

# Learning from the future meets Bateson's levels of learning

Bateson's  
levels of  
learning

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## Abstract

**Purpose** – Previous studies showed that combining learning based on experiences in the past with learning from an envisioned future scenario results in more innovative and radical ideas, as well as in a higher number of covered content domains. However, currently there is no holistic learning theory that integrates both sources of learning. The main purpose of this paper is to investigate whether it is possible to extend Bateson's theory of learning, to link these two learning sources in one coherent framework.

**Design/methodology/approach** – To answer this research question, the author draws on learning from an envisioned future, and tries to link it with the most important levels of learning in Bateson's framework.

**Findings** – This paper contributes to the literature by attempting to link the important but still underexplored aspect of "learning from the future" to the complex and multifaceted work of Bateson. Given the fact that both sources of learning and experience yield a great potential to create new knowledge, this study outlines a possibility to include both sources into one learning theory.

**Research limitations/implications** – This work provides the basis for further research in building a general holistic theory of learning to learn.

**Practical implications** – On the individual level, the proposed approach can be easily applied with systemic coaching processes in general and coaching processes in the fields of developing an individual vision in particular. In the field of organizational learning, the awareness of different learning sources and different learning modes on the one hand and knowledge about the implementation of enabling spaces (PE-ba, FE-ba) to support these various learning modes on the other hand help organizations to generate new knowledge and create innovative and sustainable solutions, products and services.

**Originality/value** – To the best of the author's knowledge, it is the first theoretical work that describes the integration of learning from past experiences and learning from future experiences in a methodological way.

**Keywords** Knowledge processes, Learning, Learning processes, Bateson's learning theory, Learning from the future

**Paper type** Research paper

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## Introduction

The ability to generate new knowledge and to transfer, use and apply existing knowledge is vital for individuals and organizations, if they want to be capable of meeting the future. Undoubtedly, learning is the most important method for creating new knowledge. In

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addition to already well-known learning methods (Bateson, 1972; Argyris and Schön, 1978; Kolb, 1984), several approaches of learning from the future have been proposed in the past decades (Greenleaf, 1977; Jaworski, 1998; Senge *et al.*, 2005; Scharmer, 2009). Recent studies (Kaiser *et al.*, 2015a, 2015b) in the field of organizational learning showed that when we combine learning from past experiences with learning from an envisioned future scenario, we will more likely gain more innovative ideas. However, the classical learning theory does not offer a holistic theoretical framework that integrates both learning sources, that is, learning from the past and learning from the future. The main purpose of this paper is to investigate whether it is possible to link these two learning sources in one coherent framework.

Kolb (1984) emphasized the central role of experience in the learning process, pointing out that:

[a]n experience is always what it is because of a transaction taking place between an individual and what, at the time, constitutes his environment [. . .]. Even when a person builds a castle in the air he is interacting with the objects which he constructs in fancy (Kolb, 1984, p. 35).

From a cognitive science perspective, it has been discovered that re-experiencing the past and pre-experiencing the future share the same cognitive resources and mechanisms (Atance and O'Neill, 2001, p. 537; Suddendorf and Corballis, 2007, p. 302). The neural mechanisms underlying memory for personal events in the past are similar to those supporting the simulation of personal future episodes (Szpunar *et al.*, 2007, p. 642; Szpunar, 2010). This has been shown in fMRI studies, as well as in clinical psychology experiments (Addis *et al.*, 2007, p. 1363). Thus, experiences play a central role in the learning process and these can have their source in the past and in the future.

#### *Learning from the past*

Conventional experiential learning theory defines learning as “the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 41). Knowledge results from the combination of grasping and transforming experience. Accordingly, learning is understood as an action-reflection process that is based on reflecting experiences from the past. In other words, we acquire experiences in the past and, by processing these experiences, we adjust our behavior to meet later demands. Learning from past experiences is well known and it plays a crucial role in learning theories.

