

Extending the Organizational Learning Process in Order to Enable Innovative Ideas

Kaiser, Alexander; Kragulj, Florian; Grisold, Thomas; Walser, Roman

Published in:

Proceedings of the ECKM-2015 (16th European Conference on Knowledge Management)

Published: 01/01/2015

Document Version

Peer reviewed version

[Link to publication](#)

Citation for published version (APA):

Kaiser, A., Kragulj, F., Grisold, T., & Walser, R. (2015). Extending the Organizational Learning Process in Order to Enable Innovative Ideas. In Andrea Garlatti and Maurizio Massaro (Ed.), *Proceedings of the ECKM-2015 (16th European Conference on Knowledge Management)* (pp. 391 - 398). Academic Conferences and Publishing International Limited.

Extending the Organizational Learning Process in Order to Enable Innovative Ideas

Alexander Kaiser, Florian Kragulj, Thomas Grisold, Roman Walser

Vienna University of Economics and Business, Vienna, Austria

alexander.kaiser@wu.ac.at

florian.kragulj@wu.ac.at

thomas.grisold@wu.ac.at

roman.walser@wu.ac.at

Abstract:

Innovation processes require organizations to transcend current boundaries. These include not only technological as well as social limitations but -above all- the way we address the future. We are used to face the future with our existing knowledge and experiences from the past. This strategy, however, can hardly lead to knowledge off the beaten path. We therefore suggest a new learning approach for organizations which enables to literally envision a desired future scenario and thus, allows for the creation of radical new knowledge.

In this paper we focus on organizational learning towards the future and compare its output with traditional learning from the past. Based on the idea of Learning from the Future (Greenleaf, 1977; Jaworski, 1998; C. O. Scharmer & Kaeufer, 2013; Senge, Scharmer, Jaworski, & Flowers., 2005) we extend the organizational learning process with an additional source of learning. By interacting with an ideal envisioned future, individuals are enabled to detach particularly from their doubts, concerns and restrictions grounded in their past experiences, which in turn clarifies the necessary actions to realize this desired scenario. We have been successfully applying *Learning from Interacting with an Envisioned Future*, in short *Learning from an Envisioned Future*, to various problem settings and different project sizes. (Kaiser, Fordinal, & Kragulj, 2014)

We argue that our method leads to new knowledge which generally yields a higher degree of novelty and radicalness. In order to support our assumption we present our findings from comparing the output of *Learning from an Envisioned Future* and learning from the past. For this study we use data from an ongoing organizational learning project we are currently conducting with a high school in Austria. (Kaiser & Kragulj, 2015)

To investigate whether the approaches lead to considerably different results in terms of quality and quantity we apply the Paradigm Relatedness Framework by Nagasundaram & Bostrom (1994). By using this method, we assess the novelty and degrees of 'radical change' for the system induced by the individual ideas and compare the overall output in a systematic way. The research question of our paper is the following: *How does the use of Learning from Interacting with an Envisioned Future as an additional learning mode support the quality and quantity of innovative ideas?*

Does the output of both learning modes differ in terms of quality and quantity so that they could be used together in order to provide a more holistic knowledge creation?

Initial findings suggest that *Learning from an Envisioned Future* does produce significantly more output modifying the dominant paradigms in the school system compared to the output we gained from the conventional learning approach. Thus, we reason that *Learning from an Envisioned Future* yields more potential to knowledge that can be regarded as radically new.

Our paper will be structured in the following way. Firstly, we will discuss the theoretical background of our advanced approach of *Learning from an Envisioned Future*. Secondly, we will describe the ongoing research project with an Austrian high school as a qualitative case study. Subsequently, we will extensively compare the results of the two learning approaches we facilitated in the case study in terms of their quantity and quality measured by the Paradigm Relatedness Framework.

