windows of opportunity.

Definition	Purpose	References
I) KB comprises strategies for information transfer and for strategic relationship building in science and policy spheres.	<ul style="list-style-type: none"> • To enhance communication between scientists and policy makers • To improve the diffusion, dissemination and utilization of scientific information in decision making by facilitating knowledge exchange including; research findings dissemination, synthesizing existing knowledge and translating scientific information 	Konijnendijk (2004) Pielke Jnr. (2007) Holmes & Clark (2008) Holmes & Savgard (2009) Perreira et al. (2009) Shanley & López (2009) Holmes & Lock (2010) Thomson et al. (2006)
II) KB comprises the complex use of knowledge where the scientific information is re(framed), translated, and interpreted to allow it being accepted and used by policy makers.	<ul style="list-style-type: none"> • To frame scientific information that is based on “the discursive dimensions of knowledge”, acknowledging that the use of science in policy is itself a political act. • To negotiate with and persuade policy makers • To facilitate the production of more useful information • To bring disparate elements together in a more holistic entity 	Litfin (1994) Swerrisson (2001) SurrIDGE & Harris (2007), Michaels (2009) Sheate & Partidário (2010) Sterk et al. (2009) Owens & Rayner (1999) Armstron & Kendall (2010) NCDDR (2005) Van Kerkhoff (2005)

Table 2: Contrasting views of Knowledge Brokerage (adjusted from Magnuszewski et al. 2010: 24)

1.2.3 Different levels of Knowledge Brokerage

Knowledge Brokerage activities may be located at different levels– referring to the individual level, a group or an organisation (Currie et al. 2010):

- a) **Individual level:** knowledge brokerage is done by a person, who overtakes the role of a boundary spanner between the different realms of research and policy and/or practice by translating, transferring, and exchanging knowledge (e.g. consultants, advisors).
- b) **Group level:** At the group level of brokering social capital represents a means through which knowledge is exchanged (Nahapiet & Ghoshal 1998¹⁴). The development of social capital within a network or community requires that actors are connected to each other (structural dimension), understand each other’s perspectives (cognitive dimension) and trust each other (relational dimension). Through situated interactions, engaged actors engaged in the Knowledge Brokerage activities build up trust and understanding that encourages them to exchange knowledge. As Currie and colleagues state, social capital affects such situated interaction between actors, as well as it is an effect of such

interactions: “*social capital, in which a group of knowledge brokers may be embedded, provides an antecedent or ‘glue’ for brokerage to overcome any ‘stickiness’ of tacit knowledge across occupational and organisational boundaries*” (Currie et al. 2010: 22).

- c) At the **organisational level** of brokering, boundary spanning institutions/organizations may develop: they either could be independent or affiliated to one of the realm (e.g. extension services, science shops, Universities’ knowledge transfer departments, liaising departments at ministries, etc.). Knowledge brokers at the organisational level have a social-integrative function and mediate divergent interests by focusing on organisational mechanisms and processes that enable collaboration, and in so doing, they selectively broker knowledge to induce collective action and enhance co-operation amongst actors engaged (Currie et al. 2010).

As described by Currie et al. 2010, much of the literature on Knowledge Brokerage focuses upon the individual level; i.e. who within the network acts as a knowledge broker. However they also argue that much of analysis at the individual level applies to the cases of group and organisational level Knowledge Brokerage. In this line the brokerage roles described below may apply for all levels.

1.2.4 Brokerage roles

The roles of individuals/groups/organisation performing KB could be quite divergent. With reference to a knowledge broker typology framework (Gould & Fernandez 1994¹⁴) the brokers’ roles could be categorised as ‘representatives’, ‘gatekeepers’, ‘liaison brokers’, ‘coordinators’, or ‘itinerant brokers’ – according to which domain they belong to as depicted in Figure 1.

In the ‘**co-ordinator**’ framework all the actors including the broker and the source of knowledge are in the same group.

In the ‘**itinerant broker**’ type the broker mediates between actors in the same group, but the broker is not part of this group.

The ‘**gatekeeper**’ screen external knowledge to distribute it within their own group.

‘**Representative**’ role is given if a group delegates the brokering role of external knowledge to someone in the group.

‘**Liaison**’ is when they knowledge is brokered across different groups, neither of which the brokers are members of.

¹⁴ C.f. Currie et al. 2010

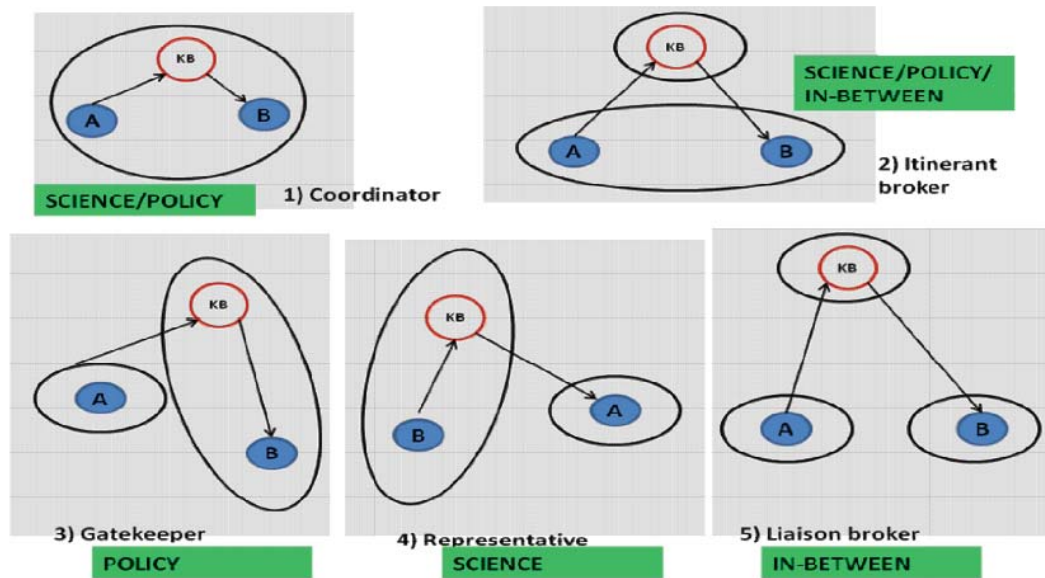


Figure 3: Knowledge broker typology framework (Magnuszewski 2010 adapted from Gould & Fernandez 1989)

Magnuszewski et al. (2010) did a review of Knowledge Brokerage activities in environmental studies and categorized the brokers' roles based on this framework. Their results showed that the predominant type was 'representative', followed by the 'gatekeeper'; they found a clear preference for knowledge roles to belong to the science domain, followed by the preference for the policy domain. Additionally, it was revealed that most authors who place the broker role in the science domain do not see this role as a separate entity from science; instead the authors suggest that scientists shall take on these extra responsibilities and broaden their capabilities.

1.2.5 Knowledge Brokerage strategies

Knowledge Brokerage does not only imply different roles, but it also includes diverse strategies. These strategies may vary according to the actors engaged (different types of researchers, policy makers, civil society or other actors), the type of knowledge being shared, and the specific context. Michaels (2009) reviewed Knowledge Brokerage strategies in the context of policy decision making; thereby she identified the following six that might be employed in responding to different types of policy problems or policy settings:

Inform: The intent of informing is to disseminate content; it is mostly related to unidirectional knowledge transfer. Implicit in this approach is that the recipient understands the significance of what is being presented and may well accept the information on face value. The information may be packed in a form, such as a fact sheet, that the recipient will be able to understand the content, evaluate what actions are required as a result of that understanding, such as no action or finding out more, and then decide whether or not to take those actions.

Consult: This process involves someone who is accountable for a problem looking for counselling, seeks someone regarded as having potentially valuable insights, if not solutions, into the problem at hand. The broker may be the intermediary, who is able to locate the expertise necessary to help solving the problem, and who establishes a connection. Jacobson et

al (2005)¹⁵ identified the following factors being relevant for the success of such a consultancy process: the consultant should be perceived as accessible, organised, expert and credible, and the client should be open-minded communicative and committed to the consulting process. Above all the client should be engaged in the knowledge generation, since this will have a positive impact on the utilisation and acceptance of the recommendations.

Matchmake: Matchmaking brings together individuals who can contribute to an envisaged action (e.g. policy decision making). Through brokerage the actors are brought together; the broker needs to identify what expertise is needed, and who can provide it in order to connect these people. As Magnuszewski et al. (2010) notes, the need for matchmaking intermediaries lies in the fact that on the one hand researchers are often not aware about the relevance of research results for decision makers (or other potential knowledge users), and that on the other hand decision makers may not “be oriented toward the scientific environment” (ibid: 31).

Engage: Engaging as a form of brokering involves the party who is responsible for addressing the problem establishing and implementing a process of involving others with salient expertise. The others contribute their substantive expertise on an as needed basis throughout the process of addressing the problem. The broker may play the role of liaison and facilitator. The assumption is that the meaning of the circumstances, potential courses of action and their implications require the decision maker(s) involved to interact with individuals who have differing and complementary expertise.

Collaborate: Collaborating involves all participants in jointly framing the process of how they interact with each other, and to negotiate how to scope the problem to be addressed. Collaboration requires that those engaged think beyond providing their expertise, and that they reflect on how their knowledge can productively and usefully be juxtaposed with the expertise of others. While collaborators bring their expertise, they must work as team members to address the complex issue at hand.

Build capacity: Capacity building was defined by Newlands (1981: iv)¹⁵ “as increasing the ability of people and institutions to do what is required of them”. To build capacity in the scope of Knowledge Brokerage “parties jointly frame process of interaction and negotiate substance with intent of addressing multiple dimensions of a policy problem while considering what can be learned from doing so that is applicable to implications of the issue, future scenarios and related concerns” Michaels et al. 2009: 997).

While *informing*, *consulting* and *matchmaking* require a quite low level of involvement, *engaging*, *collaborating* and *capacity building* need higher levels of engagement and personal interaction to be effective. For “intensive knowledge brokering” in-person interaction is considered being highly desirable, because this makes the sharing of a broader and more meaningful range of information. For instance as Snowden (2002) points out, interactive verbal exchanges are more revealing than written communication, because people say more than they are able to write down. This includes side conversations and casual contact that helps people to better contextualise and make sense of what is discussed (Westley et al. 2006).

Knowledge Brokerage strategies may also build on different understandings of what constitutes knowledge. While in the *informing* strategy knowledge is conceptualised as a ‘body of

¹⁵ c.f. Michaels (2009)

knowledge' ('epistemology of possession'; Cook & Brown 1999¹⁵), in *capacity building* knowledge is generated through the process of acting ('epistemology of action'; *ibid*).

I.3 Effectiveness and success of Knowledge Brokerage

Due to the variety of purposes of Knowledge Brokerage and related activities carried out in different contexts and settings, the definition of effectiveness and success varies among cases. However, the success of Knowledge Brokerage activities relies to a high degree on how the interaction process is organised and on contextual factors as well as on the actors engaged in the process and their skills.

I.3.1 Lessons learned: facilitating and limiting aspects

From literature and interviews carried out with people engaged in Knowledge Brokerage Activities, a number of barriers and drivers for effective and successful Knowledge Brokerage have been identified. Some of the lessons drawn thereof relate to specific practical experiences in – sometimes very - specific contexts, others have been based on the exploration of several Knowledge Brokerage cases. Even if the empirical data available may not provide clear evidence for general statements about what works well and what does not, we compiled a list of key learning points of potential relevance for planning, designing and implementing Knowledge Brokerage within FOODLINKS. Most findings are not surprising; however being conscious about these points may be useful in order to carry out successful and effective Knowledge Brokerage activities:

General contextual conditions

- ***Political commitment:*** The actual use of outcomes could be positively influenced by a political commitment at high levels of decision making. This could be raised by developing an environment of trust and openness towards policy actor's receptiveness of substantial inputs into decision-making. (Sheate & Partidário 2010)
- ***Resources:*** Effective Knowledge Brokerage needs sufficient resources (Sheate & Partidário 2010, Interview I_31_250511, Interview I_61_050511) for all actors engaged (Karner et al. 2010) in order to give enough room for related activities, which often go beyond the actors' 'core business'.
- ***Capacity building:*** Structures and measures that support long-term development of skills, culture and capabilities supports knowledge exchange across professional and organisational boundaries (Currie & Kerrin 2003, Scarbrough & Carter 2000). Such capacity building measures should foster greater self-reliance in both the research producer and the user, e.g. enhancing the knowledge transfer/communication skills as well as the analytical and interpretative skills (Ward et al. 2009).
- ***Alignment measures:*** Mutually poor understanding and incompatibility of timelines and organisational processes in research and policy making make Knowledge Brokerage difficult; thus alignment measures may enhance the success of Knowledge Brokerage (Magnuszewski et al. 2010). E.g. impediments in making links between bureaucracies with complex and inflexible structures and traditions could be overcome through

interpersonal linkages brokered through charismatic, knowledgeable and trusted individuals (Jackson-Bowers et al. 2006¹⁶); personal two-way communication can promote a better understanding of policy-making by researchers and research by policy makers (Innvaer et al. 2002¹⁷).

- **Reward system:** A reward system for researchers that does not only recognise academic excellence and publications, but also the implementation of research in policy and practice could enhance researchers' commitment to engage in Knowledge Brokerage with non-scientists and researchers from other disciplines. (Clark & Kelly 2005)
- **Lateral linkages:** Effective KB is facilitated by the existence of organisational structures and human resource policies and practices that link knowledge domains and actors laterally (Currie & Procter 2005).

When to carry out Knowledge Brokerage?

- **Window of opportunity:** The effect of Knowledge Brokerage is especially high if it is synchronized with emerging windows of opportunity to influence policy developments. (Magnuszewski et al. 2010, Interview I_11_090611)
- **Upstream engagement:** Knowledge Brokerage that involves decision makers already in the research process is associated with a higher degree of research uptake (Dobbins et al. 2009); knowledge generation arising from dynamic human interaction created through face-to-face encounters above traditional research practices (Clark & Kelly 2005).
- **Supporting and challenging policies:** An effective Knowledge Brokerage tries to obtain the best available range of knowledge and information which would both support, and in some cases challenge, policy development and implementation (Clark & Kelly 2005, Magnuszewski et al. 2010).

How to organise the process?

- **Time:** Effective Knowledge Brokerage needs appropriate time (Interview I_61_050511) – rushed timescales cannot deliver effective outcomes and militate against effective engagement (Sheate & Partidário 2010); moreover Knowledge Brokerage needs to be a long-term activity in order to make the use of scientific findings becoming a routine (Russell et al. 2009), and long-term relationships in general have a positive effect of the effectiveness of cooperation (Karner et al. 2010).
- **Reference to different types of knowledge:** Just the engagement of a diverse range of stakeholders does not guarantee the willingness (openness of process) to make use of different types of knowledge made available. Engaged actors could simply not be willing to acknowledge and make use of other forms of knowledge, because of a previous fixed (policy) position. (Sheate & Partidário 2010, Interview I_61_050511)

¹⁶ C.f. Magnuszewski et al. 2010

¹⁷ C.f. Lomas 2007

The **motivation** of actors to engage on Knowledge Brokerage may be critical for their openness and willingness for knowledge integration (Karner et al. 2010, Interview I_32_110411), thus the process should be tailored to the engaged actors' expectations (Interview I_61_050511).