#### *Learning from the future*

Breaking with the view that learning is strictly and solely connected with our past experiences and giving up the belief that the future is a forward projection of the past, several authors (Greenleaf, 1977; Jaworski, 1998; Senge *et al.*, 2005; Scharmer, 2009) proposed to learn from the future. The idea is to disconnect from previous experiences and expectations to learn from an unknown reality that has not yet been embodied in manifest experience (Scharmer and Kaeufer, 2010, p. 25f.).

Related to this is the concept of “learning from an envisioned future” (Suddendorf and Redshaw, 2013; Kaiser *et al.*, 2015b) that enhances imagination to mentally pre-experience hypothetical future scenarios and personal events (Szpunar, 2010, p. 143). An example for learning from an envisioned future could be to envision how a desirable outcome of a project could look like and, by using a backcasting approach (Robinson, 1990; Dreborg, 1996), to explore what actions are needed in the present situation to reach this desirable state.

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### *Research gap and research question*

In none of the major (organizational) learning methodologies from Argyris and Schön (1978, 1996), Kolb (1984), Kolb and Kolb (2005), Bateson (1972) or Senge *et al.* (2005), there is an explicit consideration of *both* learning sources. As the value of learning from both sources has been acknowledged (Kaiser *et al.*, 2015a, 2015b), this paper investigates whether it is possible and useful to integrate both learning sources in one of the coherent learning methodologies. For this study, I choose Gregory Bateson's theory. This framework, which considers several learning levels, is one of the most important approaches in the field of (organizational) learning, and has a strong influence on several authors (Tosey *et al.*, 2012). Consequently, the following research question can be defined:

- RQ.* If I follow the logic of Bateson's learning theory, to what extent is it possible to integrate both sources of learning, learning from the past and learning from the future, into his framework?

To answer this research question, I draw on learning from an envisioned future and try to link it with the most important levels of learning in Bateson's framework.

The paper continues with a brief description of Bateson's framework of levels of learning. In the following section, I will introduce a link of learning from the future to Bateson's framework. Finally, I will use a practical example to illustrate my argument.

### *Bateson's theory of learning*

Bateson proposed several levels of learning (Bateson, 1972) that start with Learning 0 and end with Learning 4. While Bateson said little about Learning 4, Learning 0 only entails responding to stimuli, but makes no changes based on experience or information (Tosey *et al.*, 2012). Therefore, I will exclusively focus on Learning 1, 2 and 3:

- *Learning 1:* It is a change in specificity of a response by correcting the errors of a choice within a set of alternatives.
- *Learning 2:* It is a change in the process of Learning 1, e.g. a corrective change in the set of alternatives, from which choice is made, or it is a change in how the sequence of experience is punctuated.
- *Learning 3:* It is a change in the process of Learning 2, e.g. a corrective change in the system of sets of alternatives from which a choice is made.

These levels of learning propose different learning modes and intensities of learning as well as different learning effects.

### **Does Bateson's learning theory allow including a learning from the future dimension?**

In the following section, I will describe the three levels and for each level and I will explore how learning from an envisioned future can provide possible extensions.

#### *Learning Level 1*

*Learning 1* is described as change within a set of alternatives (Bateson, 1972, p. 298). It is about optimizing the choices of alternatives within a given set of alternatives. Learning 1 is based on experiences from the past, driven by an underlying mental model and controlled via a goal and the resulting outcome by taking the selected alternatives. The learning outcome is knowledge about the optimal choice of alternatives out of a static set of alternatives.

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How would a corresponding future-oriented learning mode “Future Learning 1” look like? Applying the approach of “learning from an envisioned future,” it could be defined as follows:

*Future Learning 1* is a change within a set of alternatives based on experiences from an envisioned future. It is about optimizing the choices of alternatives taken out of a set of alternatives. This learning process is based on experiences from an envisioned future determined by some goal. It is driven by an underlying mental model and controlled via a backcasting approach, starting from the envisioned future and ending in the presence, based on which the selected alternatives are identified. The main learning outcome of Future Learning 1 is knowledge about the optimal choice of alternatives out of a static set of alternatives.

