

The ultimate goal: The learning organization.

Having a vision or a strategy is important for an organization, but what matters more is the ability to learn. To continue to exist as an organization, it must adapt to an ever-changing environment. In order for an organization to adapt to a changing environment, an organization must have the ability to learn.



What is characteristic of a learning organization? How do I know if an organization learns? Can I measure if an organization learns? We will try to answer these and other questions in this paper.

learn or disappear

Preface.

The ultimate goal of an organism (*or life form*) is to maintain itself in an ever-changing environment. By anticipating the changing environment, an organism can maintain itself. This anticipation of a changing environment is called learning. An organization is essentially a life form. So, the ultimate goal for an organization is, just as for a life form to learn.

In our 'economic rat race'¹, the learning ability of an organization is the distinction between success and failure. The following story of the lion and the sneakers illustrates the importance of a learning organization.

The lion and the sneakers.

Smart and Silly are sitting comfortably at a campfire in the middle of the savannah. Suddenly they hear a lion roar up close. Silly begins to panic and break into a sweat. Smart, on the other hand, quietly puts on his sneakers. Silly says to Smart, "there is absolutely no point in putting on your sneakers. You can not run faster than the lion!" Smart replies to Silly, "Yes, yes, that's right, but I just have to make sure that I just run a little faster than you do". (Be smart and learn)

In many organizations, there is a formal policy to learn. Learning from the customer, learning from mistakes, learning from experienced (older) craftsmen and learning from other cultures. In practice, it appears that the learning capacity of an organization, although often promoted, is disappointing. There is a big gap between what people want and what they do.

In this paper, an attempt is made to give a clear definition of the concept of the learning organization. This concept is also made measurable. What is characteristic of a 'learning organization'? And what is the difference between an organization that does learn and one that does not. How do you measure the learning ability of an organization?

History of the learning ability of the individual.

Before looking at the history of a learning organization, it is instructive to first look at the history of the learning ability of the individual, the human being. How does learning work with an individual? How does the natural selection mechanism work on the learning ability of the individual?

One of the questions of life is, why it works as it works and why it is as it is. The ability to learn is very different from information itself. (*or passing info*) Ability to learn is also very strong overlapping the ability to reason².

Life as we see it around us has evolved. It has evolved, according to science³, through simple mechanisms. It has obtained an increasingly higher degree of self-organization through natural selection. Research shows that information can be transferred via the genes. So parents, pass

¹ https://en.wikipedia.org/wiki/Rat_race

² <https://en.wikipedia.org/wiki/Reason>

³ <https://en.wikipedia.org/wiki/Evolution>

on the learning ability to their children. If the learning ability would only be transferred via the genes, this would mean that all the information (and learning ability) that you acquire (as a parent) can no longer be passed on via the genes after the birth of a child. If this reasoning is true then children with older parents should inherit more learning ability.

Something is not right in this reasoning. It is not the whole story. Something is missing. Apparently the learning ability is not only passed on by the genes. Baldwin⁴ has also thought about this and gives an answer with his "organic selection" theory. This theory, simplified, states:

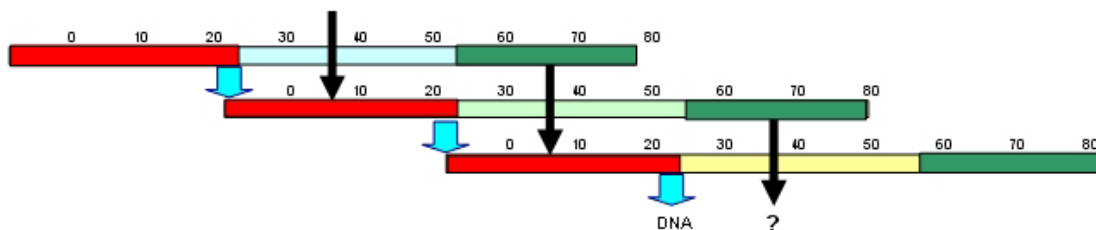
- An individual is not yet 'wired' at birth and, during his or her life, by learning things certain skills can become familiar. (*plasticity*)
- That the learning ability, the efficiency of the human computer, is a hereditary fact. (*intelligence*)

In the evolution of humanity, this means that every (accidental) mutation that improves the learning ability of the individual ultimately benefits the group which the individual is part.