Keywords: organizational learning, learning from an envisioned future, interacting with an envisioned future, knowledge management, empirical study, learning modes

1. Introduction

It is generally assumed that companies have to continuously progress in order to gain competitive advantage and to be able to innovate. Accordingly, an organization is seen as a dynamic entity (Nonaka, Toyama, & Nagata, 2000) which creates knowledge in order to cope with its changing environment. A common approach to innovate is to apply well proven solutions to new contexts. Thereby, we may enable incremental innovations that include new aspects but are restricted by the past (e.g. by experienced limitations, cognitive boundaries etc.); they tend to share common features and are “more of the same”.

We suggest an additional type of learning which yields the potential to overcome these limitations; we argue that by shifting our attention towards an ideal future scenario we enable the creation of knowledge which is less biased by our experiences from the past. We label this method *Learning from Interacting with an Envisioned Future* (Kaiser et al. 2014; Kragulj 2014a; Kragulj 2014b). Thereby, subjects are guided into an envisioned future scenario where they create knowledge. We assume that the outcome of our method differs from conventional learning modes, both in terms of quality and quantity. However, this has not yet been tested empirically and will be the subject of this paper.

In the following section we will briefly outline the theoretical background of *Learning from Interacting with an Envisioned Future*, in short *Learning from an Envisioned Future*, to then present the findings of our empirical study.

2. Theoretical background

The conventional conception of learning is that we learn from past experiences. That is, we gain profound knowledge about strategies which worked out in the past and apply them to new situations. However, this yields the implication that past and future are linearly dependent. Ikujiro Nonaka amongst other management scholars, argues that “companies have to create new futures in order to survive. Those futures can no longer be extensions of the past; they must be leaps of faith into tomorrow.” (Nonaka & Takeuchi, 2011, p. 67). Thus, there is a demand for an alternative way to cope with and, more radically speaking, to create the future.

In a similar vein, innovations can be either incremental or radical. Incremental innovations are seen as “extensions to current product offerings or logical and relatively minor extensions to existing processes”. In contrast, radical innovations are defined as “new technologies or ideas into markets that are either nonexistent or require dramatic behavior changes to existing markets”. (McDermott & O’Conner, 2002, p. 424). In its core, a radical innovation embodies concepts which transcend the limitations and cognitive boundaries of the past.

In the field of organizational learning, C. Otto Scharmer's Theory U constitutes a conceptual framework that allows for creating radical and profound innovations; it facilitates the detachment from deep thinking patterns and modes of behaviors and makes use sense “what wants to emerge” (Jaworski & Scharmer, 2000). He proposes to shift the attention towards the individual's inner world, to accept the pure experience and to sense the very moment by “connecting with the source of one's best future possibility and of bringing this possibility into the now” (C. O. Scharmer & Kaeufer, 2010, p. 25f). This re-direction of our conceptions of the world is referred to as “learning from the future as it emerges” (Scharmer 2007). It is about learning “from a reality that is not yet embodied in manifest experience” (Scharmer 2000).

Building upon Scharmer's Learning from the Future we have developed a methodological framework which takes the approach to a literal use. Our method of *Learning from Interacting with an Envisioned Future* embraces the imagination and the actual interaction with a desired future scenario. (Kaiser et al., 2014; Kragulj, 2014a, 2014b) Essentially, the method calls for projecting ourselves forward in time and to pre-experience a world which we construct mentally. (Atance & O’Neill, 2001) By doing so, we generate knowledge from the experience we make in our imaginary environment, i.e. in the absence of sensory perception. (Szpunar, 2010)

The methodological procedure looks as follows: In a workshop or interview setting we encourage participants to imagine and report from an ideal future scenario. Participants should fully immerse into their imagination which contains the desired state of the respective social system from their point of view (e.g. the ideal school in the future from the perspective of a teacher working there). From “there”, the participants should narrate as if they already interacted with their envisioned future environment – how does it look like; how does it feel

to be “there”? We facilitate the process of “time travelling” by providing an enabling space (Peschl & Fundneider, 2014), using rituals like music and change of physical gesture (e.g. changing the sitting position). Our method aims to facilitate the detachment from today's circumstances, including restrictions, boundaries and impossibilities experienced in the past. We want to enable people to come up with visionary and creative results transcending the current state of affairs.