Which kind of activities?

- **Relationships of trust and confidence:** The quality of Knowledge Brokerage depends on the type and quality of relationships between engaged actors (Sheate & Partidário 2010, Interview I_32_110411); key factors in successful Knowledge Brokerage and collaboration are relationships of trust and confidence; frequent interaction that reinforces high trust relationships represent a prerequisite for effective knowledge brokering (Armstrong et al. 2006, Currie et al. 2010, Bowen et al. 2005; Dobbins et al. 2009, Lomas 2005, Landry et al 2000) or driving research into practice (Lomas 2007).
- **Customized activities:** Knowledge Brokerage activities which are customized to specific contexts are more likely to support the uptake of evidence into policy decisions and practice (van Kammen et al. 2006, Interview I_62_150411).
- **Non-linear process:** One-directional knowledge transfer from the producers to the users of research is not very likely to be beneficial for research utilisation in evidence informed policy and practice (Armstrong et al. 2006); an **interactive** and **multidirectional** process is considered being more effective (Ward et al. 2010).
- **Combining activities:** A combination of different activities, e.g. tailored messages (e.g. executive summaries about current research evidence) and interactive activities engaging researchers and policy makers to discuss research findings and their potential implications for practice positively influences the use of research evidence. A process that reaches potential users on multiple levels is considered being very effective in achieving evidence-informed decision making. (Dobbins et al. 2007)
- **Transfer of tailored information:** Decision-makers prefer to receive research evidence in form of systematic reviews based on the culmination of many studies versus single studies. Due to their limited time, they can handle short summaries containing key findings more easily than full study reports. (Dobbins et al. 2007, Interview I_61_050511, Interview I_31_250511)
- **Tailored activities:** Knowledge brokerage activities should be tailored to suit all actors engaged (Clark & Kelly 2005, Interview I_61_050511). Techniques to help facilitate knowledge exchange and transfer among stakeholders should explicitly recognise the diversity of types of knowledge represented by different stakeholders (Sheate & Partidário 2010, Interview I_61_050511). In case using highly experimental settings for the activities should be communicated in a sensitive way in order to be taken serious (Interview I_32_110411).
- **Appropriate communication styles** and **tools** should be chosen according to the different types of stakeholders/actors engaged (Interview I_31_250511, Karner et al. 2010). The shared language should correspondent to different types of knowledge involved. It helps to avoid misunderstandings if a check on use of (technical) language is carried out, that enables to confirm at an early stage of the process what the different actors (e.g. policy and academic communities) mean in the use of particular terms and

core concepts. (Clark & Kelly 2005, Karner et al. 2010, Interview I_61_050511, Interview I_31_250511)

For activities engaging actors from different language areas, it is important to implement measures (e.g. use of specific tools, provision of translation services, language support, conscious facilitation) to avoid **language barriers** (Interview I_61_050511). This could be particularly relevant for activities engaging actors of different educational background, but the capability to cope with foreign languages may also differ amongst age groups. (Interview I_63_070411, Karner et al. 2010)

- **Online tools:** Online tools to be used for Knowledge Brokerage activities need to be carefully chosen and designed in line with the actors' capabilities of using such tools. It needs much effort to mobilise people (Interview I_32_110411). The openness to engage may be influenced by prior knowledge/experiences with online tools (Interview I_41_310511). In particular in the beginning certain actors may be quite reluctant in engaging in online interaction; regular training sessions and technical support is a way to facilitate the use of online tools (Interview I_31_250511).
- **Site visits** can facilitate building trust and learn about local conditions in order to tailor Knowledge Brokerage for specific needs (Dobbins et al. 2009); moreover they can support to gain a shared understanding of a specific situation (Karner et al. 2010).
- Considerations about how Knowledge Brokerage methods may help to **reconcile competing knowledge claims** by different stakeholders are important. Even if they may not necessarily reconcile competing claims, the use of appropriate techniques may help to bring them to the fore and increase the awareness of engaged that competing claims even exist. (Sheate & Partidário 2010, likewise described for transdisciplinary research processes by Loibl 2005)
- **Relational issues:** It is helpful to address relational issues between those involved in the Knowledge Brokerage process in order to address differences between the communities. (Clark & Kelly 2005)
- **Process flexibility:** In order to enhance strategic thinking and adaptive management process openness, process iteration and flexibility is important (Sheate & Partidário 2010). A certain flexibility of the process is also necessary if adjustments according to participants' needs and expectations are requested (Karner et al: 2010).

Actors engaged:

- **Appropriate range of stakeholders:** It is important to understand who are the key actors, what is their specific context, and what might be their motivation to participate in order to mobilise successfully (Interview I_61_050511). The identification of the appropriate range of stakeholders to be engaged can be supported by **mapping** in preparation; mapping of social networks and different types of stakeholders, knowledge basis and information needs is also useful to adjust Knowledge Brokerage. As part of stakeholder and user engagement mapping potential types of knowledge and knowledge ownership of stakeholders, given the policy issues under consideration could be identified. (Sheate & Partidário 2010)

- **Personal relationships:** Strong commitment and full engagement of participants (good personal relationships are supportive in regard to the commitment of engaged actors, which is especially relevant if the immediate benefit of the Knowledge Brokerage activity is not very obvious. Thus it is easier to build on already existing networks or already ongoing activities (Interview I_11_090611, Interview I_61_050511, Interview I_32_110411).
- **Added value:** Trust in the added value /potential of the Knowledge Brokerage activity (this also reflects the Knowledge Brokerage capacity of the used methods) is important to achieve ownership of the process (Sheate & Partidário 2010).
- **Thematic focus:** a thematic focus can help to make the activities more tangible and attractive for participants to engage (Interview I_51_170511)

Building on Clark & Kelly (2005: 30), it may be stated “getting the right mix of people and information together” in a tailored process “to tackle the right issues at the right time” is the essence of Knowledge Brokerage.

1.3.2 Knowledge Brokerage skills

Finally, even if we may consider that Knowledge Brokerage within FOODLINKS primarily takes place on the group level, the skills of participating people – especially those taking over the leadership – influences the success of the activities. Dobbins et al. (2009) even argue that there is some evidence that e.g. personality characteristics of knowledge brokers’ makes each Knowledge Brokerage activity unique (that may draw into question the generalization of interventions and outcomes to other Knowledge Brokerage settings).

As addressed above, knowledge brokers may perform a range of roles, which calls for specific skills that may vary according to the different purposes. However, a core set of brokering skills necessary to carry out effective Knowledge Brokerage has been identified by several authors as summarised by Roxborough et al. (2009):

Personal attributes: Knowledge brokers should be inquisitive, enthusiastic, flexible, inspirational, imaginative, highly credible and keenly interested in learning. They should be skilled analysts, able to see the 'big picture' and be able to readily identify links between ideas and pieces of information.

Evidence gathering skills: Knowledge brokers should be aware of the best sources of synthesized evidence and original studies within their content area and have focused expertise in searching these sources for research evidence. They should also be skilled in searching for less formal contextual evidence such as policy documents and evaluation reports. The ability to evaluate the effectiveness of knowledge brokering activities is also a necessary skill for an effective KB.

Critical appraisal skills: Knowledge brokers should be adept at appraising evidence to evaluate its quality, importance, and applicability to a particular context. In addition to traditional critical appraisal skills, they should have knowledge of the sector, the broader environment (e.g. policy

context), its key players and controversies - and use this to gauge the applicability and adaptability of new evidence to user contexts.

Communication skills: Knowledge brokers should have strong oral and written communication skills and use a variety of methods targeted to the needs of the diverse stakeholders (e.g., researchers, clinicians, policy-makers, managers, and healthcare consumers). They should use active listening skills to gain insight into the interests, issues and innovations of their network members.

Mediation skills: To function as effective relationship builders, knowledge brokers should be skilled mediators. They assemble teams and foster collaboration amongst individuals and groups who would not normally work together. They reconcile misunderstandings, facilitate the identification of shared goals, and negotiate mutually beneficial roles for all group members.

1.3.3 Knowledge Brokerage in FOODLINKS

In FOODLINKS we conceptualise Knowledge Brokerage activities as integrative modalities of linking research in the field of new food geographies and policy making in the field of sustainable food production and consumption. Knowledge Brokerage in FOODLINKS is envisaged to exploit on the one hand the existing knowledge reservoir in regard to its relevance for policy decisions and the practical implementation of related measures; on the other hand gaps in available research and further research needs are supposed to be identified.

1.3.3.1 Knowledge Brokerage being as much social as technical

The FOODLINKS Knowledge Brokerage concept acknowledges that the use of knowledge is a complex social process going beyond the technical aspects of knowledge management, transfer, exchange and translation. Thus the FOODLINKS strategy of promoting an effective interaction between researchers and end users builds on activities that catalyse both, the technical and the social dimensions of the processes. Through Knowledge Brokerage we will facilitate social processes, which are necessary to create relationships of openness and trust between engaged actors in order to develop a mutual understanding of different contexts, viewpoints, practices and cultures to be integrated in a shared vision about sustainable food production and consumption. This implies engaging actors in concerted action to identify relevant issues and problems, e.g. in a joint problem (re)framing, for which decisions or solutions need to be found in order to reach a common aim.

1.3.3.2 Level of Brokerage

Knowledge Brokerage in FOODLINKS mainly takes place on the group level; however, the individual level also may become relevant – at least concerning some actors engaged. On the one hand some individuals participating in the Knowledge Brokerage activities already fulfil a kind of brokerage role – either as ‘coordinators’ within the Communities of Practice, or as ‘gatekeepers’ and ‘representatives’. On the other hand the Communities of Practice are conceptualised as being open to engaging further individuals/groups /networks, and to link the engaged actors’ organisations, networks, communities to what’s going on there. Assuming that

the establishment of such linkages will be induced through the individuals participating in the Knowledge Brokerage, they would serve as brokers.

1.3.3.3 Knowledge Brokerage process in FOODLINKS

Assuming that Knowledge Brokerage is more than a linear and unidirectional process where knowledge producers inform users about facts – like it is often the case in science communication or knowledge transfer activities, Knowledge Brokerage in FOODLINKS is defined as a participatory, heterarchical, non-linear and reflexive interaction process. The process is supposed to enable engaged actors from different communities to build relationships that allows for an efficient exchange of different forms of knowledge and experiences. By engaging in ongoing interactions and joint activities, the process shall deepen actors' knowledge and expertise, foster that they learn from each other's, and develop a mutual understanding about the topic at stake.

The Knowledge Brokerage process is conceptualised as a participatory group process accompanied by reflexive monitoring. This implies that the definition of the concrete purpose and the planning of activities is part of the process. However, we suggest an overall process-model that refers to four stages, which might be individually adapted according to the needs of each Community of practice: (1) scoping stage, (2) envisioning stage, (3) research reservoir exploration stage, (4) assessment of learning stage.

In the **scoping stage** participants engaged in the CoPs explore the theme and the potentially relevant issues/problems of the issue at stake. Preferring an integrated approach, we aim at including the whole range of perceptions and understandings of the issue at stake in this process by making the specific views, needs and values of all the actors involved explicit.

In the **envisioning stage** participants jointly reflect on their vision/s about the future development of the theme based on policy relevant agendas and strategies. Since the themes of the three CoPs represent a broad thematic field, which includes different levels of governance, strategically significant aspects to be tackled with priority need to be identified.

In the **research reservoir exploration stage** existing information and knowledge necessary to tackle the key aspects identified within the envisioning stage is collected, selected and exploited. This process may include knowledge translation in order to make existing research results more accessible for its use in policy making and practice.

Finally in **the assessment of learning stage** a concrete assessment of the existing research reservoir takes place. This includes joint reflections about the usefulness of existing research (form and content), activities that identify knowledge gaps, and the identification of further research needs (form and content).

These four stages are dynamic and might be iterated according to the concrete knowledge brokerage activities planned by each Community of Practice. All stages may include different ways how knowledge may be brokered, e.g. through dissemination, transfer, translation, exchange, management etc.

1.3.3.4 FOODLINKS Knowledge Brokerage activities

At the given stage of the project the activities to be carried out within the CoPs have not been fixed, but it is likely that Knowledge Brokerage in FOODLINKS will include:

- the development, maintenance, and facilitation of networks linking researchers, decision-makers and civil society
- the support of social interaction and trust to promote a better understanding of different context
- the support of communication processes
- shaping group learning processes
- the establishment of knowledge management systems
- synthesising existing knowledge (from different sources)
- the support for knowledge integration for e.g. co-operative knowledge production, integrated management, integrated assessment, etc.
- support for evidence informed decision making
- guiding decision-makers and civil society organisations in accessing, appraising, adapting and applying research evidence
- helping decision-makers and civil society organisations to find, develop, or commission synthesized research and develop tailored messages
- helping researchers, decision-makers and civil society organisations to define research and policy priorities
- helping researcher to understand the relevance of their work for policy and practice
- helping to translate scientific knowledge into relevant information for policy and practice
- helping to translate research needs articulated by non-researchers into research questions, projects, or research agendas
- assessing context with attention to supports and barriers for knowledge exchange
- the support of capacity building in all communities engaged
- and other activities

FOODLINKS Knowledge Brokerage strategies

Since FOODLINKS is likely to include a broad range of brokerage activities, the project will combine several strategies. However, the FOODLINKS Knowledge Brokerage concept refers to a participatory group process, thus we envisage that the core activities – in particular those being carried out within the CoP core group – will build on strategies that need a high level of engagement.

II. Communities of Practice

The knowledge brokerage activities within FOODLINKS will take place within the overall frame of Communities of Practice (CoP). We will apply the concept of multi-organisational and distributed CoPs to organize the knowledge brokerage process of bringing researchers, policy makers and civil society organizations together to build up learning communities. The participation in CoPs can be seen as an essential process of learning (Barston & Tusting 2005). The stability of a CoP may be considered as an essential factor for a mutual learning process (John 2005). Based on regular interactions the participating actors may discover new ways of seeing the world, and learn collectively how to better address or deal with the issue at stake by recruiting a shared repertoire of resources and practices. In terms of knowledge production Wenger et al. (2002) state, that CoPs do not only give room for explicit knowledge, but also for tacit knowledge.

This chapter gives an overview of the concept of Communities of Practice and its relevance for knowledge brokerage activities. It is mainly based on some major book publications by Etienne Wenger in collaboration with different colleagues and their suggestions of how to use CoP as a framework for social learning and knowledge development activities. Material is mainly excerpted from three books: “Communities of Practice. Learning, Meaning, and Identity” by Etienne Wenger (Cambridge University Press 1998) on the basic concepts and theoretical frame of CoP; “Cultivating Communities of Practice” by Etienne Wenger, Richard McDermott and William M. Snyder (Harvard Business Press 2002) as a more practice-oriented guide to managing knowledge; and “Digital Habitats: Stewarding Technology for Communities” by Etienne Wenger, Nancy White and John D. Smith (Portland, OR: CPsquare 2009) on digital tools and the practice of stewarding technology for communities.