To clarify this "organic selection" theory the following example.

In prehistoric times, there is an accidental mutation in an individual that gives him the ability to walk faster. Later, when the mutated individual is mature, this trait will give him an advantage in hunting. This allows the entire group to hunt more efficiently. The group will appreciate this. This ability gives the individual a higher status within the group. This higher status gives the individual more possibilities to pass on his genes. The individual will also favor his or her offspring in the group, which is also conducive to passing on the genes.

In the light of this "organic selection" theory it appears that the grandparents also have a (*large*) role in the learning process of the individual. (*Change the environment for the benefit of the individual.*)



In the figure above the "information transmission only by genes" is visualized. The age of an individual is shown horizontally. In the red phase of life (0-23 years) information transfer via the genes can still take place. After this, this is no longer possible. However, when raising their own children (23-53 years), information can still be passed on to their own child. The grandparents (53-80 years) can, just like the parents, ensure that the frameworks in which the individual grows up are so favorable that the individual can fully develop. As we will see later in this letter, this is also the 'natural' role of the elderly in a company or organization. They must provide stability and peace. In essence, they are the carriers of the culture of the company.

The learning ability of an individual has to do with both, hereditary predisposition and being in the right environment.

Frameworks for individual learning.

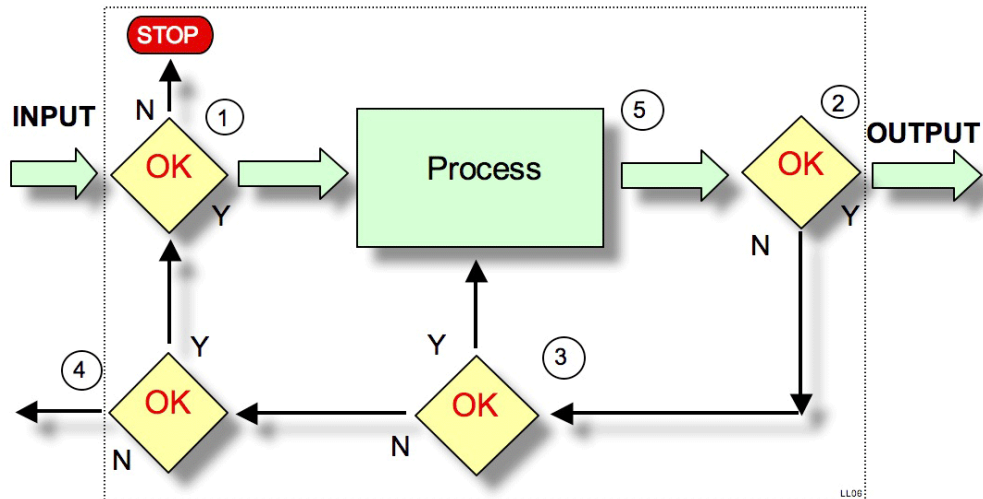
A child learns by observing. These observations cause physical changes in the brain. There are four forms of learning. Perceptual learning (*recognizing faces*), motor learning (*cycling, playing*

⁴ https://en.wikipedia.org/wiki/Baldwin_effect

tennis), associative learning (*fear and feeling good*) and learning to understand relationships or coherence (*mathematics cause and effect*).

Depending on his or her predisposition (*learning ability*) and the offered environment (*plasticity*), it forms. All of these forms have common processes. These processes are:

