

Design Principles For Knowledge Productivity

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This study explores the learning processes that contribute to knowledge productivity: the improvement and innovation of an organisation's procedures, products and services, based on the development and application of new knowledge. Based on reconstruction and parallel case studies in more than 20 innovation practices, we formulated eleven design principles. Those principles help key players to turn the work environment into a learning environment that supports knowledge productivity.

Keywords: knowledge productivity, innovation, workplace learning

1. Introduction

In an economy where knowledge is dominant, daily operations in organisations should be designed to support the process of *knowledge productivity* (Kessels, 2001). This process entails: identifying, gathering and interpreting relevant information, using this information to develop new skills and to apply these skills to improve and radically innovate operating procedures, products and services. Learning lies at the heart of this process: tracing relevant information, and developing and applying new competencies are based on powerful learning processes. This paper presents 11 design principles to support this process of knowledge productivity.

2. Problem statement

In our research programme, we are exploring how to stimulate and support the learning processes an organisation needs for the improvement and innovation of its products, services and processes. These learning processes take place in the work, during innovation and improvement processes. They are seldom deliberately planned as learning activities, but arise by organising the whole work context and processes as a learning environment in which new knowledge can be developed and used. Work and learning become inseparable.

The key questions in our research therefore were:

What are characteristics of a work environment in which learning for knowledge productivity is stimulated and supported?

How can we support people in practice to create such an environment?

3. Research design

The research design consists of four phases. The phases are summarised in table 1 below.

Phase	Research activity	Method used	Result
A	Development of a conceptual framework on knowledge productivity.	Literature review that builds on previous research on knowledge productivity since 1995.	Definition of core concepts like the seven learning functions for knowledge productivity (Kessels, 1996) and three development principles for knowledge productivity (Kessels, 2001). And an integrating framework in which the relatedness between work environment, learning processes and innovation/improvement is described (Keursten & Kessels, 2002).
B	Testing the conceptual framework on knowledge productivity.	16 Reconstruction studies in innovative practices in various organisations and networks in the Netherlands, China and Indonesia.	Confirmation that the concepts within the framework are relevant in innovation practices in various contexts and various countries. Also examples that helped to make the elements in the conceptual framework more concrete (Keursten, Verdonshot, Kessels, & Kwakman, 2004).
C	Explorative and inductive research to find key factors in the process of knowledge productivity.	Extensive parallel research in nine innovative practices and a literature research.	12 design principles for knowledge productivity. These design principles reflect the main factors that influence knowledge productivity.
D	Validation of the design principles.	Interviews with 12 facilitators of the innovation practices in which we used the method of 'mapping' (Van der Waals, 2001).	Description of nine innovation practices in terms of the design principles, enrichment of the principles and redefinition of one of the principles. The result was a set of 11 design principles.

Table 1. Overview of the research design

Phase A: Development of a conceptual framework

A literature research that builds upon previous research on knowledge productivity (e.g. (Kessels, 1996; Kessels, 2001) resulted in a theoretical framework. Figure 1 presents this framework. Within this framework we distinguish the following elements (Keursten et al., 2004):

- *Outcomes for the organisation*: the results of knowledge productivity are measured in terms of improvement and/or innovation of products, services and processes.
- *Knowledge processes*: we distinguish three processes/abilities:
 - o identify, gather, exchange and interpret relevant information;
 - o use this information to develop new competencies and
 - o apply these competencies to improve and radically innovate.
- *Competency development*: this lies at the heart of knowledge productivity, and can be supported by a *corporate curriculum*: a learning environment that develops the competencies needed to be knowledge productive (Kessels, 1996). It involves transforming the workplace into an environment where learning and working integrates. Such a corporate curriculum serves seven related learning functions:
 - o acquiring *subject matter expertise*
 - o learning to *identify and deal with new problems*
 - o cultivating *reflective skills* and meta-cognitions
 - o acquiring *communicative and social skills*
 - o acquiring skills to *regulate motivation, affinities, emotions and affections*
 - o promoting *peace and stability*
 - o causing *creative turmoil*

- *Work environment*: Based on research thus far, three provisional development principles for a work environment that supports a corporate curriculum (Kessels, 2001) are:
 - o *enhancing reciprocal appeal (the social context)*
 - o *searching for a passion (the content component)*
 - o *tempting towards knowledge productivity*
- *Context*: The corporate curriculum and the design of a supportive work environment will be influenced by the context of the organisation, thus influencing the direction the organisation takes and the challenges that come up.
- *Interventions*: This refers to the interventions in work environment, corporate curriculum and knowledge processes that promote knowledge productivity.