The chapter is structured as follows: The first section summarizes the main elements and concepts developed by Wenger and colleagues to better understand communities of practice. Next comes a sub-chapter about cultivating communities of practice which is oriented towards the practical implementation and use of the CoPs concept. The third part then puts more emphasis on the role of technology, particularly the World Wide Web and Internet-based tools, in enabling and nurturing communities of practice. This is particularly relevant to the FOODLINKS project, as the intention is to make extensive tools of such tools due to the distributed character of the FOODLINKS CoPs over several European countries with limited opportunities to meet face to face. The chapter will finally conclude with some recommendations for FOODLINKS which can be drawn from the CoPs literature.

II.1 Definition of a Community of Practice

Communities of practice can be defined as a group of people *„who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.”* (Wenger et al. 2002: 4) At its core, CoP thus are about learning as social participation in a setting of shared practices.

Members of such CoP may come from different organisations and places, they are in the end knit together around core knowledge requirements. Interaction and informal learning processes are particularly important for sharing tacit knowledge and embodied expertise. Such knowledge resides in the skills, understanding and relationships of a CoP’s members as well as in the tools, documents and processes that embody aspects of this knowledge. (Wenger et al. 2002: 11) CoP thus emphasise the collective nature of knowledge which becomes ever more important in an increasingly complex and fast changing world.

II.2 Structural model

In the concept of Wenger every CoP is a unique combination of three fundamental elements: a domain of knowledge, which defines a set of issues; a community of people who care about this domain; and the shared practice that they are developing to be effective in their domain. (Wenger et al. 2002:27 and following)

The **domain** of a CoP creates common ground and a sense of common identity. The domain encompasses the common problem framing, the joint topic and purpose of the CoP. Such purposes may be very mundane (eating well) or highly professional and specialised (developing functional food). It is essential to inspire members to contribute and participate; it guides their learning, gives meaning to their action, and creates identity through shared understanding. Without such a shared domain which “*creates a sense of accountability to a body of knowledge and therefore to the development of a practice*” a CoP would just be a group of friends or some other association of people. However, it has also to be noted that the domain of a successful CoP usually is not static, but the set of problems constituting the domain changes along with the community development and with changes in the outside world.

Wenger et al. point to the challenges and difficulties to map domains and define their content and scope. A good domain is not merely a passing issue, nor is it an abstract area of interest. “*It concerns complex and long-standing issues that require sustained learning*” and which at the same time are the “*key issues or problems that members of a community experience*”.

The **community** is the second central element of a CoP. A CoP is always a group of people who interact, build relationships and learn together and never a website, a database or a collection of best practices. It fosters interactions and relationships based on mutual respect and trust, and creates the social fabric of learning. An important precondition for such a type of community is the continuity of interaction over an extended period of time. In such a process trustful relationships can develop and members build a sense of common history and identity. This should, however, not be mixed up with homogeneity – successful communities of practice usually encourage differentiation among members who take on different roles and bring in different backgrounds. On the one hand, a successful CoP needs sufficient common ground for mutual engagement, while diversity on the other hand can make learning processes richer and more creative. (Wenger et al. 2002:35)

CoP can greatly differ in size. However, usually they require a critical mass of people to sustain regular interaction and they may also become too large and thus an obstacle to direct interaction. However, Internet-based communities of practice such as patient self-help groups show that CoP may also function with a large group of peripheral participants. Participation in a CoP generally is voluntary, though it is not necessary that such communities develop spontaneously. However – and this is important also for the FOODLINK CoP – success of such communities very much depends on the energy and commitment the community itself generates and not on some external mandate.

CoP need some kind of leadership to be effective, as will be pointed out in more detail later. Often this leadership is distributed and is a characteristic of the whole community. Another issue is how to deal with conflict. What certainly can be said is that the presence of conflict does not mean that a CoP were not effective. As with the domain-element, the structure and base of the community need not be static (and normally is not) but will change and develop over time.

Practice, finally, “*is the set of frameworks, ideas, tools, information, styles, language, stories and documents that community members share.*” (Wenger et al. 2002: 29) It is closely related to the

specific knowledge the community develops, shares and maintains and includes both, its tacit and explicit aspects. Practice denotes a set of socially defined ways of doing things in a specific domain: a set of common approaches and shared standards that create a basis for action, communication, problem solving, performance and accountability.” (Wenger et al. 2002:38)

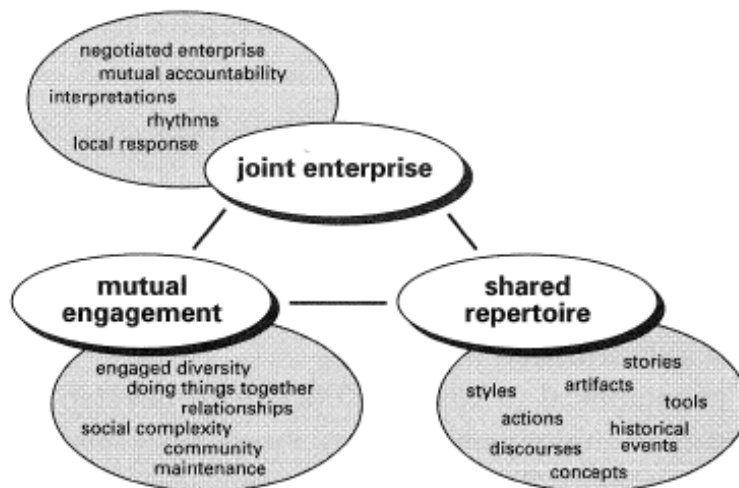


Figure 4: Dimensions of practice as the property of a community (Wenger 1998:73)

Figure 4 points to three main dimensions of practice: (1) **Mutual engagement** as the source of coherence in a community; a shared practice connects participants to each other in ways that are diverse and complex; (2) **Joint enterprise** as a result of a collective process of negotiation; not a stated goal, but mutual accountability becoming an integral part of practice; and (3) a **shared repertoire** as a resource for negotiating meaning.

It is these three elements of shared domain, community and practice together which refers to a specific type of social structure which is called Community of Practice and which constitutes a particular setting for sharing knowledge embodied in practice and processes of social learning to disseminate, apply and develop this body of knowledge. With these characteristics CoP are different from e.g. informal networks (which are not ‘about’ something, i.e. don’t have a domain which gives them identity), professional organisations, interest groups (which are not about developing a shared practice, which directly affects the behaviours and abilities of its members), or projects (which are more task and solution oriented).

II.3 Learning in Communities of Practice

The issue of social learning will be dealt with in more depth in part III of this report. Here we will just shortly touch upon this issue to highlight the way it is conceptualised in the CoPs framework. Without doubt, learning is at the core of the concept of communities of practice. As Wenger (2010) points out, CoPs may even be viewed as “social learning systems”. Learning in a context of practice means for Communities of Practice: evolving forms of mutual engagement, understanding and tuning their enterprise and developing their repertoire, styles and discourses. Learning from this point of view is “*what changes our ability to engage in practice, the understanding of why we engage in it, and the resources we have at our disposal to do so. (...) Such learning has to do with the development of our practices and our abilities to negotiate*

meaning.” (Wenger 1998: 95-6). While learning processes cannot be designed in a strict sense in CoP, they certainly can be facilitated along certain dimensions as Figure 5 depicts.

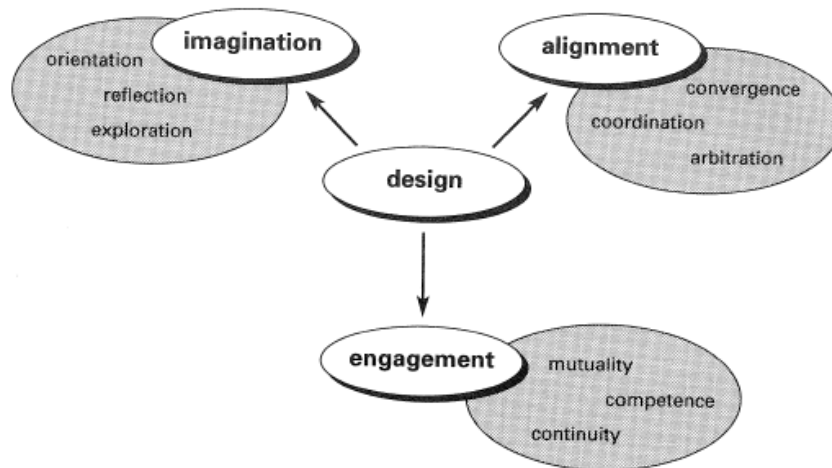


Figure 5: Three infrastructures of learning (Wenger 1998: 237)

“Designing” an architecture for learning must offer facilities for each of the three different modes depicted in Figure 5. It needs to facilitate engagement, support processes of imagination by developing joint orientation, by reflection and exploration; and facilitate alignment processes through coordination, feedback or boundary facilities. Many of the tools suggested later in this report deal with one or several of these dimensions.

Learning in communities of practice may be from each other – shared stories, personal experiences, etc. – or with each other by helping each other understand certain issues. Learning may also occur through both, formal and informal activities. While informal may refer to the exchange of stories and tips, formal activities may be about the systematic collection of ‘frequently asked questions’ or a systematic screening for information which is put on the website.

The following Figure 6 depicts the diversity of activities in which communities of practice may engage and which are all examples of social learning taking place. The activities in figure 6 are organised along the dimensions of (1) learning from each other (e.g. by sharing stories or personal experiences) or with each other (e.g. in a learning group) and (2) learning through formal (e.g. developing models of best practice) or informal activities (e.g. exchange of stories and tips). If we arrange such typical activities of CoPs along these two dimensions, we can then group them into certain types of activity: exchanges (of news, stories), productive inquiries (exploring ideas, project reviews), building a shared understanding (e.g. joint events), producing assets (documentations etc.), creating standards (models of practice), formal access to knowledge (e.g. training and workshops) and, finally, visits (e.g. field trips). Most of these activities are relevant, if CoP shall serve as settings of knowledge exchange as envisaged in the FOODLINKS project.

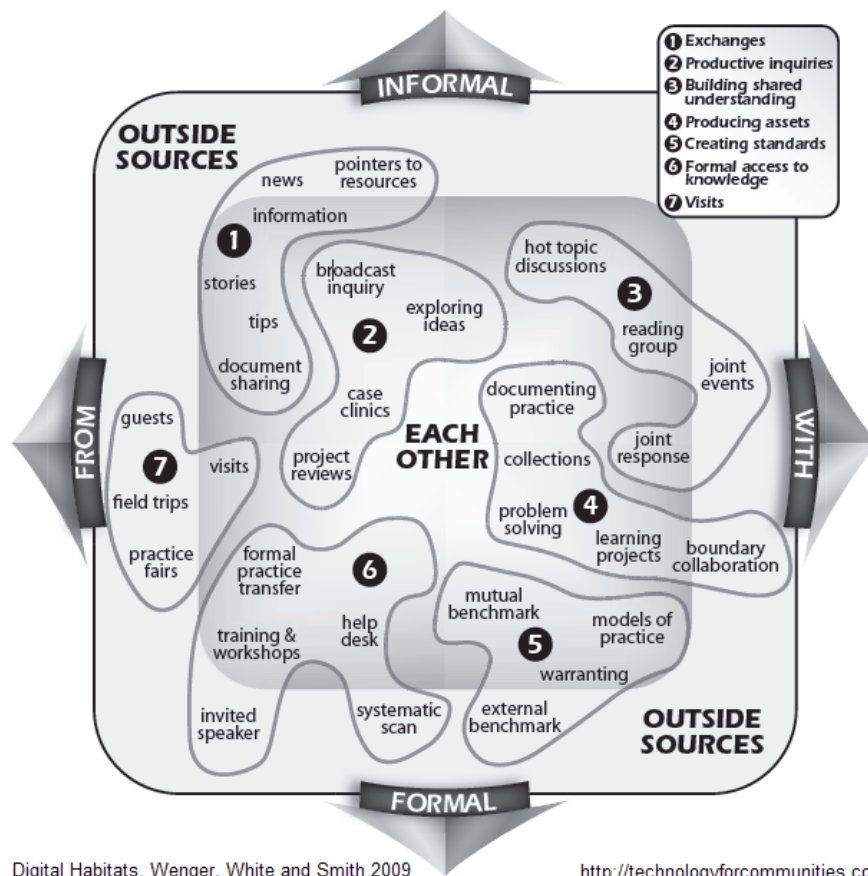


Figure 6: The range of activities in which communities engage (Wenger et al. 2009: 6)

II.4 Multi-Membership in CoPs

Members of communities of practice are usually also members of other CoP. Such multi-memberships are of particular importance for the FOODLINKS project, as the intention guiding the communities of practice to be facilitated within the project is to explicitly bring together members from distinct communities of practice, particularly in the fields of policy, science and civil societies. This means that the CoP in the project are more heterogeneous than the CoP usually discussed in literature and that particular care has to be taken to integrate and link the different fields of practice.

Multi-membership and interactions between different CoP has drawn attention already in the earlier publications on CoP. Figure 7 depicts such a relation as discussed in Wenger (1998). The core process in a CoP, according to Wenger (1998), is the negotiation of meaning. This is what practice is about. The negotiation of meaning takes place in two constituent processes, participation and reification, where participation is the active involvement in social enterprise and reification is *"the process of giving form to our experience by producing objects that congeal this experience into 'thingness'"* (Wenger 1998:58). These 'things' are most often immaterial such as abstractions, tools, symbols, stories, terms or concepts produced in a CoP. These central processes of participation and reification both require and enable each other:

“On the one hand, it takes our participation to produce, interpret, and use reification; so there is no reification without participation. On the other hand, our participation requires interaction and thus generates shortcuts to coordinated meanings that reflect our enterprises and our takes on the world; so there is no participation without reification.” (Wenger 1998:66)

This duality of participation and reification is also at the core of interactions between different communities of practices, as Figure 7 points out, and gives rise to two different types of connections: (1) **boundary objects** as a connection between CoPs at the level of reification, i.e. the artefacts, documents, concepts etc. around which CoPs can organise their interconnections, and (2) **brokering** at the level of participation and interpersonal relations, i.e. the connections provided by people who can introduce elements of one practice in a CoP into the practices of another CoP.