#### *Learning Level 2*

*Learning 2* is described as change in the set of alternatives (Bateson, 1972, p. 298). The set of (action) alternatives becomes dynamical, and Learning 2 is “the revision of the set from which the choice is to be made” (Bateson, 1972, p. 291). The change in the set of alternatives is based on past experiences; it is driven by an underlying mental model and controlled via a goal and the resulting outcome by taking the selected alternatives out of a changed and extended set of alternatives. The learning outcome of Learning 2 is knowledge about the changed set of alternatives along with knowledge about the new action alternatives.

In the following section, a possible extension “Future Learning 2” is outlined.

*Future Learning 2* can be defined as change in the set of alternatives based on experiences from an envisioned future and a dynamical set of (action) alternatives. The change in the set of alternatives is based on experiences from the envisioned future, determined by a goal, driven by an underlying mental model and controlled via a backcasting approach beginning in the envisioned future and it ends in the presence. The learning outcome of Future Learning 2 is knowledge about the changed set of alternatives and thus, knowledge about new action alternatives.

#### *Learning Level 3*

Bateson describes *Learning 3* as a corrective change in the system of sets of alternatives from which a choice is made (Bateson, 1972, p. 298). Therefore, the focus of Learning 3 is the underlying mental model, which is strongly connected to a set of underlying needs and values. Learning 3 can be seen as a mental shift. It changes the current underlying mental model and it is based on past experiences. The learning outcome of Learning 3 is twofold:

- (1) creating explicit knowledge of those elements of the underlying mental model that are currently strong action-driving when selecting alternatives and of those other elements that are currently more in the background; and
- (2) becoming aware and making explicit parts of the unconscious elements of the underlying mental model.

Learning 3 comes with reflection work, may it occur in a therapeutical (psychotherapy, etc.) or in a consulting/counselling-oriented setting (coaching, supervision, etc.). Taken both learning outcomes together, these change the underlying mental model to an updated current set of this mental model.

A definition of “Future Learning 3” could be as follows:

*Future Learning 3* is a corrective change in the system of sets of alternatives from which a choice is made on the basis of experiences from an envisioned future. Accordingly, Future Learning 3 changes the current underlying mental model. This change is based on experiences from an envisioned future determined by a goal, and controlled by an abductive reasoning process, that is a logical operation, which introduces any new idea (Fischer, 2001).

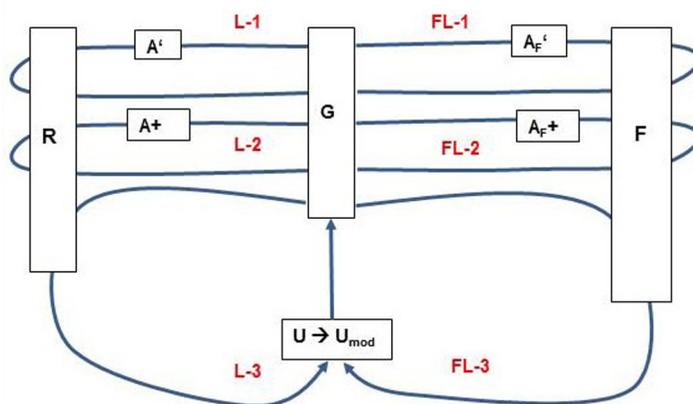
The main learning outcome of Future Learning 3 is twofold:

- (1) Creation of knowledge which elements of the underlying mental model are substantial in the long run.
- (2) Envisioning the future enables to transcend current boundaries and thus, it enables the creation of knowledge to serve the common good and phronesis (Nonaka and Toyama, 2007). Phronesis takes into account contextual circumstances, addresses particulars and shifts aims in process when necessary, and is guided by values and ethics.