This approach yields several assets. We can mentally create images of solutions and scenarios that seem unrealistic with respect to any given circumstances including social, economic or technical limitations, but are nevertheless attractive to us, i.e. they may please us and meet our needs. (Goffin, Lemke, & Ursula, 2010) Thereby, we can model our own desired future and subsequently align our actions in order to bring our imagination to life - we can “problem-solve” prior to the actual existence of a problem. Furthermore, we can foresee beyond our individual lifespan; this enables us to map out long-term strategies and sustainable solutions that reach far into the future by imagining scenarios which go beyond our own life time and taking into account the succeeding generations and their future needs. (Taylor & Schneider, 1989)

To sum up, our method of *Learning from Interacting with an Envisioned Future* provides an alternative and additional source of learning that has the potential to overcome limitations and cognitive boundaries which result from past experiences. We hypothesize that this is evident when the outcome of a conventional learning from past experiences is compared with our learning from an envisioned future.

3. Research gap, research question and research methodology

The field of learning theory offers a bulk of empirical studies that focus on the output of learning processes (e.g. Engeström & Sannino, 2010; Goh, 2003; Issenberg, McGaghie, Petrusa, Lee Gordon, & Scalese, 2005; McEneaney, 1990; Mishra, 2001; Simonin, 1997; Smits, Verbeek, & de Buissonje, 2002). All of them are based on the “conventional learning paradigm”, i.e. learning based on experiences from the past. Although we do notice an increasing relevance and popularity in the approach of learning from the future in literature and practice (e.g. Jaworski & Scharmer, 2000; Kaiser et al., 2014; C. O. Scharmer & Kaeufer, 2010, 2013; O. Scharmer, 2007; Szpunar, 2010; Kaiser 2015), there is a lack of empirical studies exploring the output of this learning approach. There are no empirical studies which compare the output of learning based on past experiences with the output of learning from the future.

Based on this research gap, the main purpose of our paper is to investigate the output of learning from the future. Accordingly, the research question is: *“How does the use of Learning from Interacting with an Envisioned Future as an additional learning mode support the quality and quantity of innovative ideas?”*

We want to compare the traditional approach to learning with learning from the future by using a case study design. According to Yin (2014), a case study research is the preferred method in situations when (1) the focus of the study is to answer “how” or “why” questions; (2) a researcher has little or no control over behavioral events; and (3) the focus of the study is a contemporary phenomenon. Following Yin, a case study research investigates a contemporary phenomenon in its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident.

In order to evaluate the output of the learning modes, we apply the Paradigm Relatedness Framework by Nagasundaram and Bostrom (1994). By using this method, we assess the novelty and degrees of ‘radical change’ for the system that is induced by the generated ideas and we can compare the overall output of both learning modes in a systematic way.

4. Case study

The case study is part of a large research project with 400 participants with a high school in Lower Austria where we apply our methodological framework Bewextra. In short, the overall goal of Bewextra is to externalize knowledge about people’s needs in a social system. The premise of our framework is that subjects are not capable of expressing their needs directly but they are used to experience what could satisfy those needs. As a consequence, we differentiate between *satisfiers* (i.e. concrete solutions and products) and underlying *needs* (i.e. abstract entities that themselves do not specify a concrete satisfier).

Our method provides a procedure that implies several consecutive steps. The starting point is the collection of satisfiers using our approach of Learning from an Envisioned Future. Subsequently, we analyze the collected satisfiers and finally provide a validated set of underlying needs.

The following analysis focuses on the first step of Bewextra. We want to investigate the satisfiers resulting from Learning from an Envisioned Future and those resulting from the conventional learning from past experiences.

The case study was conducted in 2014 with pupils of two classes of the high school and some teachers. They took part in two data acquisition workshops, i.e. we hosted one workshop for each class. All pupils were about the same age (17-18 years). In total, a number of 31 pupils and teachers participated in the study; 12 pupils and 2 teachers were learning from their envisioned future (workshop 1), while 17 pupils were exposed to conventional learning from the past (workshop 2).