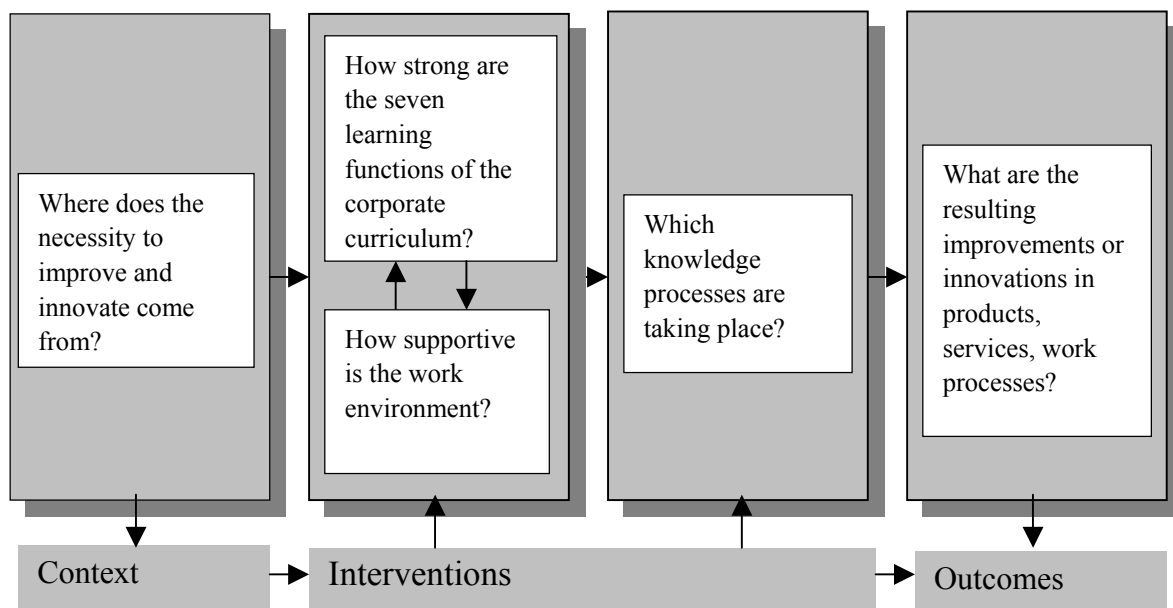


Figure 1. Conceptual framework on knowledge productivity

Phase B: Testing the conceptual framework

We tested the conceptual framework by studying 16 improvement and innovation practices deployed in various organisations in the Netherlands, China and Indonesia. We reconstructed the process of knowledge creation and utilisation that brought about improvements and innovations. Interviews were held with the people who were involved in the innovation process. The concepts within our conceptual framework formed the basis for data gathering and analysis. From these studies, we learned that the various concepts we used to describe the process of knowledge productivity in our conceptual framework, do actually matter in innovation processes in practice.

Phase C: Explorative and inductive research to find key factors

In the previous phase we used the concepts from our conceptual framework as the starting point for data-analysis. The results confirmed the relevance of our framework. In this phase we did explorative and inductive case study research to trace the factors that promote and inhibit the process of knowledge productivity. We deliberately chose not to start from our framework. This meant that we studied all facets of the innovation process in 9 cases. And, in addition we executed an extensive literature review. This enabled us to identify factors that were not yet in our conceptual framework.

Context

We studied 9 cases. These cases are innovation practices in the context of multiple space use in the Netherlands. In these innovation practices various people with different backgrounds and diverse interests are collaborate. They aim to find new solutions for practical problems concerning land-use in the Netherlands.