Boundaries within and between communities of practice are of particular importance for learning systems. “They connect communities and they offer learning opportunities in their own right. (...) Yet, they can also be areas of unusual learning, places where perspectives meet and new possibilities arise.” (Wenger 2000: 233)

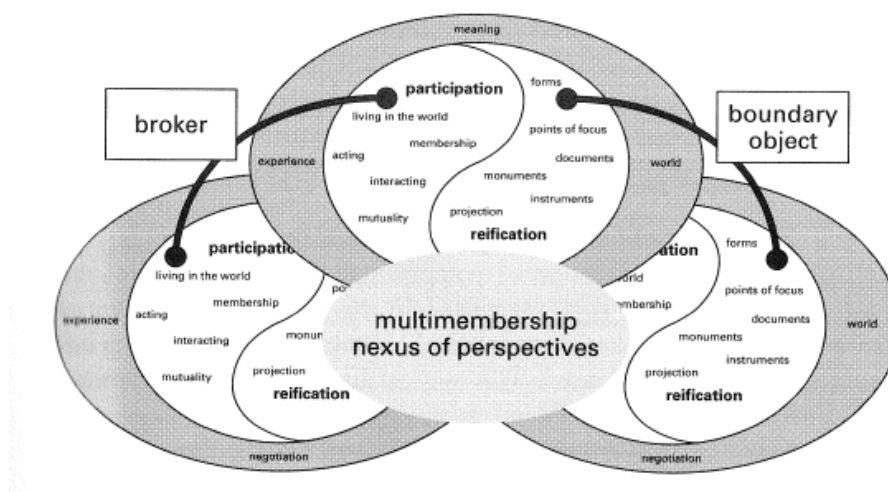


Figure 7: Participation and reification as connections (Wenger 1998: 105)

The job of brokering is particularly complex:

“It involves processes of translation, coordination, and alignment between perspectives. It requires enough legitimacy to influence the development of a practice, mobilize attention, and address conflicting interests. It also requires the ability to link practices by facilitating transactions between them, and to cause learning by introducing into a practice elements of another.” (Wenger 1998:109)

Brokering can come in different forms (see part one of this report for more details). Wenger (2000: 235) distinguishes boundary spanners (who might take care of one specific boundary over time), roamers (who move between places and create connections), outposts (who explore

new territories and bring news from the forefront) and pairs (whose brokerage is based on a personal relationship).

Brokering between different knowledge communities requires particular forms of expertise. Collins and Evans (2002) have coined the term “interactional expertise” for the competence to “allow for interesting interactions between contributory experts of both abstract / generalizable and local / practical knowledge domains, which allows for interactions to occur to the extent that all participants leave the process cognitively changed” (Carolan 2006: 423). Carolan (2006) further points out that time and energy traditionally has been mainly spent to develop ‘contributory expertise’ (i.e. expert knowledge) but should be shifted to a greater emphasis on interactional expertise. The FOODLINKS project can be seen as such an attempt to strengthen interactional expertise and brokerage activities by developing favourable contexts and settings for such exchanges as well as instruments and methods to improve knowledge flows and learning.

Brokerage activities across different CoPs can be an important facilitator of social learning processes. Oborn and Dawson (2010) build their insights on the analysis of an example within a more academic setting, multidisciplinary cancer teams meeting regularly in two UK hospitals. Success of these teams crucially depended on learning practice focusing on the development of interactional expertise: (1) Learning to organise discussions for aligning skills and action; (2) learning to acknowledge other perspectives in order to interrelate different understandings represented in the team, and (3) learning to challenge and question the assumptions of team members and thereby opening broader and new perspectives for the whole team. All three learning practices importantly rely on different forms of boundary interactions and boundary objects, e.g. protocols of group meetings.

Particularly for such multi-disciplinary groups and more heterogeneous CoPs, the question arises whether such groups still qualify as CoPs. There certainly is a whole spectrum of different types of groups which share more or less characteristics of CoP. Authors such as Lindkvist (2005) suggest to apply the term CoP only to closely-knit groups along Wenger’s original definitions (see above) and use other terms for more ‘ephemeral’ groups. Project groups within firms, for example, “consist of people, most of whom have not met before, who have to engage in swift socialisation and carry out a pre-specified task within set limits as to time and costs. Moreover, they comprise a mix of individuals with highly specialized competences, making it difficult to establish shared understandings or a common knowledge base. Such a transient group, I suggest, operates more like a ‘collectivity of practice’.” (Lindkvist 2005: 1190) Such knowledge collectivities rather operate on dispersed and distributed knowledge instead of being shared among community members. Similarly, Coe and Bunnell (2003), refer to Wenger’s notion of ‘constellations of interconnected practices’ (p. 444) to address more diverse and diffuse communities, such as a social movement, or as a knowledge communities as a group of people “united by a common set of norms, values and understandings, who help to define the knowledge and production trajectories of the economic sector to which they belong.” (Henry and Pinch, 2000, cited in Coe and Bunnell 2003: 446). Such wider notions of communities of practice could also apply in the context of the FOODLINKS project, e.g. for constituents of urban food systems.

II.5 Principles for cultivating communities of practice

CoPs undergo different stages of development from their launching to their end of life although the dynamics of different communities can be very distinct from each other. In this text we give more weight to the early stages of community development which are of greater importance for the FOODLINKS project.

II.5.1 Planning and launching a CoP

Often community development begins with an extant social network, an informal group of interested people who begin networking. Typically, the key issue in such early stages is to find enough common ground among members for them to feel connected and see the value of sharing insights, stories and techniques. In terms of the three structural components, the challenge is (Wenger et al. 2002:71)

- At the **domain level** defining the scope of the domain in a way that elicits the interests of members;
- At the **community level** to find people who already network on the topic and help them to imagine how increased networking and knowledge sharing could be valuable;
- At the **practice level** to identify common knowledge needs.

Starting a CoP involves balancing discovery of what you can build on and imagination where this potential could lead.

A typical work plan would be to determine the primary intent of the community (scope and kind of knowledge it will share), to define the domain and identify engaging issues (topical and social boundaries; aspects of the domain community members might be passionate about), to build a case for action, identify potential coordinators and thought leaders and create a preliminary design for the community.

A critical and often underestimated role accrues to the community coordinator who is a crucial factor for the success of CoP. The coordinator should identify important issues, plan and facilitate community events, informally and actively link community members, help build the practice etc.

The main issue in the second stage of community development is to generate enough energy for the community to coalesce, i.e. to establish the value of sharing knowledge about the domain, develop relationships and sufficient trust to discuss genuinely sticky practice problems and discover what knowledge should be shared and how. During this stage communities are often particularly fragile, as the energy of starting the new endeavour often has already waned while stable structures and cooperation patterns have not yet developed. Nurturing by the community coordinators is particularly important in this stage. Most often this *“occurs in the private space of the community, talking with members one-on-one about their needs, connecting them with others, and finding people outside the core group who can provide needed insights, solutions, or ideas.”* (Wenger et al. 2002:85) A typical work plan in this phase would focus on building a case for membership (the benefits of contributing and the value of learning from others’ experience), initiate community events and spaces (such as weekly meetings, tele-conferences, or Web-events) to ‘anchor’ the community, legitimize community coordinators, build connections between core group members (which in the early stage is more important than focusing on

membership numbers); finding the ideas, insights, and practices that are worth sharing; and identify opportunities to provide value.

II.5.2 Growing and sustaining a CoP

During the maturation stage, the main issue a community faces shifts from establishing value to clarifying the community's focus, role, and boundaries (Wenger et al. 2002:97). Tasks along this way are the identification of gaps in knowledge and the development of a learning agenda; redefining community boundaries as the community matures; measuring the value of the community; or building and organising a knowledge repository (e.g. by defining the role of a community librarian).

In the longer run efforts have to be put into sustaining the momentum of a community. Eventually most communities come to a natural end, either by changing contexts rendering the community's domain irrelevant, by resolving the issues that united the community, or by simply fading away, losing members and not finding enough commonality to hold the community together anymore.

II.5.3 What can go wrong?

In addition to the above mentioned factors for successfully cultivating CoPs, Wenger and colleagues (2002) also ask in their book how the development of a CoP can go wrong. The simple reason may be that some of the basic principles pointed out above are not fulfilled: The domain may not arouse passion in members; community members may fail to connect enough to develop trust. The practice may remain stagnant. (Wenger et al. 2002: 140) Such dysfunctional communities are often worse than no community at all.

However, 'disorders' may also appear when communities function too well on certain dimensions. Closely knit communities may be difficult to access by newcomers, they may be conservative with respect to new ideas and members may become reluctant to critique each other. Disorders can be identified along the three structural components of a CoP. With respect to the domain, too much pride of ownership may become dysfunctional. Enthusiasm for a domain may lead to excessive zealotry. Or arrogance may set in, if the legitimacy of a community's mastery of its domain is widely recognised – something which may sometimes happen to technical experts. Community-wide, tight bonds between CoP members may become exclusive and present an insurmountable barrier to entry. Or a CoP may rather become a clique where relationships between members are so strong that they dominate all other concerns. At the practice level, finally, shared practices may not only be a resource but also turn into a liability. Efficient practices may not only restrict communication with outsiders but may also prevent practitioners from seeing what does not fit in their paradigm. The practice of a community may thus hinder its own development. (Wenger et al. 2002:147)

II.6 Technology-enabled communities of practice

With the increasing presence of information and communication technologies, particularly the Internet, the way we communicate and share information is undergoing fundamental changes. Without doubt this also changes (and has already changed) the way communities of practice are organised. In his latest book, Wenger and colleagues (2009) speak of 'digital habitats' where communities dwell. There is a constant flow of new technology-based products and tools which enable communities of practice, however, for many participants these developments are difficult to follow, as these products also often merge, morph in various ways or disappear. 'Stewarding technology' thus has emerged as a new role and an emergent form of leadership in CoP. This role has also been explicitly taken care of in the FOODLINKS project.

All the three dimensions structuring CoP – domain, community and practice – place demand on technology while at the same time available technology opens up new facets of each dimension (Wenger et al. 2009: 10):

- At the **domain level** we may ask: How does technology enable communities and their members to explore, express, and define a common identity? To see the landscape of issues to address, and then negotiate a learning agenda worth pursuing? Does technology allow communities to figure out and reveal how their domain relates to other domains, individuals, groups, organisations or endeavours?
- At the **community level** we may ask: How can technology support an experience of togetherness that makes a community a social container for learning together? Does it reveal interesting connections and enable members to get to know each other in relevant ways? Does it allow various people and groups to take initiative, assume leadership, create projects and conversations?
- At the **practice level**: How does technology enable sustained mutual engagement around a practice? Can it provide windows into each other's practice? What learning activities would this make possible?

Technologies thus may extend and reframe the way communities are organised in significant ways. It changes the way boundaries are expressed and also enables a large group to exchange ideas and practices – but at the same time it also offers new opportunities for small and highly specialised though maybe dispersed groups. Technology offers many ways to limit access, but it may also greatly enlarge a group's periphery.

The following paragraphs pick out some of the suggestions developed in Wenger et al. (2009) on how to deal with the opportunities and threats of technology in enabling communities of practice. Many decisions, e.g. on which platforms to use, have already been taken from the outset of the FOODLINKS project and such issues will not be included at this place.

Wenger and colleagues suggest four perspectives to make sense of the ways technologies can be experienced as a habitat by CoP. (1) The tools that support specific community activities; (2) the platforms into which vendors and developers package tools; (3) the features that help make tools and platforms usable and 'liveable'; and (4) the full configuration of technologies that sustains the habitat (which is rarely confined to one platform). (Wenger et al. 2009: 38)

(1) Tools refer to an identifiable piece of technology that supports a discrete activity in a community (e.g. a discussion board). The relevant question from this perspective is to ask: What is the range of activities the community engages in? Which of these activities need to be well-supported by tools? Or the other way round: What kinds of activities does a given tool support?

The features of tools determine its usability for a given community – they can determine whether they are adopted or not.

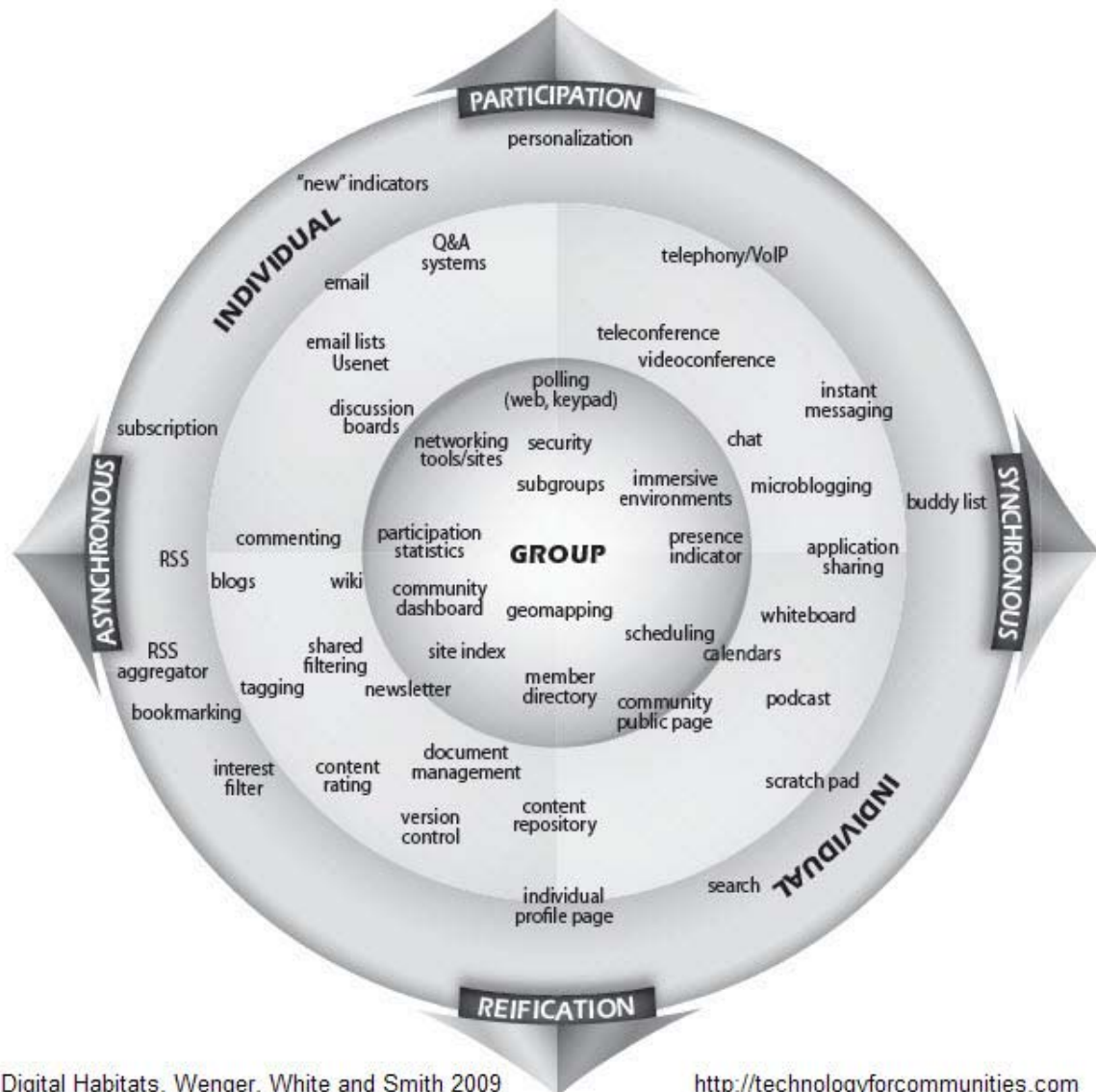


Figure 8: The tools landscape (Wenger et al. 2009: 60)

Figure 8 presents a landscape of exemplary tools which are structured along the dimensions **participation-reification** (see above in section Multi-memberships), i.e. interaction-orientation vs. documentation-orientation, and **synchronous-asynchronous** (i.e. whether participants have to use the tool and interact at the same time or not). A third dimension which is often used to characterise CoP tools is whether they are addressing the '**group level**' or can be used by **individual** participants alone. While many of the tools are well-established community tools, such as email, discussion boards, document repositories etc., others belong to the more recent

generation of hybrid tools (which straddle the boundaries of the regions in the diagram), such as blogs, wikis or social networking sites (each of which combining reification and participation).