In workshop 1, we used our method Learning from an Envisioned Future. It was carried out at the Vienna University of Economics and Business, i.e. in an environment that is unfamiliar for the pupils.

In workshop 2, the pupils were asked to think of an ideal future scenario while taking into account their past experiences. It took place three months later in the high school, i.e. in their usual and familiar environment.

4.1 Procedure

In both workshops, we gave a short introduction to the topic and then asked the pupils to envision an ideal school setting.

In workshop 1, the class that learnt from an envisioned future was exposed to a setting, which is designed to facilitate the detachment from the current system's situation and to fantasize about their ideal future scenarios. Thereby, a facilitator made them imagine that they were actually present in a scenario taking place in the year 2020; the narrative time journey took up to several minutes and the imagined time leap was illustrated with Richard Strauss' Zarathustra.

In workshop 2, the pupils were exposed to a traditional learning setting where they were asked to reflect on their previous experiences in the school and to subsequently think of what they would like to change today in order to have an ideal school in 2020. They did not undergo a mental time travel.

The participants of workshop 1 answered the following questions: (a) "What has emerged and is new?", (b) "what has come to an end?"; in workshop 2: (a) "What will have had emerged and is new?", (b) "what will have had come to an end?"

4.2 Analysis

In workshop 1 participants generated a total number of 369 satisfiers, whereas in workshop 2 the respective participants generated a total number of 520 satisfiers. In the following, we compare the outcome of the two data sets.

A team of four researchers analyzed the two data sets. The collected satisfiers were transcribed and randomized; any hint for whether they come from workshop 1 or workshop 2 had been effaced. Thereby, it was ensured to remain unbiased during the analysis.

The procedure consisted of three steps. First, a subset of about 200 satisfiers was analyzed together in four in order to get a common understanding of how to approach the data. Second, the remaining satisfiers were distributed among the four researchers for individual analysis; this allowed for an efficient process and reduced a potential group-bias. In a third step, all satisfiers were jointly re-assessed and checked for intersubjective consistency.

4.3 Method

We analyzed the satisfiers with two respects. First, we clustered the output according to abstract domains that emerged in the data sets. These domains were refined over several iterations. Thereby, we added structure to the high number of collected answers and facilitated a consistent assessment of the satisfiers.

Second, we assessed each satisfier in terms of its creative potential. Generally speaking, research on creativity and innovation shows that the assessment of output can be done with respect to different paradigms and evaluation procedures. (Dean, Hender, & Rodgers, 2006) We decided to analyze the collected output of both groups using the *Paradigm Relatedness Framework*. It allows for evaluating the novelty of an idea with regards to the status-quo of a particular system (cf. Dean et al., 2006; Nagasundram & Bostrom, 1994). Using this framework, the novelty can be assessed without having a *specific* problem context or goal that should be resolved with an idea – in our setting, pupils were free to come up with whatever they found most desirable in their ideal school settings.

The framework by Nagasundram & Bostrom (1994) depicting the relationship between elements and relationships between elements is shown in Figure 1.

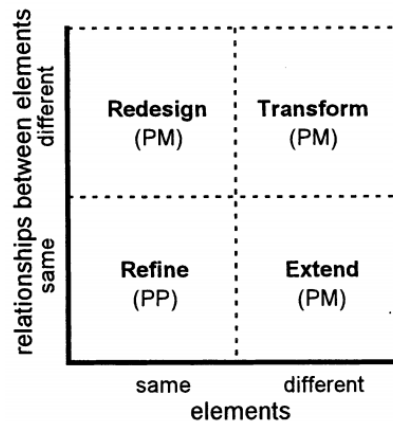


Figure 1: Analyzing Paradigm-Relatedness (Nagasundram & Bostrom, 1994, p. 94).

According to the *Paradigm Relatedness Framework*, the novelty of an output can be evaluated and classified as being paradigm-preserving (i.e. an adaptation to the current conditions in a system) or paradigm-modifying (i.e. a modification of the current conditions in a system).