Data-gathering

We used 5 of the practices to do intensive data gathering: we attended meetings to observe what happened, we interviewed the people involved and organised regular reflective conversations with the main facilitators of these practices. The goal was to keep track of what happened in these innovation processes and to define moments that were described as important by the people involved. The result of this phase consists of five thick descriptions of the innovation practices. As a validation, we checked these descriptions with the main facilitators involved.

Another 4 of the 9 innovation practices were followed less intensively. We had regular reflective conversations with the main facilitators and collected the meaningful moments within the process. The result was an overview of important moments (what happened, who were involved, what was the result) per practice.

The literature research was conducted around themes that played an important role in the innovation practices, in order to deepen our understanding of what happened. This resulted in a large number of summaries of important research on these themes. The literature included in our study came from the domains of: HRD, adult learning, organisational development and innovation.

Data-analysis

Input for this analysis were three types of data:

1. meaningful moments or breakthroughs within the innovation practices;
2. examples in which the absence of breakthroughs within the innovation practices was evident;
3. findings from literature.

The data of this phase were used to develop principles to design and facilitate knowledge productive processes. This was done via a process of inductive analysis (Patton, 1990), a process in which categories of analysis come from the data: they emerge out of the data rather than being imposed on them prior to data collection and analysis. As Merriam (1988) describes, we looked for recurring regularities within the data. In this way, twelve design principles were formulated.

Phase D: Validation of the design principles

In this phase, we brought back the principles to the same innovative practices we found them in. We interviewed 12 facilitators and asked them to describe the innovative practice they were involved in, in terms of the design principles. We used the method of ‘mapping’ as described by van der Waals (2001). The design principles were printed on cards and there was a circle-shaped card with four rings on it. The facilitators were asked to place the cards in the rings according to the degree to which they were present in their innovative practice, from very much attention for a principle (inner circle) to absence of a principle (outer circle). The rings resemble a five-point Likert-scale. After placement of a principle on the scale, we asked for the reason for that position and for an example that illustrates this position.

At the end of each interview, we asked two validation questions:

- Are the principles a useful means to describe meaningful moments within the innovative practices we studied? In other words: Is it possible to describe important moments of the innovative practice when using the principles as a starting point?
- Are there meaningful moments within the innovative practices that did not surface when describing the practice using the principles? In other words: Should we add one or more principles?

This resulted in a description of nine innovation practices in terms of the design principles, enrichment of the principles and redefinition of one of the principles. The result was a set of eleven design principles: the 11th and the 1st principle were merged.

4. Results

This section elaborates on the results of phase C and D. The development and validation of the design principles we found. A short overview of the set of design principles:

1. Formulate an urgent and intriguing question
2. Creating a new approach
3. Working from individual motivation
4. Making unusual combinations of subject matter expertise
5. Working from mutual attractiveness
6. Describing the successes you achieved and everybody's contribution to it: starting from strengths
7. Learning by creating something together
8. Enticing to see new signals and to give them new meaning
9. Connect the world inside the practice to the one outside the practice
10. Make it a social and communicative process
11. Support actively the development of seven key competencies

In the following section we define the principles. The principles are illustrated with examples from our data set. The principles are not only a result of the case study-analysis; they are also based on the literature research we conducted. In appendix I, a selection of the sources we used, is described together with the aspects of the principle they relate to.

Principle 1: Formulate an urgent and intriguing question

Developing an urgent and intriguing question is necessary for knowledge productivity. Such a question is not a given, it needs active development in interaction with key players and stakeholders. Urgency not only relates to a rational urge but especially to the personal feeling that there is an urge: the question has to be formulated in such a way that the people who work on it, have the feeling that the question cannot remain unanswered.

It becomes intriguing when people have the courage to develop new perspectives on the question. The question should be formulated in such a way that it leaves space for various perspectives and directions. The question should evoke the participants' curiosity and should match their ambition.