II.6.1 Community orientations

A further issue which affects the way technology can be used to facilitate CoP is the particular *style of interaction and collaboration* different communities develop.

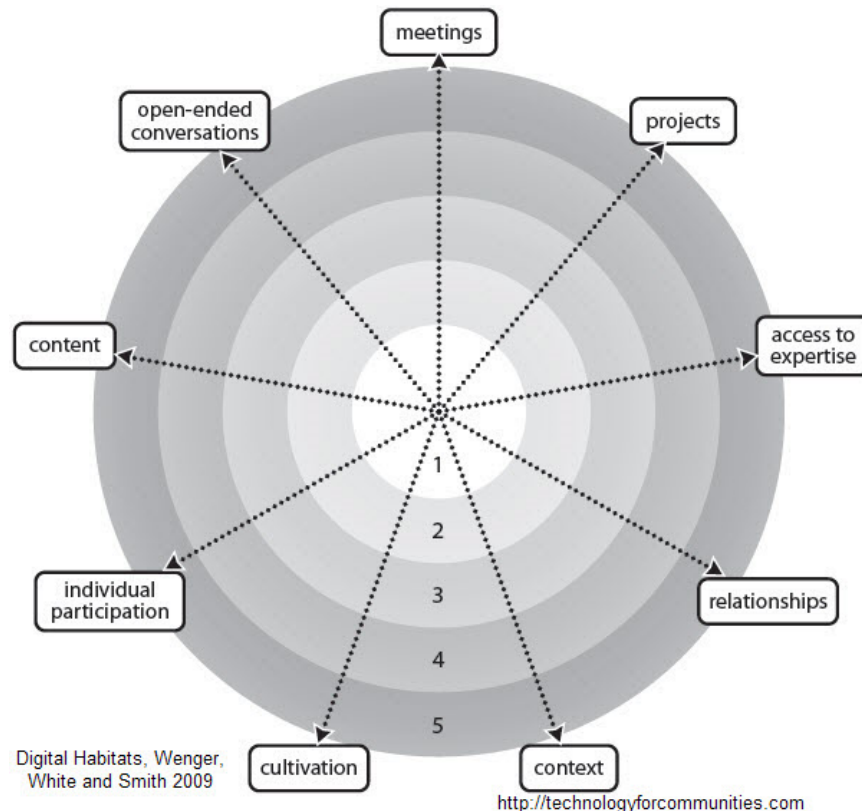


Figure 9: Community orientation (Wenger et al. 2009: 152)

Communities learn together in different ways: some meet regularly, some converse online, some work together, some share documents, some develop deep bonds, and some are driven by the mission they serve (Wenger et al. 2009:69). The nine typical orientations depicted in Figure 9 all have different implications for the selection of technology. Wenger et al. (2009) present a rich portfolio of activities and relevant tools for these different types of communities in their book and provide guidelines on how technology stewards may proceed to match technology support with the interests and activities of CoP members.

If a CoP e.g. has a focus on “access to expertise”, i.e. if it is about direct access to designated experts, about shared problem solving or knowledge validation (Wenger et al. 2009:84), it may comprise activities such as ‘questions and answers’, ‘locating experts’ or ‘following an expert’. Such activities can be supported by particular tools, such as blogs or microblogging to follow experts, social networking tools to locate experts, or discussion boards for ‘question and answer’ activities.

We will not present all these details in this summary report, but rather refer to the book and related websites, blogs and wikis which have been set up around these ideas and which are better apt to keep track of new developments and tools. A good starting point in this respect is the blog <http://technologyforcommunities.com/> which has been set up by Wenger and his colleagues.

II.6.2 Future trends

1. Increased connectivity across time and space	
• Ubiquitous connectivity	From intermittent connections using modems to "always on" access through wireless and mobile technologies
• Virtual presence	From purely text-based interaction to virtual presence, multimedia experiences, and avatar-based environments
2. New modes of engagement	
• Generalized self-expression	Easy publication to the whole world: the spreading blogosphere, and "personal space" sites
• Mass collaboration	Wikis, tagging, social networking sites, publicly shared, interactive storage spaces
• Creative reappropriation	Remixes, social bookmarking and personalized lists, mashups
3. Changing geographies of community and identity	
• Homesteading of the web	Proliferation of sites, tools, and links; multiplicity of places for any topic; emergent patterns of meaning and interrelatedness
• Dynamic boundaries	Boundaries defined by activities and their traces, including the tools that rank locations and direct traffic
• Individualization of access	RSS, personalized aggregation, customized search, personalized access to sites
4. Toward a socially active medium	
• Social computing	Social relations and interactions as data, "folksonomies" and tagging, networking services, distributed decision processes, reputation computing, socially directed search
• Semantic web	Meaning-based representation, intelligent agents, new-generation search
• Digital footprint	Trails of our web activities that become an expression of our identity online

Table 3: Trends affecting the polarities of communities (Wenger et al. 2009: 174)

The Table 3 above, finally, refers to new trends in the use of ICT and how this affects the way and the framing people communicate and work together in groups. Even if the FOODLINKS CoP turn out to be hesitant in the use of social media, these trends are certainly worth considering in setting up the 'digital habitat' of these communities.

II.7 CoPs and the FOODLINKS project

Without doubt, communities of practice provide a useful framework to understand and design knowledge brokerage activities tied to particular practices, such as knowledge exchange between politicians, researchers and civil society actors on problems in regard to more sustainable food consumption and production strategies as it is intended in the FOODLINKS project. Experiences with other Communities of Practice make clear that cultivating new CoPs entails efforts at the three different levels of domain, community and practice. This comprises (see Wenger et al. 2002:45-46):

- **Negotiating a shared domain:** The nascent CoP will have to ask: What topics and issues do we really care about? What are the open questions and leading edge of our domain? What kind of influence do we want to have?
- **Organizing and nurturing the community:** What roles are people going to play? How often will the community meet and how will its members connect on an ongoing basis? What kinds of activities will generate energy and develop trust?
- **Develop some kind of shared practice over time:** It has to be asked: What knowledge to share, develop and document? What kinds of learning activities to organise?

Setting up and nurturing Communities of Practice as planned in the FOODLINKS project thus essentially depends on the appropriate **identification of joint problems** which really do matter to (potential) community members and which require sustained interaction and learning to be dealt with more appropriately. Only under such conditions a new CoP has the chance to develop sufficient coherence, **joint identity** and **trust** as a basis of successful social learning and knowledge development processes.

Wenger and colleagues (2002:46) developed a list of principles which may help to guide a community of practice to realize itself and become 'alive' and which are of particular relevance to the FOODLINKS project. Among the recommendations of this list are the following:

1. Design for evolution, i.e. rather **shepherd the community's evolution** than creating it from scratch. CoP often build on pre-existing personal networks.
2. Open a **dialogue between inside and outside perspectives**, i.e. bring also knowledge from outside the community in dialogue about what the community could achieve.
3. Invite **different levels of participation**, i.e. form a small core group with one or more coordinators, a less intense but still regularly involved 'active group', and a larger group of peripheral members who occasionally participate; keep to the side-lines and watch the interactions of core and active members. However, the boundaries of the community are fluid and even those outside the community can become involved for a time. Nevertheless, the continuity and energy of the CoP to a high degree depends on intense coordination and leadership efforts (though not in a hierarchical sense) as well as on the stability and motivation of a core group.
4. Develop both **public and private community** spaces, i.e. do not try to prevent private spaces for one-to-one exchanges but work with them.
5. Focus on **value**, e.g. by encouraging community members to be explicit about the value of the community to them or their organisation.

The specific CoPs within the FOODLINKS project will be based on one hand on different kinds of face-to-face interaction (different interaction methods will be tested as part of CoPs), on the other hand ICT tools will be adapted to create online arenas. Such web based platforms (offering “private” and public spaces) shall serve for networking, regular interaction between CoP members, to store, access and share relevant data and information, and to develop common strategies and better practices for future research activities. Moreover it might be used to involve further actors in the CoPs. Technology, such as web platforms, may be an important enabler of CoP activities. However, as we can learn from other experiences with CoPs, they have to be carefully chosen and matched to the needs, skills and expectations of CoP members.

III. Social Learning

Social learning aspects are of interest for the FOODLINKS project on two counts:

- a. The Knowledge Brokerage activities carried out within FOODLINKS aim to enhance Social Learning as a process leading to social change in the domain of sustainable consumption and production through the engagement of researchers, policy makers and representatives from civil society organisations. Consequently Knowledge Brokerage is applied as a tool to facilitate Social Learning processes.
- b. We conceptualised Knowledge Brokerage as a social process taking place within Communities of Practice, which are considered to be learning communities constituting a particular setting for facilitating a process of collective, mutual and social learning (see also chapter II. in this document).

As it is planned to monitor and evaluate the Knowledge Brokerage activities within FOODLINKS, monitoring and evaluation will also refer to Social Learning processes. This chapter aims to clarify what Social Learning may mean in the context of FOODLINKS, and how we can stimulate Social Learning through the planned activities. A review of various literature sources (education, sociology, sustainability, rural development and agriculture) has been carried out in order to elaborate on both, the theoretical background and practical aspects of Social Learning.

This chapter is structured as follows: In the first section we give some theoretical context information by briefly introducing the **roots** of Social Learning and related **learning theories**; then we give some examples of how Social Learning has been defined in different contexts and summarise the **key elements**; finally we suggest a **definition** of Social Learning to be employed in the FOODLINKS context and briefly address some general issues that may facilitate Social Learning processes.

III.1 Social Learning: theories across various disciplinary fields

Social Learning is frequently addressed in the context of participatory and inter- or trans-disciplinary approaches or action research in many societal domains – often aiming at dealing with complex problems or building up experience to cope with uncertainty and change (Folke et al. 2003¹⁸). It has become a quite popular term in the context of sustainability issues ranging from natural resources management to urban and rural development (e.g. Webler et al 1995, Kalk & De Rynck 2002¹⁹, High & Nemes 2007, Kilvington 2007, Luks & Siebenhüner 2007, Wals 2007, Borowsky et al. 2008), irrigation (Abril & Zhingri 2003²⁰), environmental conflicts (Bouwen & Taillieu 2004), etc.. Recently, some authors of environmental and natural resource literature

¹⁸ c.f. Pahl-Wostl et al. 2007.

¹⁹ c.f. Craps 2003

²⁰ c.f. Craps 2003

even state that sustainability needs to be understood as a Social Learning process (Tàbara & Pahl-Wostl 2007)²¹.

III.1.1 Learning Theories

There is a huge variety of theories, which conceptualise the learning process in different ways - experiential, participatory, constructivist, situated, active, critical, etc. It is beyond the scope of this report to provide a systematic overview, and – as several authors state (see e.g. Wals & van der Leij 2007) - there is no universal theoretical basis for Social Learning anyway. Therefore this section rather provides an overview of the most prominent learning theories Social Learning concepts refer to.

Social Learning is a concept with a long history, divergent theoretical roots, and which appears in widely different contexts (Kilvington 2007). In general the Social Learning concept may be seen as a response to the recognition that learning occurs through some kind of collective engagement with others. The concept can be found in different disciplines, it is used in various contexts with divergent theoretical roots, and it may have many meanings depending on which different theoretical traditions and interpretations are used in defining it.

First ideas about learning as a social process were developed in psychology already in the end of the 19th century. Early work on Social Learning, for instance in behavioural psychology, referred to individual learning that happens through observation and interaction with their social context (e.g. “observational learning” defined by Bandura 1977²²), hence it is influenced by social norms. Later the concept was also employed in pedagogy (e.g. ‘Experiential Learning’ – see below). In the field of planning and policy making Social Learning was associated with learning about social issues, learning by social aggregates, and learning that results in collective decision-making-processes (Maarleveld & Dangbegnon 1999²²). Recently a different school of thought has arisen, which originated from concepts of organisational learning (see below: e.g. Argyris & Schön 1978, Wenger 1998), which conceptualises Social Learning as a process of social change. This school builds on social theories of learning, which define learning as active social participation (e.g. in the practices of a community, participatory decision making, etc.), and which emphasize the dynamic interaction between people and the environment in the construction of meaning and identity (Reed et al. 2010).

Experiential Learning

Numerous theoretical frameworks have been developed to understand how we learn, but none of these frameworks are specifically about Social Learning (Reed et al. 2010). However, they are still useful to provide an understanding of the processes Social Learning may be based on. A central theory is represented by ‘Experiential Learning’²³. This learning theory takes a holistic

²¹ As the authors note, this particular interpretation of sustainability is relatively new and still subject to many ambiguities.

²² C.f. Kilvington 2007

²³ Problem oriented learning and also action learning represents varieties of experiential learning: in all these concepts practical experiences represent the starting point of the learning process.

integrative perspective that combines experience, perception, cognition and behaviour in learning. It describes learning as an iterative process between experience, observation/reflection and action. Learning is conceived as a process, and not (only) in terms of outcomes, which corresponds with the fact that Social Learning also may be both, a process of people learning from one another and an outcome (e.g. learning that occurs as a result of these social interactions). Therefore we briefly introduce some theories elaborated by the most important scholars in this field:

Dewey's Experiential Learning Model emphasises the central role that experience plays in the learning process, and it relates solely to the meaning making process of the individual's direct experience. The model assumes that everything occurs within a social environment; all human experience is social and involves contact and communication (Grady 2003). Dewey (1938²⁴) argued that education is based on the interaction of an individual's external and internal conditions. Interaction and the situation during which one experiences the world cannot be separated because the context of interaction is provided by the situation. In contrast to how traditional education viewed knowledge, Dewey defined knowledge as socially constructed and something what is learned from experiences. This knowledge should be organised in real life experience, which provides a context for the information (Grady 2003). According to Dewey's concept, the memorization of a set of facts does not constitute learning, but the ability to transfer knowledge to new situations. Experiences lead to the ability to transfer knowledge to new situations, and learning involves acquisition of knowledge and the ability to acquire more knowledge in new situations. Dewey proposes that learning is an iterative cyclic process integrating experiences and concepts, observations and action. The impulse of experience (all experiences are understood to *be continuous*) gives ideas their moving force, and ideas give direction to impulse.