Output can belong to one of *four categories*:

- *Category 1 (Refine)*: Ideas are paradigm-preserving when they refine a system or a problem context.
- *Category 2 (Extend)*: Ideas are paradigm-modifying when they change the system by adding a new element to the context.
- *Category 3 (Redesign)*: Ideas are paradigm-modifying when they alter the relationship between elements of a system.
- *Category 4 (Transform)*: Ideas are paradigm-modifying when they both add a new element as well as change the relationship of the elements.

Following this classification, we analyzed each output respectively. The following examples are taken from our data set. They are summarized with respect to the respective domain that we have created and illustrate how the output was assessed using the Paradigm Relatedness Framework.

4.4 Examples

Example A (domain: curriculum design): suggestions for a future curriculum design were:

- Category 1: Better explanations by teachers (refining current situation)
- Category 2: New teaching methods (new element into system)
- Category 3: Curriculum is organized as a flexible module system (relationship between existing elements)
- Category 4: No attendance at all, pupils can attend school via Skype (changed relationship of the elements and adding a new element).

Example B (domain: teaching staff): suggestions for the future teaching staff were:

- Category 1: Teacher should be less lazy (refinement of current situation)
- Category 2: Education of teacher should contain IT-training (adding new element)
- Category 3: Conflicts among teachers are resolved (relationship between existing elements)
- Category 4: The role of the teacher is abandoned, instead they are coaches who accompany pupils individually (adding new element and changing the relationship).

Example C (domain: room design): suggestions for how rooms should be designed were:

- Category 1: More luxurious (refinement)
- Category 2: A lounge where pupils are during breaks (new element)
- Category 3: Each class has exactly the same equipment (relationship between elements)
- Category 4: There is no seating order and pupils can freely choose the class where they are sitting (adding new element and changing the relationship).

Example D (domain: support of talent/strength): suggestions for future support of skills and talents were:

- Category 1: Generally more focus on recognizing and enhancing talents (refinement)
- Category 2: Offer of special course to support strengths (new element)
- Category 3: Pupils are individually supported (changing relationship between teachers and pupils)
- Category 4: Individual support of talents with special campaigns, e.g. sending them to universities (changing relationship of system and adding new element)

Example E (domain: technical infrastructure): suggestions for the future technical infrastructure were:

- Category 1: Network should be working (refinement)
- Category 2: Contract with local provider of computer hardware (new element)
- Category 3: Technical infrastructure is equally accessible for pupils (changing relationship)
- Category 4: An app for parents where they can track the current position/activity of the pupil (new element and changing relationship between pupils and parents)

4.5 Results

The key figures of our case study are summarized in Table 1.

Table 1: Key figures of the case study

	Workshop 1 (Learning from an Envisioned Future)	Workshop 2 (Conventional learning from the past)
Number of participants	14 (12 pupils + 2 teachers)	17 pupils
Number of satisfiers	369	520
(Avg.) satisfiers per participant	26	31
Covered domains	61	59

The numbers presented in Table 1 show that Learning from an Envisioned Future results in approximately 26 satisfiers per participant on average compared to about 31 satisfiers in the conventional learning mode. With respect to the covered domains, Figure 2 shows the number of different domains to which the generated satisfiers were assigned. Overall, we identified 70 different domains. 50 of them were represented in both workshops by at least one satisfier. The pupils participating in workshop 2 came up with 9 additional and unique domains whereas workshop 1 delivered 11 unique domains.

This leads to the finding that by combining the outcome of both workshops increases the number of created domains by considerable 19.3%. Although the number of different domains should not be taken as a guarantee for a higher quality per se, we can argue that a more diverse output provides an additional valuable scope for action. Furthermore, it increases the possibility that less obvious but possibly important topics are revealed.