*Exploring the relationships between the six learning modes*

In a next step, I will explore the relationships between the outlined six learning modes. Figure 1 depicts this twofold learning cycle, using acronyms for the main parts of the learning cycle, as well as for the six different learning modes: (A: set of alternatives; G: set of goals, R: result of a learning process; U: the underlying mental model; L-1, L-2, L-3, FL-1, FL-2 and FL3: the six learning modes as described above).

Analyzing the six learning modes shows that the goal within a learning process plays an important role. On the one hand, the goal determines the resulting outcome in Learning 1 and 2, and enables as well as creates the experiences from the past, which are essential for Learning 1, 2 and 3. Hence, the goal has an influence on the set of action alternatives. On the other hand, the goal is an important driver for the envisioned future in the case of Future Learning 1, 2 and 3. The underlying mental model, which is changed by Learning 3 and Future Learning 3, and which determines and possibly transforms the current goal into a modified goal, determines the goal itself. Assuming that a modified goal could be the starting point for the subsequent learning cycle, this learning theory could also be interpreted as a recursive and iterative process of holistic learning.



**Figure 1.**  
Twofold learning  
cycle

The resulting outcome (R) is the concrete output by taking actions (A' and A+) to achieve the goal (G), whereas the envisioned future is the consequence of a fulfilled goal, without taking into account how it has been reached. Therefore, the resulting outcome and the goal can be compared and the differences between them described and measured. This measurement constitutes experiences, which are more oriented toward the past. The envisioned future (F) gives a good orientation and description of what it actually looks and feels like when the goal has been optimally reached. Thus, the envisioned future is some kind of corrective whether the goal is a coherent and consistent goal and it constitutes experiences, which are more future-oriented. Hence, *two kinds of experiences* determine the learning outcome and these are responsible for the continuous change and development of the underlying mental model, as well as the goal and the set of alternatives.

### *Applying the concept of Ba*

As all learning processes are located within time and space, in this section, I will analyze whether the concept of *Ba* can be applied to the proposed six learning modes. *Ba* is a time-space-nexus, described as a “shared space” of interaction, interpretation and dialectical processes, and a form of “learning foundation” in its own right, which generates knowledge (Creplet, 2000). *Ba* emerges not only from the interpretation of environment, structure and agency in the dimension of space but also from the simultaneous occurrence of the past, present and future in the dimension of time (Nonaka et al., 2008).

Considering the six learning modes, a past-experience *ba* (*PE-ba*) could be defined, which consists of the goal, the resulting outcome and the underlying mental model. Accordingly, the goal, the envisioned future and the underlying mental model define another kind of *ba*, which can be labeled as future-experience *ba* (*FE-ba*). While the *PE-ba* is an enabling space for the learning modes based on past experiences and therefore supports Learning 1, 2 and 3, the *FE-ba* enables learning from an envisioned future in its different modes Future Learning 1, 2 and 3.

Given the *PE-ba* and the *FE-ba*, an overall *ba* can be defined, which can be seen as a *learning-ba* for meta-learning. Assuming that all six learning modes are equivalent in importance and value, meta-learning means to have the ability to choose an appropriate and optimal learning mode or a combination of learning modes for a specific situation. This requires being consciously aware of the six learning modes described above. Therefore, the process of meta-learning can clearly be defined as Learning 1 mode on the meta level, which optimizes learning modes out of a given set of alternatives, namely, Learning 1, 2 and 3 and Future Learning 1, 2 and 3, based on the experiences at each of these learning modes.

We can see the *learning-ba* as some kind of “control center,” which serves as an enabling space for deciding which learning mode and which *ba* are currently more useful. Therefore, this *learning ba* (shown in Figure 2 schematically) as a control center enables a movement on a time continuum (learning from the past experience to learning from an envisioned future), as well as on a quality/intensity continuum (optimization out of existing strategies to the touch of a substantial level that includes attitudes, values, etc.).