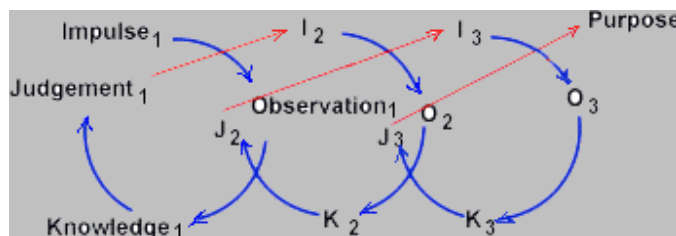


Figure 10: Dewey's Model of Experiential Learning

(source: <http://userwww.sfsu.edu/~foreman/itec800/finalprojects/annie/experlearningmodel.html>)

Kurt Lewin expanded on Dewey's Experiential Learning Model to include group dynamics and action research (Joffrion 2010). He defined Social Learning in the context of the 'field theory'²⁵, which explained how the learning process at the individual level is depending on social interactions (see also theory on 'group dynamics', Johnson & Johnson 1994). According to Lewin learning is conceived (similar to Dewey's philosophy) as a cycle of steps based on feedback. His

²⁴ c.f. Vrasidas 2000

²⁵ 'Field' is defined as "the totality of coexisting facts which are conceived of as mutually interdependent" (Lewin 1951: 240 after Smith 2001); individuals participate in a series of 'fields', or 'life spaces' (private life, work, etc.), which are constructed under the influence of various force vectors

concept of feedback describes a Social Learning and problem-solving process that generates valid information, which provides the basis for a continuous process of goal-directed action and evaluation of the consequence of that action. Likely to other Experiential Learning models, Lewin describes conflicts between opposing ways of dealing with the world by emphasising on the conflict between concrete experience and abstract concepts and the conflict between observation and action (Kolb 1984).

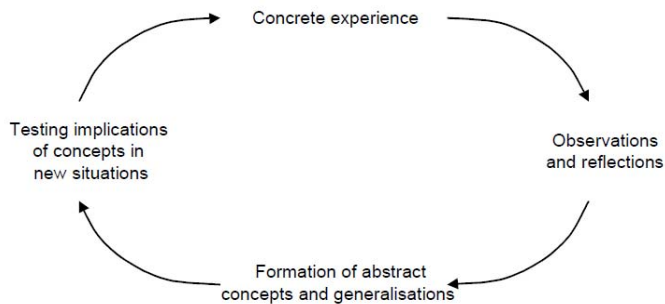


Figure 11: The Lewinian Experiential Learning Model (Kolb 1984: 21)

Building on these experiential learning concepts **David Kolb** (1984) presented an educational theory, which also emphasises on the importance of experience in learning processes. According to his concept learning is a continuous interaction and iteration between reflection and action, taking place in a cycle of four stages (the experiential learning cycle of Kolb). 1. experiencing; 2. reviewing (reflect, describe, communicate and learn from the experience); 3. concluding (formation of abstract concepts and generalisations based on conclusions from past and present experiences); 4. planning (applying new learning from previous experiences / testing implications of concepts in new situations).

Furthermore he relates learning to the process of creating knowledge: “Knowledge results from the transaction between objective²⁶ and subjective²⁷ experiences in a process called learning.” (Kolb 1984: 37).

²⁶ Also known as ‘social knowledge’: the civilized objective accumulation of previous human cultural experiences (ibid).

²⁷ Also known as ‘personal knowledge’: the accumulation of the individual person’s subjective life experiences (ibid).

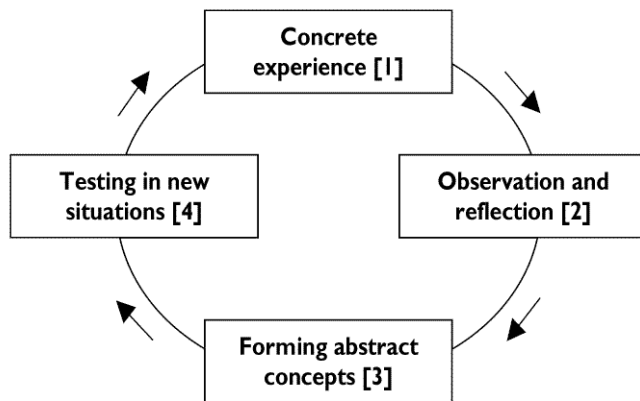


Figure 12: Experiential Learning Cycle (Smith 2010: www.ifsociety.org/voxmagister/david_kolb.htm)

The learning theories described so far focus on how individuals learn while the following models refer to collective learning processes. Both levels are of relevance for Social Learning, because they are interlinked - as for instance Dixon (1999) states in her work on the organisational learning cycle - “Individual learning is dependent on the collective”, and the converse is also true: “collective learning is dependent on the individual” (ibid: 41).

Social Learning as a move from multiple to collective and/or distributed cognition

Niles Røling's model of Social Learning (Røling 2002) goes beyond the idea of the individual learning cycles. Røling describes Social Learning as a mean to facilitate people coming together to find through interaction collective solutions to problems. This is in particular relevant for effective action in complex environments, which requires a reflexive management of cognitive systems (Røling 2000). According to Røling's theory multiple cognitive agents can learn to act as a single cognitive agent and through interaction they may achieve distributed cognition and concerted action.

Røling distinguishes between three forms of cognition:

- *multiple cognition* of different cognitive agents with multiple perspectives.
- *distributed cognition* emphasises different, but complementary contributions that allow concerted action. Actors may work together and engage in complementary practices while differences in perception remain; ideas, values and aspirations may be overlapping or mutually supportive, but do not necessarily need to be shared.
- *collective cognition* builds on shared perceptions - like shared theories about reality, shared values - that result from or lead to collective action.

Building on these three modes, he argues that “Social Learning can be best described as a move from multiple to collective and or distributed cognition” (ibid: 35). While collective cognition and collective action are more likely to emerge within groups of homogeneous actors categories (e. g. staff of a particular organisation), distributed cognition and concerted action are the best achievable in a setting of heterogeneous actors who have their own interests, values and perspectives (Mierlo et al. 2010).

Learning organisations

Another theory, which Social learning concepts often refer to, is about ‘learning organisations’. This perspective has been developed from organisational psychology to explain how organisations and social entities learn (e.g. Argyris 1982, Argyris & Schön 1996, Wenger 2002). Social Learning in this context is linked to a cognitive change that involves collective or group processes. The main aim of such processes is to develop shared meanings and practices that constitute the social entity (see also Pahl-Wostl et al. 2007). This theory on learning organisations is not just another level of Social Learning - implying a shift from the individual to the organisational/group level, which finally may lead to social change, but it also fundamentally builds on the idea that learning from others take place (e.g. Röling 2002, Leeuwis 2002, Guijt & Proost 2002, Ringsing 2003).

Three orders of learning

The most interesting aspect in this theory is the definition of different orders of learning (see Figure 13: The model of single, double and triple loop learning), which have been defined by Argyris and Schön (1996) as:

- *single-loop learning*
- *double-loop learning*
- *triple-loop learning (deuteron-learning)*

Single-loop learning is an “instrumental learning, where strategies of actions are changed in ways that leave the values of a theory of action unchanged” (ibid: 20). Single-loop learning involves the detection and correction of errors that permit the organisation to carry on its present policies or achieve its present objectives. It is like learning how to do what is already being done, but better.

Double-loop learning “occurs when error is detected and corrected in ways that involve a change in an organisation’s values as well as in underlying strategies or assumptions” (ibid: 21). This means that in double-loop learning the norms, policies, and objectives in an organisation are questioned. Double-loop learning does not only deal with objective facts but also with the reasons and motives behind those facts. Double-loop learning becomes relevant, when it is considered that single-loop learning is not enough, i.e. if there are gaps between the vision and the current practice of an organisation. It may imply questioning norms, policies and objectives in interactive processes involving multiple stakeholders. This level of learning seems to be necessary for decision making and adaptations in rapidly changing and uncertain contexts.

A kind of *triple-loop learning* (also called deutero-learning) is “learning how to learn” (ibid: 29). Triple-loop learning occurs when underlying assumptions and policies – including values and norms - are questioned and procedures and methodologies for (new) learning are designed in an organisation;

While some authors argue that Social Learning is implicitly in the context of double loop learning, others assume that triple-loop learning equates to Social Learning, but it is also stated that Social learning may occur on any of the three levels (Reed et al. 2010). For instance, Keen and Mahanty (2006) draw on organizational learning and describe how social learning can occur at several levels. According to them Social Learning could be learning about the consequences of specific actions (single-loop learning), learning about the assumptions underlying our actions

(double-loop learning), and learning that challenges the values and norms that underpin our assumptions and actions (triple-loop learning). An emphasis on higher-order learning is also highlighted by others such as Woodhill (2003)²⁸, who states that social learning, “is more than just ‘community participation’ or learning in a group setting. It involves understanding the limitations of existing institutions and mechanisms of governance and experimenting with multi-layered, learning-oriented and participatory forms of governance” (ibid: 143).

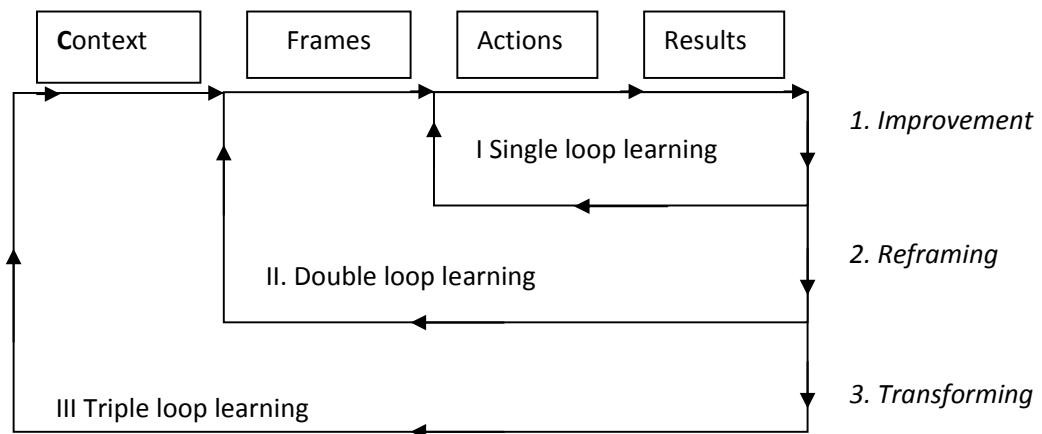


Figure 13: The model of single, double and triple loop learning

Brown's Collective Learning Spiral

This meta-learning pattern has been developed by Brown (2008) by further elaborating on the experiential learning cycle of Kolb with specific reference to collective learning. At the core of this concept lies the idea about divided knowledge culture of multiple knowledge, which needs to be re-aligned in order to generate forms of collective thinking and collaborative practice for social change. The collective learning spiral builds on a four stage learning cycle process, which starts with the problem definition. The problem at stake needs to be jointly defined by the different (groups of) actors, who have a vested interest in the outcome (societal stakeholders) – including actors from research and from the practical field (e.g. politicians, practitioners, users). For the elaboration of a problem solution it is crucial to agree on a focus, since there might be several core areas due to different interpretations of the same reality, often isolated in different knowledge cultures (Brown 2008). When coping with a complex societal problem different actors of society may have different representations of one and the same object, and therefore contribute to the problem transition in different ways.

Within the collective learning spiral of Brown (2008) we can find the parallel to the ‘problem definition’ in the mutual learning concept (as e.g. also applied in concepts about trans-disciplinary research), which is the question of ‘*what is*’. The success of coming up with a common problem definition and focus is depending on the capacities for *mutual understanding* of the involved actors: understanding the different roles of actors, understanding their different

²⁸ c.f. Bouwen & Taillieu (2004)

perspectives, preferences and utility functions, and acknowledging different forms of expertise and knowledge.

The next step in the process is the definition of a common aim/a common vision, to clarify the '*what should be*' question; and based on this elaborating on a joint problem solution, which considers the social practices of the actors, who will implement the solution or who will be affected by it. It is very likely that there might be different ways of defining, framing and solving the problem, and a significant point is how the different actors coordinate and adjust their activities. This process of coordination may be considered as mutual learning, and it is conceived as the adaptation process inherent in interaction and joint problem solving between science²⁹ and society (Scholz et al. 2000). Transdisciplinarity is a useful model/principle for organizing such processes of mutual learning and problem solving. Assuming that the problem to be handled is complex, produced of a society at a given time and place, there might not be a final solution, and any resolution of the problem leads to (social) change, that generates new problems, that need new solutions. Organizing such a process in iterative steps might be useful, since it needs to be considered that the learning process might not be straight and linear in each of the stages (problem definition, focus of the problem, problem solution(s)).

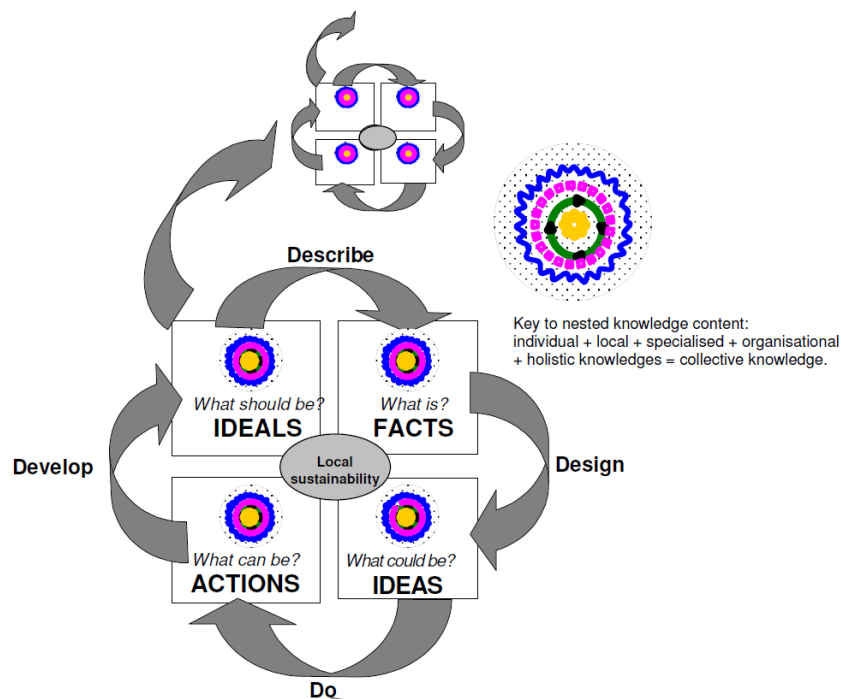


Figure 14: The collective learning spiral (Brown 2008)

²⁹ Science is used here in the broad sense, including 'hard' and 'soft' sciences.

Mutual Learning representing Social Learning in transdisciplinary approaches

The concept of ‘mutual learning’ as defined in the context of transdisciplinarity (Scholz et al. 2000) represents another potentially relevant learning concept that may be connected to Social Learning. Based on the idea that knowledge can be acquired and represented in various ways and at different sites, transdisciplinarity aims at integrating and assembling different types and of knowledge³⁰ through the engagement of various different actors in the knowledge production process. The aim of such ‘knowledge integration’ is to achieve a better understanding of problems in the context of complex, real world systems. Mutual learning represents in this context a basic principle, a tool to establish efficient knowledge transfer between agents from the scientific and the non-scientific world. “Mutual learning can be conceived of as the adaptation process inherent in interaction and joint problem solving between science and society” (Scholz 2000:16).