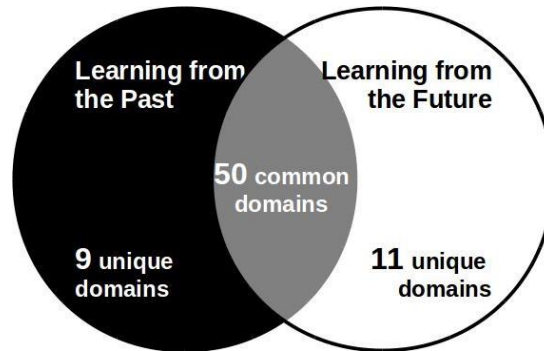


Figure 2: Common and unique domains of satisfiers produced in the respective learning mode

Furthermore, by comparing the respective outcome using the Paradigm Relatedness Framework, we can see that Learning from an Envisioned Future generates 90% of all satisfiers that are ascribed to category 4 (i.e. containing the suggestions that are most radical novel for the system). In a similar vein, the production of category 3-satisfiers was facilitated by Learning from an Envisioned Future, as it is evident with about 65%. Accordingly, Learning from an Envisioned Future produced output that is more challenging to the status-quo of a social system and yields a higher degree of novelty. Figure 3 shows the distribution of the two learning modes for each category.

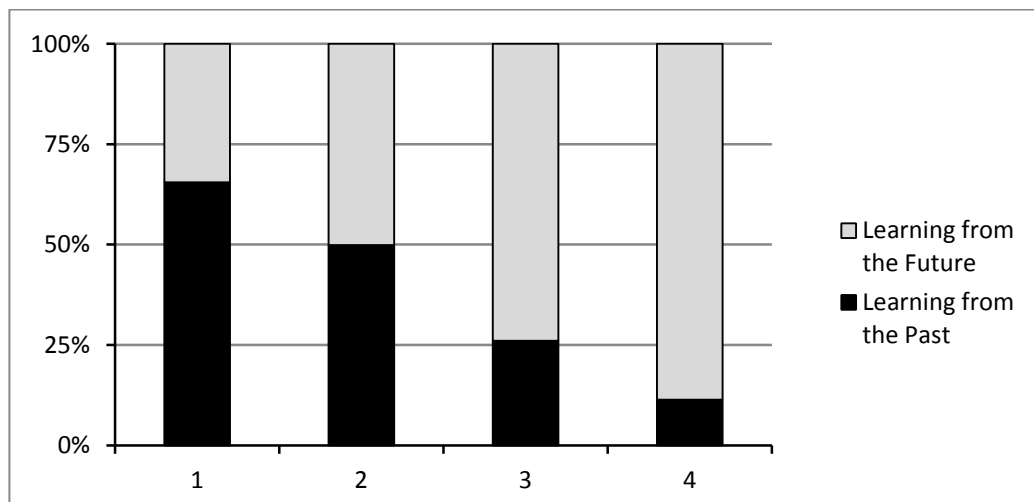


Figure 3: Composition of each category of Paradigm-Relatedness Framework with regards to the learning mode

On the other hand, the conventional learning from past experiences produces a considerably higher number of satisfiers that are paradigm preserving, i.e. that refine the current state of the system, with a percentage of 65%. Therefore, there is an overall tendency for providing more moderate and less novel ideas in a conventional learning based on past experiences.

The results indicate that Learning from an Envisioned Features tends to facilitate the generation of paradigm-modifying output (i.e. satisfiers assigned to categories 2, 3 and 4). This is further illustrated in Figure 4 which depicts the distribution of the categories for the respective learning modes. Whereas the conventional learning from the past provides primarily paradigm-preserving satisfiers with a percentage of 67%, Learning

from an Envisioned Future resulted in a lower proportion of 41%. At the same time, Learning from an Envisioned Future produced 8.7% satisfiers of category 4, whereas the satisfiers of the conventional learning led to 1.0%.