### **A practical example**

The following example should illustrate how the six learning modes could work in practice. The case is taken from a coaching process. A 49-year-old seminar facilitator who wanted to advertise and organize a training course with a great number of participants served as a client. At the end of the first coaching session, the client proposed the following possible actions to reach this goal: *promotion with newsletter, email to participants of previous courses, promotion in social media and email to all customers.*

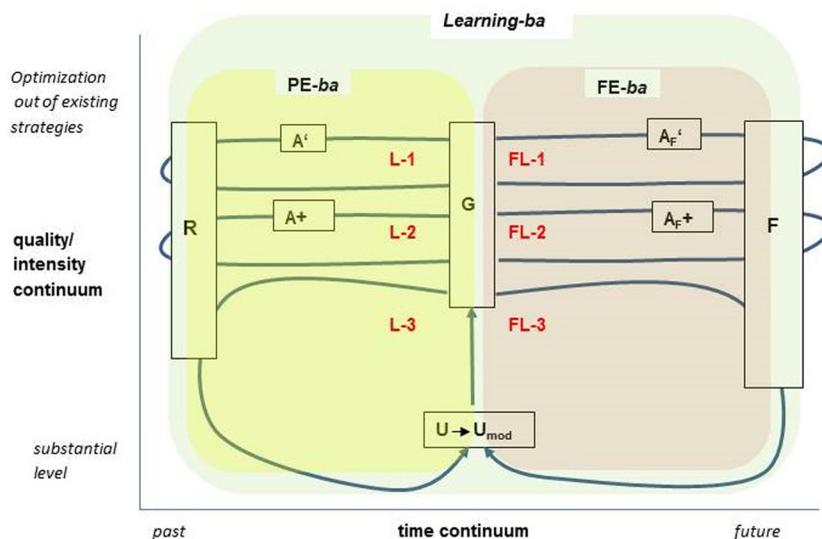


Figure 2.  
Learning-ba

### Learning Level 1

Learning 1 leads to actions (e.g. *promotion with newsletter and email to participants of previous courses*) out of the given set of alternatives, to then analyze whether the goal has been reached; thus, one can find the optimal action (s) out of a static set of possible actions.

Future Learning 1 envisions a desirable future with 25 participants for the training course and potential participants on a waiting list. Starting from this envisioned future, a backcasting approach leads to actions *out* of the given alternatives. In this case, it was *promotion with newsletter* and *promotion in social media*.

### Learning Level 2

Learning 2 pursues the same goal as Learning 1, but results in new ideas, which have previously not been in the set of action alternatives. In this example, the output of Learning 2 was to "place an advertisement in a journal".

In addition, the backcasting approach in Future Learning 2 led to new ideas, which have not been in the set of alternatives before. As those new ideas are based on an envisioned desirable future, these could be more unconventional and creative than ideas generated with Learning 2. Here, it was to "create a video about the course and upload it on YouTube".

### Learning Level 3

Through Learning 3 in combination with Future Learning 3, the client gets in touch with a fundamental and existential level that includes the person and his attitudes and values. He becomes aware of several needs, which are substantial for him in the long run, as well as in the concrete situation: *inspiring many people*, *autonomy*, as well as the hidden need *relief*. Together, these learning outcomes lead to a modified goal, namely, *training course with 15 participants* and *writing and selling a textbook*, and subsequently to a modified set of alternatives to reach this goal. This learning level enables the client to make a (maybe small) shift from his current self toward the best possible "self" (Scharmer and Kaeufer, 2010).

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In short, this example illustrates that the client extended the range of experiences by using the different learning modes, independent of the concrete situation and the primary goal.

However, it is important to mention that in practice, there does not exist a distinct transition neither from one learning level to another nor from one learning mode to another. The transitions are rather fluent and of course there exist some kind of “intermediate states,” which could be labeled as “Learning Level 2.5.”