Example from innovation practice 'Binckhorst'

The urgency of the question at hand remained unclear during the whole process to the people involved. This led to long conversations, little activity in between meetings, participants who await developments and who ask a lot of questions and then take a long time to think about their next actions. There was no urgent and intriguing question the

people involved could relate to. That caused slowness in the process.

This principle is not only important in the beginning of the process, but also during the process. Every one needs to feel this sense of urgency during the process. This sense of urgency arises when there is some form of external pressure, or when you have set milestones; certain moments in time when people have to deliver something. Only when the question at hand triggers the people involved, there is the ambition and commitment to realise something.

Example from innovation practice 'Overdiepse Polder'

In this innovation practice creative turmoil arises when the inhabitants of the polder read a newspaper article in which the government announces measures that concern their own area. They immediately decide to come into action and to do something themselves. They didn't want the government to decide about the future of the environment they live in.

Principle 2: Creating a new approach

In order to find new solutions ('thinking new'), you need a new way of working ('acting new'). A new way of working is not only about new techniques and e.g. new forms of structuring a meeting, but also about giving shape to an innovative process. You should design a new path that you make concrete more and more along the way. It is about thinking through a new perspective from which you experiment. It is also about breaking through patterns that people became accustomed to because of the existent structures. In creating a new approach it is important to keep using the elements that are already powerful in the actual way of working (there is no need to throw away everything).

Example from innovation practice 'Horstermeerpolder':

People experienced difficulties to explain each other what interest they had in the innovation project. To overcome this, they hired a mini-van and with a small group of people (each belonging to one of the stakeholder-groups that had an interest in the polder-environment) they made a tour with the bus through the polder. There were inhabitants, farmers, environmentalists and people who represented the people who visited the polder for recreation. Every stakeholder got the key of the bus for one hour. Within that hour they were free to guide the others. The inhabitants for instance chose to have a coffee at a certain café in the polder where the view was exceptionally beautiful. In the afternoon they sat together and talked about what the polder means to each of them. The result was that the various perspectives and interests started to become alive. They started to facilitate their own process. The (external) facilitator was not as much needed as before.

Principle 3: Working from individual motive

Individual motives are a powerful engine for innovation and a condition to make it something special: without strong motivation, excellence and breakthroughs are not likely. These

motives deal with a passion for a certain theme or with a personal interest. When you can work with things that are important to yourself, you create ownership (take responsibility) and entrepreneurship (take action). People's own motives also make them curious. When it is about your theme, you want to go for it. Even when it means that you have to leave the conventional roads and have to search for new ones. People dare to be disobedient and break existing patterns. This is necessary to find new roads and come to innovation. When people feel ownership, they are likely to do anything to keep the process going. Even when things get tough, they manage to regulate their motivation.

Example from innovation practice 'Apeldoorn-Zuid':

Striking in this case was the facilitator who encountered all the participants as individuals. He intervened in their process, and that influenced the group process. That meant that they didn't make any compromise when there were opposite opinions. Every individual has its own opinion, needs, desires and interests. By enlargening these, it becomes clear where everybody's needs and bottleneck's lie. That helps to create understanding and clarity. From this clarity one can easily create new bonds.

Example from innovation practice 'Piushaven':

This innovation project deals with the redesign of a river's bank near the city of Tilburg. The facilitator talked with the participants about their motives and interests: What is your dream? What do you want to happen? What do you want to avoid? This caused an atmosphere where people could collaborate in a new way.

Principle 4: Making unusual combinations of subject matter expertise

For an innovation subject matter expertise is essential: innovations are about real new concepts and ideas in certain knowledge areas. Therefore it is crucial to constantly examine, combine and develop new subject matter expertise. Innovation evolves when new connections are made. Finding new connections can be done by:

- bringing in new ideas from a different context or expertise;
- playing with and changing the context in order to give existing elements new meaning.

By looking for new combinations, you are better able to recognize and use the expertise that is already there. The subject matter expertise of a participant in the project can become visible as soon as someone with complete different expertise is involved in the process.