By introducing some theoretical learning approaches, which none of them explicitly refer to Social Learning in particular, we wanted to give a taste about the flexibility of how this concept could be theoretically contextualised.

III.2 Definitions of Social Learning in specific contexts

Social Learning concepts have been used to define and assess different processes as for instance new perspectives on learning in participatory systems (e.g. Wildemeersch et al. 1998), as a frame of reference for the evaluation of policy programmes (e.g. High & Nemes 2007), for sustainable development - including management and assessment (e.g. Luks & Sibenhüener 2006, Kilvington 2007, Blackmore et al. 2007, Wals 2007, Sinclair et al. 2008), for collaborative and co-operative research (e.g. Buchy & Ahmed 2007, Karner et al. 2009, Oreszczyń & Levidow 2010³¹) or moreover, as a new policy paradigm (e.g. Collins & Ison 2006).

As these examples show, Social Learning may be defined as process and outcome, it may refer to a learning entity ranging from an individual to a group or even wider parts of society, and it may concern all different levels of learning – single-, double- or triple loop learning. However, it always refers to learning processes within participatory systems such as groups, networks, organisations, communities or social systems aiming at concerted or collective action. It may include cognitive, attitudinal, and behavioural change. The “social aspect” in Social Learning definitions, which distinguishes this kind of learning from others, may refer to the learning context and/or the learning content and/or the learning process and/or the outcomes. – as depicted in Figure 15.

³⁰ This covers as well so called ‘lay’ as ‘expert’ knowledge: e.g. intuitive, experiential, tacit, analytic, abstract, etc.

³¹ They used the term ‘mutual learning’, but the learning they touch may be considered Social Learning.

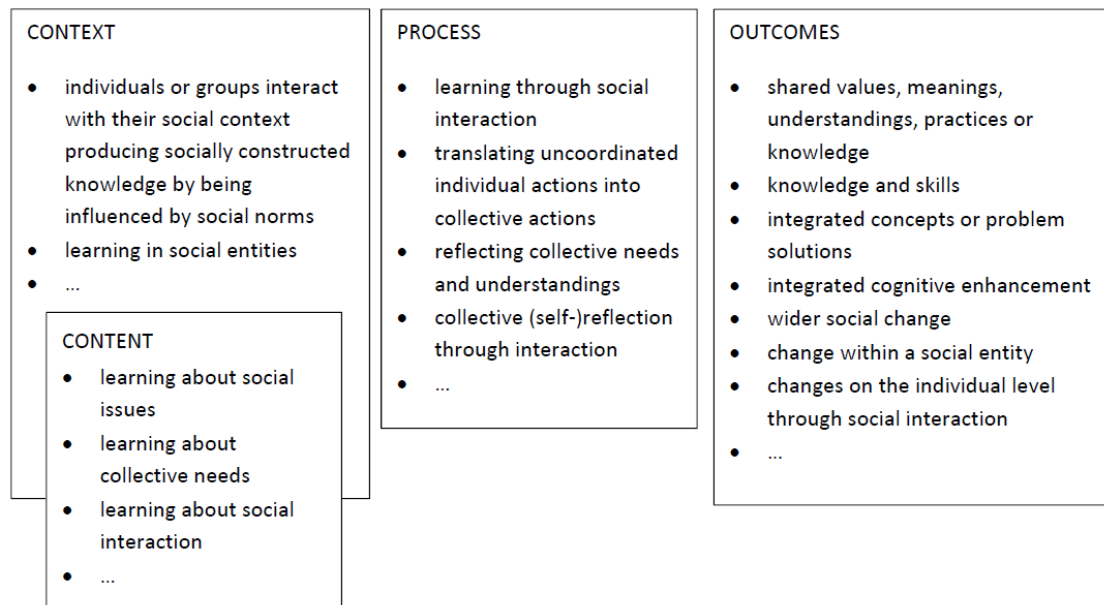


Figure 15: Characteristics of Social Learning

However, literature is often vague, when it comes to the defining what explicitly defines the Social Learning as such. There is little consensus or clarity over its conceptual basis, and often the concept is mixed up with conditions or methods that may stimulate or facilitate Social Learning (see e.g. Reed et al. 2010). Definitions are often broad encompassing almost any social process, and referring to all kinds of processes of learning and change. Moreover, there is often confusion about the concept itself and its potential outcomes.

Only recently Mark Reed and colleagues (2010) criticised the lack of clear definition of this concept, which leads to confusion between social learning and other concepts, between social learning processes and outcomes, and between individual and social learning. They point out that confusion about what is meant by Social Learning makes it difficult to critically evaluate outcomes and better understand the processes through which Social Learning occurs. Therefore they tried to clarify the concept and proposed that if learning is considered being Social Learning, then it must fulfil the following three criteria (Reed et al 2010):

1. It must demonstrate that a change in understanding has taken place in the individuals involved; this may be at the surface level (e.g. recall of information) or at deeper levels (e.g. change in attitudes, world views, epistemological beliefs).
2. It must demonstrate that this change goes beyond the individual and becomes situated within wider social units or communities of practice.
3. It must occur through social interactions and processes between actors within a social network.

III.3 Social Learning in the FOODLINKS project

Learning within FOODLINKS takes place within specific participatory settings, where researchers from different disciplines, policy makers with different responsibilities and representatives from civil society organisations – build a learning community through different forms of interaction.

The active engagement Knowledge Brokerage activities, which we aim to implement as interactive social processes shall induce a mutual Social Learning process. As depicted in Figure 16, we aim at learning processes where policy makers and civil society actors learn about scientific evidence, the same time both of these groups contribute with their knowledge from practice thereby supplementing and evaluating the relevance of research outputs for policy making and its practical implementation. Contrariwise the research community is expected to learn on one hand about policy questions and the needs of information (what information, how shall results be presented to be utilized, what types of knowledge are needed, etc.), on the other hand they shall learn about the social/institutional context of policy decisions and implementation.

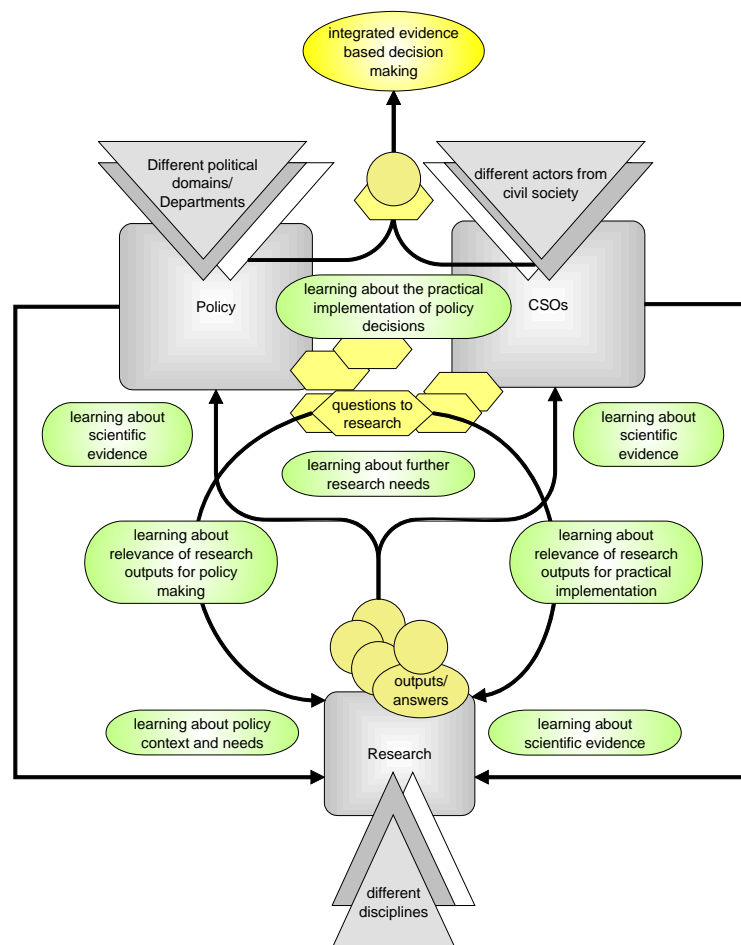


Figure 16: Expected mutual learning process between policy makers, researchers and CSOs in FOODLINKS

Social Learning within FOODLINKS may concern the learning content and outcome as well as the learning process and the learning context that it offers (see Figure 17). We propose a definition that refers to the social interaction of heterogeneous actors or groups of actors, who focus on a specific issues related to sustainable consumption and production by jointly critically reflecting on the relevance of specific problems and existing knowledge, in order to better understand and solve these problems. This implies the development of a mutual understanding of multiple viewpoints, rationalities, values, and goals – if necessary to be integrated in a common

understanding – that are brought in by the variety of actors involved which leads to concerted action (e.g. decision making, co-creation of knowledge, development of action plans, etc.).

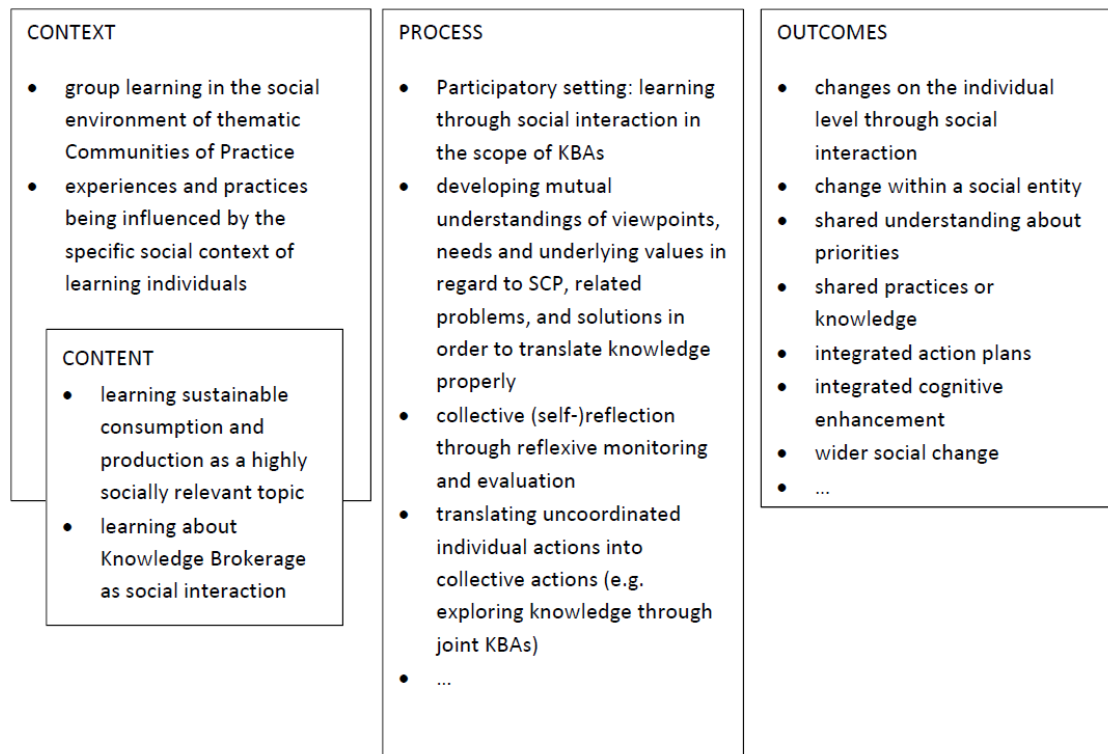


Figure 17: Characteristics of Social Learning in FOODLINKS

Since Social Learning within FOODLINKS will take place in the specific context of Communities of Practice, this implies situated learning, which represents a specific form of experiential learning. As Lave and Wenger (1991) suggest that learning in this context may be considered a social activity arising from the engagement with our daily lives and from participating in a Community of Practice. Even if the experiential learning cycle as described in the sections of theories may not be completed within the Knowledge Brokerage activities, the participants may do so within their daily life practices. This may take place on the individual level in the participants' specific social context, on the institutional/organisational level, or within wider societal communities. In order to close the learning cycle, participants may bring their experiences into the collective learning process and thereby the learning cycle within the FOODLINKS CoP may be completed. Since FOODLINKS are planned as cyclic iterative activities (scoping stage, envisioning stage, research reservoir exploration stage, assessment of learning stage), Social Learning is expected to take place in any phase.

We conclude that Social Learning within FOODLINKS is a form of experiential learning that may take place at any level; it may refer to individual learning through social interaction with others, to individual learning processes with collective outcomes, to collective learning within the CoP, or to wider societal learning. Especially in reference to what has been described by Röling's model of Social Learning, we expect that Social Learning will lead from multiple to distributed or collective cognition within the FOODLINKS learning group.

Moreover, Social Learning may concern any learning order: single-loop, double-loop or triple-loop learning. For instance, the individual or group may learn how to make existing SCP measures more efficient through learning about best practices applied by others (single-loop). Second-loop learning could take place if a reflection process about the own practices has been induced, which leads to insights about why a particular practice works well or not, which then could be used to adapt practices. Triple-loop learning could take place if reflections challenge prevailing values and norms that underpin our assumptions and actions, e.g. by elaborating on scenarios building on a paradigmatic change (e.g. discussing problems of SCP with reference to a de-growth paradigm).

III.4 Conditions and mechanisms that support Social Learning

Social Learning processes require specific conditions in order to take place. These conditions may vary in detail depending on how the Social Learning process is defined, but some the following aspects identified within the HarmoniCOP project (see Tàbara et al. 2005) might apply almost universally:

III.4.1 Context

First of all a room for mutual engagement needs to be created; the room could be represented by physical meetings or virtual spaces, which brings together relevant actors and engages them into social interaction. This includes the availability of sufficient time and resources that allows for frequent interaction. Moreover, the overall contextual framework needs to give opportunities for critical reflections of taken for granted assumptions and cultural frameworks.

III.4.1 Process

The interaction processes should be organised in a way that promotes the active participation of engaged individuals and their empowerment. This may include the development of specific settings and rules for the social interaction process, which allow for an atmosphere of trust, transparency, respect, and openness. Such a process design is of importance, because building trust among the participating individuals constitutes as base for a critical mutual and self-reflection. In general the facilitation of reflection processes has been identified as very important in regard to facilitating Social Learning – especially if the process aims at higher order learning.

Measures that help to build up a shared representation of the issue at stake may also considerably support the Social Learning process. Through the establishment of trustful relationships among engaged actors the capacity to reflect on different assumptions and relationships could be increased. This is important in regard to becoming conscious about the crucial role played by values and beliefs in the shaping of reality; assumptions about the issue at change could be only challenged by such a kind of awareness. An explicit recognition of the diversity and complexity of the different viewpoints makes this easier. In order to bring the diversity to the forth, and to openly share an own understanding with others, again the establishment of trust is crucial.