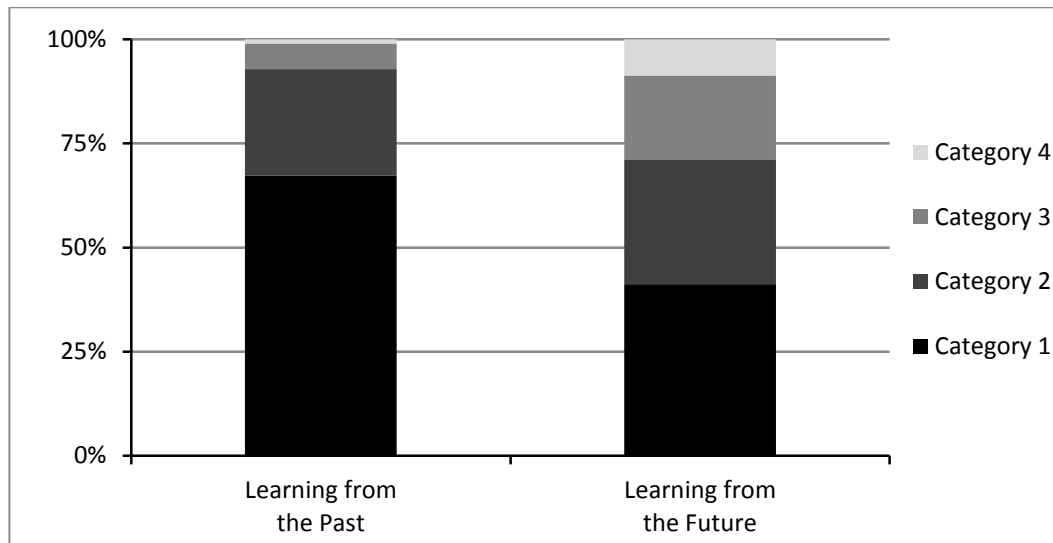


Figure 4: Distribution of the four categories of the Paradigm Relatedness Framework that were produced in the respective learning mode

5. Discussion and conclusion

Our analysis provides two main findings. Firstly, it demonstrates that Learning from an Envisioned Future yields the potential for being used as an additional learning mode as it most likely enables the creation of creative and innovative solutions.

Secondly, our case study shows that the combination of learning based on experiences from the past with learning from a desired future scenario contributes to the generation of innovative ideas both in terms of quality quantity. The results suggest that an optimal learning strategy is not about deciding to either learn from the past or from the future, but to use both modes in a complementary manner. Our study shows that combining them increases the number of domains covered in the learning processes. Therefore, we suggest that it is important to be familiar with both learning modes.

The primary contribution of this work is to provide a first empirical study about the output of learning from the future and a comparison with the output of learning based on experiences from the past. This research has several implications for practice. It shows that it makes sense to utilize creative methods like learning from an envisioned future to foster innovations and sustainable solutions. A potential limitation of our research is the fact that, at the time of submitting our paper, there is only one project where we have performed our case study. We cannot rule out the possibility that the impact of the two learning modes is different in other organizations than school classes. Based on these limitations on the one hand and the intriguing and promising results of our case study on the other hand, our future research will cover the following areas:

- Selecting one or more case studies different to the described project with school classes.
- Theoretical foundation of an enhanced learning theory, which covers learning from the future as well as learning based on experiences in the past.
- Designing and implementing additional methods for learning from an envisioned future in organizations.