Example from innovation practice 'new Den Helder':

This practice is concerned with restructuring a neighbourhood in Den Helder, named 'New Den Helder'. The participants in this practice invited an architect. This architect developed new ways to design the district 'new Den Helder'. He took the Antilleans as a starting point, and came up with twelve concepts for a design of the district.

These were ideas like ‘the neighbourhood as a street theatre’, a compound and a cruise quay. He used one culture (that of the Antilleans: many of the inhabitants of new Den Helder are from the Antilles) and linked new concepts to the way you can use the neighbourhood for living, recreating, working. Whereas normally the large homogenous group of inhabitants was seen as the main problem, this problem completely disappears in this approach. The architect’s proposals inspired the people involved to broaden their view on this ‘problematic neighbourhood’.

Principle 5: Working from mutual attractiveness

For innovation processes, an environment in which people are attractive to each other is necessary. This means an environment with powerful and constructive relations between people. Interactions in such an environment can be fun, pleasant, creative, but also confronting. In such an environment the care for each other and trust play an important role. For people it becomes interesting to work with others and to invest in them, when others in turn are able to contribute to their own ambitions. In this way both have an interest in the well being of the other and in the success of the joint initiative. Creating such an environment, asks a lot of all the people involved. Openness and genuine interest towards the ideas and contributions of the others play an important role. It is about building on each other’s contributions instead of criticizing these.

Example from innovation practice ‘new Den Helder’:

At a certain point in this innovation practice, people had the idea ‘If I want something important to happen here, I need your help’. That came into existence after everybody’s personal motives were discussed. Suddenly there was space for people to offer help and to collaborate with each other.

Principle 6: Starting from strengths

People use to be very critical: we think that we can best contribute to a process by looking for the weakest points and put an effort into improving these weaknesses. In such a way of working, the focus lies on the things that are not there. It appears however, that you can improve an innovation process by working with the things that are already there, the things that you are already good at. By making explicit each other’s contribution to the process and by using your successes as a starting point, you can improve the knowledge development. It helps in recognizing the strengths that are there and ways to use them in future.

This principle consists of three elements:

- Look back and define the successes that you had. Share these.
- Examine the contribution of each one in the group to this success.
- Give it a future perspective: what can we bring about the coming period with help of these strengths?

This principle contributes to reflection that is needed to acquire metacognitions, the focus on success contributes to people’s self-efficacy (people’s judgments of their own capabilities). This helps in designing new insights and solutions.

Example from innovation practice 'Zeeburgereiland':

The project was concluded with a meeting in which the people involved looked back upon the process. The project had been successful, and in this concluding meeting the group investigated together how it had worked so well. They used their successes and talents as a basis for reflection. The questions that were central were: What are you proud of when you look back upon the process? Which situation comes to your mind? What talents and strengths contributed to the success in this particular situation? They looked at strengths of themselves, of others and of the environment. People interviewed each other in groups of 3 or 4 persons. The result was a meeting in which everybody felt very involved, and worked with concentration. After the meeting the elements that made the project a success became visible.

Principle 7: Learning by creating something together

In the case studies, we saw groups who found it hard to make valuable connections with each other and developing new knowledge. They kept having polite conversations, discussions and reflections.

This principle is about designing, developing and making new products and services. By creating something collaboratively, people acquire and combine knowledge, insights and skills. Designing something helps people to move their perspective from analysis to design, and from differences to connectedness. Because you make something that will be your own product in the end, you make explicit what is important for you personally. Experiences that used to be implicit now become explicit, you talk about them and elaborate upon them. That is crucial for the development of new knowledge. Within this principle it is about creating a common practice instead of talking about it.

Example from innovation practice 'Apeldoorn':

This project dealt with the development of a vision on the building of a new business park. In the third and last session of this project, the ideas and designs up to now were presented. The participants were asked to draw their own map of the new area. That resulted in 19 different maps. Then everybody was asked to choose his or her top-five maps, which resulted in a new and common top-five. These maps were completed with ideas from the other 14 maps. What happened was a process of creation. People start to create something. In their product they can express themselves. While drawing there is no need to negotiate. At the same time the pressure was not so high that their single map should contain the one and only general solution.