IV. Conclusion: The relevance of Knowledge Brokerage, Social Learning and Communities of Practice for FOODLINKS

Concepts of Knowledge Brokerage, Social Learning and Communities of Practice are crucial building blocks of the FOODLINKS project. In the different chapters of this report we have tried to give some insights on scientific contributions to these fields. Our aim has not been a complete and comprehensive discussion of the scientific literature but rather to give a flavor of the variety and heterogeneity of contributions and approaches, e.g. to Social Learning, and to point to some lessons which could fruitfully be taken up in the further design of the FOODLINKS project. On these final pages we want to sum up a few of these insights and lessons:

A key characteristic of the FOODLINKS project is that it brings together different knowledge reservoirs and cultures, not only from research but also more practical and tacit knowledge from politicians and civil society representatives, and that it organises a collective process of knowledge sharing and knowledge integration around particular problems of food systems. This translation and integration process needs to be facilitated and coordinated as a form of Knowledge Brokerage. Put differently, FOODLINKS facilitates and reflects processes of Social Learning within heterogeneous social groups formed around certain aims, understandings and shared practices.

Knowledge Brokerage in FOODLINKS is envisaged to exploit existing knowledge reservoirs in regard to its relevance for policy decisions and the practical implementation of related measures. The aim is also to identify gaps in available research and define further research needs. Knowledge Brokerage in our project mainly takes place at the group level, within the Communities of Practice. Some participants in these groups already fulfil a kind of brokerage role – either as ‘coordinators’ within the Communities of Practice, or as ‘gatekeepers’ and ‘representatives’. However, for the further process the Communities of Practice set up by the project are conceptualised as being open to engaging further individuals/groups /networks, and to link the engaged actors’ organisations, networks, communities to what’s going on there.

Knowledge Brokerage in FOODLINKS is defined as a participatory, heterarchical, non-linear and reflexive interaction process. The process is supposed to enable engaged actors from different communities to build relationships that allows for an efficient exchange of different forms of knowledge and experiences. By engaging in ongoing interactions and joint activities, the process shall deepen actors’ knowledge and expertise, foster that they learn from each other’s, and develop a mutual understanding about the topic at stake.

Social Learning within FOODLINKS may concern the learning content and outcome as well as the learning process and the learning context that it offers. We propose a definition that refers to the social interaction of heterogeneous actors or groups of actors, who focus on a specific issues related to sustainable consumption and production by jointly reflecting critically on the relevance of specific problems and existing knowledge, in order to better understand and solve these problems. This implies the development of a mutual understanding of multiple viewpoints, rationalities, values, and goals that are brought in by the variety of actors involved. This may be integrated in a common and shared understanding, leading to concerted action. Social Learning within FOODLINKS is a form of experiential learning that may take place at any level; it may refer to individual learning through social interaction with others, to individual learning processes with collective outcomes, to collective learning within the CoPs, or to wider societal learning. We expect that Social Learning will lead from multiple to distributed or

collective cognition within the FOODLINKS learning group. Moreover, Social Learning in FOODLINKS may concern any learning order: single-loop, double-loop or triple-loop learning.

The context for Knowledge Brokerage and Social Learning processes in the FOODLINKS project are **Communities of Practice**. These communities are organised around different topics, such as urban food strategies or short food supply chains and comprise of heterogeneous actors from policy, science and civil society organisations. Existing research on Communities of Practice highlights several lessons which should be taken care of in the further organisation of FOODLINKS:

- a. Agreeing about a shared domain, i.e. problem framing (Which problems really do matter for CoP members?), aim of the CoP, understandings of success of the work of the CoP etc., is a crucial issue and should be taken seriously in the first phase of the CoP. It is hard to make the CoP coherent and successful, if such an agreement is too superficial, and members are not sufficiently motivated to participate in the CoP, because they do not feel their problems are sufficiently addressed. It is important to keep in mind the value that is created by the CoP for each member and for the broader community. Nevertheless, it is important to keep the further process – also in terms of content and problem areas – sufficiently open and evolutionary.
- b. Focus on community building: A CoP as a vital and productive community has to be constantly nurtured and facilitated – roles have to be defined and filled out, the process of interaction and collaboration has to be organised, methods and instruments for collaboration and interaction have to be tried out and used. Experiences with CoP have also shown that a balance between public and private community spaces (i.e. also opportunities for one-to-one interactions) is helpful for the functioning of a CoP.
- c. Keep the community open: particularly with respect to the FOODLINKS project it seems to be important that the CoPs do not turn into closed shops but remain open to further interested participants and new ideas. This would mean that a dialogue between inside and outside perspectives should be kept going or initiated from time to time, and that the CoPs should stay open for different levels of participation. Beside the core members who are crucial for the continuity and maintenance of the CoPs, there should also be room for more peripheral, short-time or issue-specific members.
- d. Develop shared practices over time. This is almost a *raison d'être* for a CoP and also addresses the issue of knowledge integration and exchange of experiences around the domain of a CoP in the course of time. Different methods (such as scenario exercises, excursions) should be employed to facilitate this reframing and integration of knowledge and sharing of practices.

While face-to-face interaction is of crucial importance to form a group and build trust, experiences have shown that ICT tools can also be adapted to create online arenas and maintain interaction. Such web based platforms (offering “private” and public spaces) may serve for networking, regular interaction between CoP members, to store, access and share relevant data and information, and to develop common strategies and better practices for future research activities. However, those tools have to be carefully chosen and matched to the needs, skills and expectations of CoP members.

For the further organisation of the FOODLINKS CoPs it is important that the Knowledge Brokerage process is conceptualised as a participatory group process accompanied by reflexive monitoring. This implies that the definition of the concrete purpose and the planning of

activities is part of the process. We suggest an overall process-model that refers to four stages, which might be individually adapted according to the needs of each Community of practice: (1) scoping stage, (2) envisioning stage, (3) research reservoir exploration stage, (4) assessment of learning stage.

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Annex I: Terminology, definitions and purposes of Knowledge Brokerage

Terminology	Definition	Purpose	Source
Knowledge brokerage	Sharing of different forms of knowledge	To improve science-policy linkages; enable better problem solving among stakeholders and decision makers; move strategic assessment techniques beyond information provision;	Sheate & Partidario (2010)
Knowledge brokerage	To exchange different types of knowledge (and opinions) that are based on different frames - the scientific knowledge, the local knowledge of the citizens that is simply represented by this diverse group of people in the citizens panel, and the frame of knowledge that is in the mind of the stakeholders and policy makers, that are experts of the local situation and policy implications.	To combine different types of knowledge about specific practices To enhance connectivity between research and policy-making	Interview I_63_070411
Knowledge brokerage	Knowledge exchange and sharing of experiences between policy and research communities	To foster evidence based policy making To foster community building among researchers and policy makers	Interview I_32_110411
Knowledge brokerage	(No definition so far)	To foster the connection between research and practice; to bridge the gap between research and policy-making	Interview I_51_170511
Knowledge brokerage	X	To reach an effective adaptive management through efficient interactions between science and decision making.	Cash & Moser (2000) ³²

³² C.f. Sheate & Partidario (2010)

Knowledge brokering	A mediation process, consisting of transferring knowledge between different social, professional, cultural, institutional, organisational contacts.	To identify available knowledge To bring different stakeholders into interaction To implement new knowledge	Interview I_21_060411
Knowledge brokering	X	Enhanced application of research results Integrated and comprehensive approach to projecting abroad information about Canada Build capacity to use, adapt, and build knowledge for sustainable development at the local level, and to build a base upon effective and appropriate policy can be developed	IDRC-IFIAS Knowledge Brokering Pilot Project (Oldham & McLean 1997)
Knowledge brokering	The bridging activities performed by research intermediaries to help bridging the research-to-practice gap; interactive process between the producers and users of knowledge.	to bridge the research-to-practice gap	Roxborough et al. (2009)
Knowledge brokering	Strategies to manage the boundaries between science, policy and practice	to develop more robust, adaptable and sustainable environmental policy; to enable decision makers to acquire, value and consider expertise that they would not otherwise obtain or incorporate into their decision making	Michaels (2009)
Knowledge brokering	A two way facilitative process between researchers and policy makers	co-production of feasible and research-informed policy options.	van Kammen et al. (2006)
Knowledge brokering	An entangled process of research and policy development and can be understood as an intermediary activity that takes place between the spheres of science and policy.	To enhance evidence based policy making; challenge politics, culture and mental models; reveal new ways of thinking; reframing of the problem at stake; facilitate the generation of (better) research questions for a more effective exploitation of the knowledge base.	Magnuszewski et al. (2010)

Knowledge brokering	Bringing people together, to help them to build relationships, uncover needs, and share ideas and evidence that will let them do their jobs better.	To accelerate the capture of benefits of research	Breton et al. (2002) CHSRF (2003)
Knowledge brokering	Knowledge-brokering brings researchers and decision-makers together, facilitating their interaction so that they are able to better understand each other's goals and professional cultures, to influence each other's work, to forge new partnerships, and to use research-based evidence. Brokering is ultimately about	To support evidence based decision-making in the organization, management and delivery of health services.	Hayward & Gold in Findlay (2004)
Knowledge brokering	All the activity that links decision makers with researchers, facilitating their interaction so that they are able to better understand each other's goals and professional cultures, influence each other's work, forge new partnerships, and promote the use of research-based evidence in decision-making. Knowledge brokering activities include finding the right players to influence research use in decision-making, bringing these players together, creating and helping to sustain relationships among them, and helping them to engage in collaborative problem-solving.	To promote the use of research-based evidence in decision-making; increase evidence-based decision-making.	Lomas (2007)
Knowledge brokering	Is a knowledge translation and exchange strategy to promote interaction between researchers and end users that provides a link between research producers and end users by developing a mutual understanding of goals and cultures, collaborates with end users to identify issues and problems for which solutions are required, and facilitates the	to develop capacity for evidence-informed decision making, to promote the integration of the best available evidence into policy and practice-related decisions.	Dobbins et al. (2009)

	identification, access, assessment, interpretation, and translation of research evidence into local policy and practice to translate research evidence into local policy and practice.		
Knowledge brokering	Activities supporting the transfer of knowledge into practice; KB as a catalyst for knowledge transfer processes	To drive the translation, transfer and implementation of research evidence.	Ward et al. (2009)
Knowledge translation ³³	A dynamic and iterative process that includes the exchange, synthesis and ethically-sound application of knowledge within a complex system of interactions among researchers and users	to improve the health of Canadians, provide more effective health services and products and strengthen the health care system	Canadian Institutes of Health Research (2008)
Knowledge translation	the synthesis , exchange and application of knowledge by relevant stakeholders”	to accelerate the benefits of global and local innovation in strengthening health systems and improving people’s health	WHO (2005)
Knowledge translation	The process of putting knowledge into action	to use evidence from research to make informed decisions; to bridge the knowledge-to-action gap	Strauss et al. (2009)
Knowledge translation and exchange	The exchange, synthesis and ethically sound application of research findings within a complex set of interactions among researchers and knowledge users; an acceleration of the knowledge cycle.	to accelerate the natural transformation of knowledge into use.	Armstrong et al. (2006)
Knowledge exchange	Includes: unidirectional knowledge transfer, interactive exchange of knowledge and experiences, dissemination of research findings	Providing new insights for increasing efficiency of policy strategies, assessment tools, and indicators To identify knowledge gaps	CSOCONTRIBUTION2SCP

³³ This term is often used in the medical and health care context.

Knowledge exchange	Knowledge exchange is collaborative problem-solving between researchers and decision makers that happens through linkage and exchange. Effective knowledge exchange involves interaction between decision makers and researchers and results in mutual learning through the process of planning, producing, disseminating, and applying existing or new research in decision-making.		Canadian Health Services Research Foundation (Clark & Kelly 2005)
Knowledge transfer and exchange	Interactive process involving the interchange of knowledge between research users and producers.	To increase the likelihood that research evidence will be used in policy and practice decisions; to enable researchers to identify practice and policy relevant research questions.	Mitton et al. (2007) Kiefer et al. (2005)
Knowledge transfer	Knowledge transfer is a two-way, continuous process where research information is exchanged between the research community and the community of potential users.	to inform decision-making at all levels of the health care system through interactive engagement and participation.	Nova Scotia Health Research Foundation (Clark & Kelly 2005)
Knowledge transfer	A process by which research messages are 'pushed' by the producers of research to the users.		Lavis et al. (2003) ³⁴
Knowledge transfer	Knowledge transfer within and between organisations is not a one-way activity, but a process of trial and error, feedback, and mutual adjustment of both the source and the recipient of knowledge.		Von Krogh (2003) ³⁵

³⁴ C.f. Mitton et al. (2007)

³⁵ Van Baalen et al. (2005)

	This mutuality in the knowledge transfer suggests that the process can be construed as a sequence of collective action in which the source and the recipient are involved		
Knowledge transfer	The interactive delivery of external social research knowledge and expertise to Ministers, and policy and analytical colleagues. This embraces both knowledge—‘know-how’ and ‘know-who’—and evidence— ‘know-what’		Social Research Knowledge Management (Clark & Kelly 2005)
Knowledge transfer/diffusion	The process of communicating research, innovations and/or knowledge to individuals, groups and organizations.	To improve the diffusion, dissemination and utilization of research in practice.	Thomson et al. (2006)
Knowledge sharing	The term knowledge sharing is used instead of diffusion and transfer, as it succinctly refers to the social processes that are involved. Sharing knowledge is not giving a full representative account of what is known by the source about a particular practice to the recipient. Because of the tacit component, knowledge contains an ineffable element; it is based on an act of personal insight that is essentially inarticulable.	the diffusion of innovative knowledge	Van Baalen et al. (2005)
Knowledge sharing		To enhance integration of scientific and technological progress into the policy-making and implementation process	Quevauviller et al. (2005)
Knowledge management	In the context of creating and fostering linkages among researchers, the public health community and other stakeholders: a process to deliver the right content to the person who needs it at the right time;	To ensure the efficiency and effectiveness of the public health system. KM contributes to the integration of systems, tools and processes; fosters the transfer of competence among individuals, and improves individual competence by	Dubois & Wilkerson (2008)

		promoting more efficient use of available information	
RSD: reconciling supply of scientific information with users' demands	linking science and knowledge to decision-making	to facilitate the production of more useful information for environmentally-related decision-making; to lessen the information deficit of users that may result from particular information needs not being fulfilled or that potentially useful information exists that users do not know about	McNie (2007)
Science/policy communication	Communication process between scientists and policy makers	To tackle the problem of inefficient use of research results	Janse (2008)
Science/policy communication and knowledge brokering	Including knowledge brokers (boundary organisations) for translating information, mediating between the science and fisheries management communities, and communicating with stakeholders	To improve the effectiveness of generating evidence for (marine fisheries) policy making and management	Holmes & Lock (2010)
Integration (integrated research)	Disparate elements being brought together in a more holistic entity	To connect (environmental) science and policy	Van Kerkhoff (2005)

Table 4: Terminology, definitions and purposes of Knowledge Brokerage