References

- Atance, C. M., & O'Neill, D. K. (2001). Episodic future thinking. *Trends in Cognitive Sciences*, 5(12), 533–539.
- Dean, D. L., Hender, J. M., & Rodgers, T. L. (2006). Identifying Quality, Novel, and Creative Ideas: Constructs and Scales for Idea Evaluation. *Journal of the Association for Information Systems*, 7(10), 646–699.
- Engeström, Y., & Sannino, A. (2010). Studies of expansive learning: Foundations, findings and future challenges. *Educational Research Review*, 5(1), 1–24.
- Goffin, K., Lemke, F., & Koners, U. (2010). *Identifying hidden needs: creating breakthrough products*. London: Palgrave Macmillan.
- Goh, S. C. (2003). Improving organizational learning capability: lessons from two case studies. *The Learning Organization*, 10(4), 216–227.
- Greenleaf, R. K. (1977). *Servant Leadership. A Journey into the Nature of Legitimate Power & Greatness*. Mahwah, NJ: Paulist Press.
- Issenberg, S. B., McGaghie, W. C., Petrusa, E. R., Lee Gordon, D., & Scalese, R. J. (2005). Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review. *Medical Teacher*, 27(1), 10–28.
- Jaworski, J. (1998). Destiny and the Leader. In L. C. Spears (Ed.), *Insights on Leadership: Service, Stewardship, and Servant Leadership* (pp. 1–11). New York: John Wiley & Sons.
- Jaworski, J., & Scharmer, C. O. (2000). *Leadership in the New Economy: Sensing and Actualizing Emerging Futures*. Cambridge: Generon.
- Kaiser, A. (2015). A theory of developing sustainable visions. Submitted for publication.
- Kaiser, A., Fordinal, B., & Kragulj, F. (2014). Creation of Need Knowledge in Organizations: An Abductive Framework. In *Proceedings of the Annual Hawaii International Conference on System Sciences* (pp. 3499–3508).
- Kaiser, A., & Kragulj, F. (2015). Building Intellectual Capital by Generative Listening and Learning from the Future. In Navarro, J. G. C., editor, *Proceedings of the ECIC-2015 (7th European Conference on Intellectual Capital)* (pp. 165–172).
- Kragulj, F. (2014a). *Creating Knowledge of Need: A Methodological Framework for its Abductive Inference*. University of Vienna.
- Kragulj, F. (2014b). Interacting with the envisioned future as a constructivist approach to learning. *Constructivist Foundations*, 9(3), 439–440.
- McDermott, C. M., & O'Conner, G. C. (2002). Managing radical innovation: *Journal of Product Innovation Management*, 19(6), 424–438.
- McEneaney, J. E. (1990). Do advance organizers facilitate learning? A review of subsumption theory. *Journal of Research and Development in Education*, 23(2), 89–96.
- Mishra, S. (2001). Problem-based learning: Case studies, experience and practice. *British Journal of Educational Technology*, 32(4), 503–504.
- Nagasundram, M., & Bostrom, R. P. (1994). The Structuring of Creative Processes Using GSS: A Framework for Research. *Journal of Management Information Systems*, 11(3), 87–114.
- Nonaka, I., & Takeuchi, H. (2011). The wise leader. *Harvard Business Review*, 89(5), 58–67.
- Nonaka, I., Toyama, R., & Nagata, A. (2000). A Firm as a Knowledge-creating Entity: A New Perspective on the Theory of the Firm. *Industrial and Corporate Change*, 9(1), 1–20.
- Peschl, M. F., & Fundneider, T. (2014). Why space matters for collaborative innovation networks: on designing enabling spaces for collaborative knowledge creation. *International Journal of Organisational Design and Engineering*, 3(3/4), 358–391.
- Scharmer, C. O., & Kaeufer, K. (2010). In front of the blank canvas: sensing emerging futures. *Journal of Business Strategy*, 31(4), 21–29.

- Scharmer, C. O., & Kaeufer, K. (2013). *Leading from the emerging future: from ego-system to eco-system economies*. San Francisco, CA: Berret-Koehler Publishers.
- Scharmer, O. (2007). U-Theory. *Leading from the Future as It Emerges. The Social Technology of Presencing*. Cambridge, MA: SoL.
- Senge, P. M., Scharmer, C. O., Jaworski, J., & Flowers., B. S. (2005). *Presence: An Exploration of Profound Change in People, Organizations, and Society*. New York, NY: Random House Digital, Inc.
- Simonin, B. L. (1997). The importance of collaborative know-how: An empirical test of the learning organization. *Academy of Management Journal*, 40(5), 1150–1174.
- Smits, P. B. A., Verbeek, J. H. A. M., & de Buissonje, C. D. (2002). Problem based learning in continuing medical education: a review of controlled evaluation studies. *British Medical Journal*, 324(7330), 153–156.
- Szpunar, K. K. (2010). Episodic Future Thought: An Emerging Concept. *Perspectives on Psychological Science*, 5(2), 142–162.
- Taylor, S. E., & Schneider, S. K. (1989). Coping and the Simulation of Events. *Social Cognition*, 7(2), 174–194.
- Yin, R. (2014). *Case Study Research Design and Methods*. Thousand Oaks, CA: Sage Publications.