Principle 8: Enticing to see new signals and to give them new meaning

For innovation it is necessary to develop an antenna for new signals and to entice people to give more and new meaning to those signals. Starting to look for new (little) signals and to develop a kind of sensitivity for it is the first step. The second step is to actively look for new

information that learns you more about these signals. Finally, it is about a process in which you collaboratively develop new meaning based on the information you found. The use of new, not yet existing words and other kinds of representations, and the use of stories are important in this principle.

Something new can be seen and accepted by others when its meaning is connected to something people know already. So make sure to always connect the new meanings to the old.

Example from innovation practice 'Charlois':

Innovation practice Charlois deals with restructuring an area near Rotterdam. This area, called Charlois, is labelled as 'messy'. The highway that crosses this area is seen as something that stands in the way of innovating the Charlois-area. As soon as people in the project label the highway as a "gateway" they see new perspectives to organize the area in a completely new way.

Principle 9: Connecting the world inside the practice to the one outside the practice

In order to be successful, you need to connect the world inside the innovation practice with the world outside the innovation practice. Otherwise it could easily happen that inside the innovation practice great ideas are developed that never cause a break-through in the real world.

Positive attention from persons with a certain status, or attention from media, gives access to the outside world to what happens within the particular innovation project. This kind of attention in itself is not enough to realise a break-through, but it offers the opportunity to meet people and start to connect the two worlds.

Example from innovation practice 'Poort van Alphen'

In this innovation practice the people involved, connected their ideas with the world outside by composing an expert group consisting of experts from outside the project. These experts were influential people within the context. The expert group was asked to reflect upon the vision the participants developed within the project. The experts were especially interested in one of the ideas. Because of the involvement of experts in this phase, the participants in the project got the chance to develop this idea further.

Principle 10: Make it a social and communicative process

Knowledge development is a social process. Communicative and social skills are the vessel in this process. That's why it is important to give attention to the quality of the interactions: encourage listening to each other, investigating underlying meanings and assumptions, focusing on understanding before judging, connecting each new input to previous ones, concentrating not only reflecting on the past but also generating new futures. These can improve and strengthen the shared learning and innovation process considerably.

Example from innovation practice 'Apeldoorn':

For one of the sessions a large group of experts (from different fields) was invited. In two groups the people made a design for the business park that was new to build. The idea was that, after some time, the groups would work further with the other group's design. However, both groups weren't able to develop the design of the other group further. They kept on working on their own ideas; people failed to choose a new perspective, which was the actual intention. Nevertheless the meeting became a success. A group of students was asked to make visualisations of the ideas and plans that came up during the session. The participants were then invited to react on these visualisations. At that moment, people did start to talk with each other about the ideas. A new group process emerged in which people recognised elements of their own and other's ideas in the drawings. The students made new combinations, in a free and new way. That invited people to build on each other's ideas, to reflect upon them, to explain them to each other and to sharpen them.

Principle 11: Support actively the development competencies

The development of competencies (abilities) is essential in order to innovate. Doing new things with new people makes it necessary to learn new things individually and collaboratively. This enables participants to realise innovations.

Principles 1-10 are pointed towards the innovation process itself, this last principle focuses on the crucial and lasting role of learning in this process. The faster people learn together, the more knowledge productive they are. A specific innovation, improvement or invention – possibly patented – may be of great economic value, but the true value lies in the people's *ability* to generate these improvements and innovations. This ability helps to apply the previous 10 principles. Also, applying the previous 10 principles supports the development of new competencies.

It is of importance to work actively on individual and collective competencies: the innovation process should be designed as a learning process for the people involved. Therefore it is important to think of the competencies that should be developed, to define what competencies everybody can contribute, and to develop approaches and ways of working that stimulate learning in that direction.

5. Conclusions and reflections

As an answer to the first research question we found characteristics of a work environment in which learning for knowledge productivity is stimulated and supported. We have formulated these factors as design principles and aids for innovative practices. In the validation phase we found that the design principles help to give meaning to the important moments that took place within the innovation practices we studied. From the literature study it became clear that the principles need to be connected with a concrete practice, and at the same time people need to choose those principles that connect to their passion. Then, the principles serve as useful guidelines.