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### Discussion and conclusion

I have proposed how learning from the future can be linked to Bateson’s levels of learning. According to Bateson’s claim that Learning 3 is difficult and rare even in human beings (Bateson, 1972, p. 307), one could call the proposed ideas of enhancing Learning Level 3, as well as described the learning outcome in the previous example into question. However, several authors have a slightly different view on possible applications of Learning Level 3. Hawkins (1991) pointed out that Bateson’s idea of Learning 3 can be seen as access to a higher logical level of awareness, where people have the space to become free enough of their normal perspectives and paradigm constraints to see through them rather than with them, and thus create the space to change them. In a similar way, Engeström (2001) argued that with Learning 3, a person or a group begins radically questioning the sense and meaning of the context and constructing a wider alternative context. Furthermore, Hawkins argued that the shift from Level 2 to 3 is strongly connected with shifting the question “what can we best achieve?” to “how can we be best aligned to and most in service of the evolutionary need?” (Hawkins, 1991). Finally, Charlton (2008, p. 58) gave numerous examples of Learning 3; for instance, learning to form more readily the process of Learning 2, learning to change the habits acquired in Learning 2 or learning about the contexts used in Learning 1. In line with all these arguments, the proposed enhancement of Learning Level 3 can offer the possibility of creating knowledge at a more fundamental and existential level.

### *Implications for theory and practice*

This paper contributes to the literature by attempting to link the important but still underexplored aspect of “learning from the future” to the complex and multifaceted work of Bateson. Given the fact that both sources of learning and experience yield a great potential to create new knowledge, this study outlines the possibility to include both sources into one learning theory.

This proposed approach yields several practical implications. On the individual level, it can be applied to systemic coaching processes in general and coaching processes in the fields of developing an individual vision in particular. As vision development processes can be seen as learning processes, it is important to switch between several learning modes during the whole coaching process. One example is “coaching with compassion” (Boyatzis, 2012) that invokes a psychophysiological state and enables a person to be open to new possibilities and learning. Another example is the experiential coaching cycle (Cox and Jenkins, 2013) where the experience and the potential consequences of that experience in the future are connected. Fields such as solution-focused coaching or scenario planning also use future-oriented methods that have similarities to learning from an envisioned future. However, most of those approaches focus on more past-derived future scenarios for planning and decision-making. The theory at hand can trigger a discussion on how to involve learning from the future and higher-order learning.

By being consciously aware of different learning sources and learning modes and by knowing about the implementation of *ba* (*PE-ba*, *FE-ba*) to support different learning modes,

organizations could be supported to generate new knowledge and create innovative and sustainable solutions, products and services.

In the context of innovation management, it has been argued that (radical) innovation is often about (unknown) future potentials. It is future driven in the sense that one has to uncover perceptual and cognitive categories and mental models to overcome prediction-based perception (Grisold and Peschl, 2017). This can be enabled with an interplay of Learning 3 and Future Learning 3.

In terms of limitations, there is a lack of empirical data on the organizational level. However, some recent studies (Kaiser *et al.*, 2015b) in the fields of vision development and learning about needs in organizations suggest that the main aspects of this learning theory can be observed in organizations. Furthermore, a more detailed and systematic view about the essential factors that enable a *PE-ba* or a *FE-ba* is still missing. Finally, it is currently not clear whether the outlined approach of linking learning from the future with Bateson's learning theory is (exactly) the same for individual learning and organizational learning.

### *Future research*

Future research should acknowledge different aspects such as consciousness and emotions (Chiva and Habib, 2015) into the proposed learning theory. Additional case studies with organizations, as well as individuals, have to be conducted to prove, modify or reject this extended learning theory. Furthermore, the investigation of the key factors for enabling spaces as well as environments in organizations will be important, too. Finally, this work provides the basis for further research in building a general holistic theory of "learning to learn." In that regard, it would be interesting to see how the proposed learning levels can be related to more-inward directed learning processes, that is, how individuals can learn about a better or even ideal version of their self (Grisold and Kaiser, 2017).

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