As an answer to the second research question we elaborated aids for each of the principles: more elaborated guidelines, tools and methods. This is being done on the basis of our findings in literature and on practical examples from the cases. The next research phase will be devoted to further design, sharpen and test these aids. The paragraph below elaborates on that.

Further research

In the next research phase, these three points of attention serve as a basis:

- Now there is a set of 11 principles, that is quite a lot. It raises the question how the principles relate to each other. In view of our research findings in the previous phase, it is conceivable that not all the principles need to be worked with at the same time. It works best if people make combinations of principles that best match their preferences. This is what we experiment with in the next research phase. We will do development research in order to find out how do people work with the principles and how can we stimulate that: are there groups of principles, is there an order in the principles, what linkages are preferable?
- At the same time, we will broaden the context. It is interesting to find out whether the principles are valuable in other contexts than that of multiple space use. Reflecting on the principles it becomes clear that they are not content specific. That gives us reason to believe that they could be valuable in knowledge productive processes in other contexts.
- Under the principles lie various mechanisms that make them 'work'. In the next phase we want to uncover these mechanisms. By doing so we want to better understand how the principles exactly contribute to the learning process.

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APPENDIX I

Overview of the design principles and their connection with literature

Design Principle		Aspect that connects with literature	Author
1	Formulate an urgent and intriguing question	It is never a problem that presents itself to us, it is rather a problematic situation. In a problem definition is our own interpretation already visible.	(Weick, 1995)
		Formulating a good questions is as important as answering it.	(Weick, 1995) (Drucker, 1993)
		Creative turmoil is a crucial condition for innovation.	(Kessels, 1996)
2	Creating a new approach	Path creation	(Garud & Karnoe, 2000)
		All learning integreates thinking and doing.	(Senge, Scharmer, Jaworski, & Flowers, 2005)
3	Working from individual motive	When participants in an innovation practice are not motivated to make the success of the practice as their own goal, there will be no breakthrough or innovation	(Senge, 2000)
		Individual motives deal with a passion for a certain theme	(Kessels, 2001)
		Autonomy becomes important when task-demands increase.	(Christis, 1992)
4	Making unusual combinations of subject matter expertise	The value of implicit knowledge build through experience.	(Leonard & Swap, 2004)
		Use of metaphors.	(Weick, 1995)
		Knowledge exisits via two processes: combination and exchange.	(Nahapiet & Ghoshal, 1998)
5	Working from mutual attractiveness	Mutual attractiveness as part of the corporate curriculum.	(Kessels, 2001)
		Good relations are important for the development of knowledge.	(Von Krogh, Ichijo, & Nonaka, 2000)
		Social capital	(Nahapiet & Ghoshal, 1998) (OECD, 2001)

6	Starting from strengths	Positive psychology and positive organisational scholarship.	(Cameron, Dutton, & Quinn, 2003)
		Appreciative Inquiry	(Whitney & Trosten-Bloom, 2003)
		Self-efficacy	(Bandura, 1989)
7	Learning by creating something together	Within this principle it is about creating a common practice instead of talking about it.	(Wenger, 1998)
		Learning by creating.	(Ruijters & Simons, in press)
		Negotiating about knowledge: what do people <i>mean</i> with what they <i>say</i> .	(Kirschner, 2002)
8	Enticing to see new signals and to give them new meaning	Making sense by means of 'cues'	(Weick, 1995)
		Guidelines for respecting mental models and development of new meaning.	(Lissack & Roos, 1999)
9	Connect the world inside the practice to the one outside the practice	External impulses accelerate the innovation process. The market's demand is to be developed.	(Agrocluster, 2004)
10	Make it a social and communicative process	In order to bridge differences in cognition, communication is necessary.	(Nooteboom, 2000)
		Social and communicative skills as part of the corporate curriculum.	(Kessels, 1996)
11	Support actively the development competencies	Seven learning functions as a corporate curriculum.	(Kessels, 1996)

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