Learning process



1. **Single loop**⁵: solving known problems. See figure. INPUT(1) -> PROCESS (5) -> OUTPUT (2). An example of this is learning to cycle. Initially, cycling will be learned by trial and error. After a while, cycling improves and it becomes an automatism. In single loop learning, solutions are sought within the frameworks. This type of learning is most often used to solve solutions of routine problems.
2. **Double loop**⁵: modification of the existing process or method. In contrast to single loop learning, assumptions are questioned and theories are compared to come up with a new better theory or method. INPUT(1) -> PROCESS (5) -> NOK (2) -> Feedback (3) -> OUTPUT (2). An example of this is fighting diseases in the cultivation of vegetables. Normally, the pesticide is administered when a pest is detected. In the case of double-loop learning, the pesticide is already administered before the plague has completely manifested itself. In this double loop learning, the existing process (5) is evaluated. This is a totally different way of thinking. It is also called 'outside the box' thinking. This form of learning is (*only*) applied when the single loop learning is not giving the desired result.
3. **Triple loop**⁶: modifying the input. INPUT(1) -> PROCESS (5) -> NOK (2) -> Feed back NOK (3) -> Modify INPUT (1) -> etc. To continue with the example, combating diseases in the cultivation of vegetables, is to reduce the cause of the diseases (1), their influence on the process (5) and the output (2). Another method to prevent the crop from being affected is the conditioned use of the natural enemies of the pests. This form of learning is the most effective form of learning and requires thinking in a higher level of abstraction. Triple loop learning is the realization that everything is connected with everything in a certain way. It is seeing the whole. It is the ability to see causes. Triple loop learning is being able to see the input, the entire process and the output with their mutual relationships and dependencies.
4. **Quadruple loop**: eliminating the input. INPUT(1) -> PROCESS (5) -> NOK (2) -> Feed back NOK (3) -> eliminate INPUT (4). To continue with the example, combating

⁵ https://en.wikipedia.org/wiki/Double-loop_learning

⁶ In the literature the name 'Deutero learning' is also used. According etymology info the name is coming from Ancient Greek δεύτερος (deúteros, "second (of two)"). Therefore I prefer to use the name 'triple loop' learning.

diseases in the cultivation of vegetables, is to eliminate the cause of the diseases (1) the core of Quadruple loop learning. If the vegetables are grown in a greenhouse, it is easy to prevent the pathogen from entering the greenhouse.

There are four types of learning processes. As with Maslow's hierarchy of needs⁷, before the next phase can be started, every prior phase must be known and lived through.

History of learning ability of an organization.

An organization consists of individuals, hence the learning ability of an organization is closely intertwined with the learning ability of the individual. In the evolution of humans, the individual has always been part of a larger whole (*organization*) in a group or in a tribe. As described in the "organic selection"⁸ theory, the learning ability of an individual depends to a great extent on the framework in which it is located. These frameworks in which all individuals of an organization are located form the culture⁹ of an organization. The culture of an organization determines how the organizations can / will realize their long-term goals effectively and efficiently. It determines the company strategy. It determines the mission, vision and strategy of an organization. Innovation is also called the ability to adapt the culture of an organization in such a way that the survival of this organization is guaranteed. In this context, innovation is equal to the learning capacity of an organization.

The history of the learning ability of an organization is essentially the same as the history of the learning ability of the individual. After all, the plasticity (*ability to learn things*) is determined to a large extent in the organization. In prehistoric times, this was the tribe to which one belonged. Later, in the Middle Ages, this was the pupil, companion master system¹⁰. One or two generations ago, it was common practice in the business community to spend your entire working life with the same organization. The organization provided the training courses (*company schools*). In this way, the learning ability of the organization was improved.

Nowadays the school mainly invests in the learning ability of the individual. Increasingly, (*existing*) companies now invest in the learning capacity of their organization. Accounting, seen in the short term, investing in the learning ability of an organization, are only costs. To make profit on the short term these costs need to be minimized. What is striking is that companies that do well¹¹ pay much attention to their learning ability. In this way a natural selection takes place between companies that are going to disappear and companies that are going to thrive.

Frames of reference from a learning organization.

In order to be able to say something sensible about a learning organization, the frameworks that are understood by a learning organization must first be explored. One of the pioneers who has tried to shape the concept of the learning organization is Peter Senge¹². According to him, a learning organization has five learning disciplines. (1) personal development, (2) mental models, (3) common vision, (4) team learning and (5) system thinking.

1. Personal development

The personal development of the individual in a group is of great importance for the learning ability of the group.

Because a group consists of individuals, the learning ability of the individual has a relation to the learning ability of the entire group. However, the sum of the learning ability of all individuals of the group is NOT the learning ability of the group. Other aspects play an important role in a group. The aspects that play a role in the learning ability of the group and that can strengthen or weaken the learning ability are: Character (*introvert /*

⁷ https://en.wikipedia.org/wiki/Maslow%27s_hierarchy_of_needs

⁸ https://en.wikipedia.org/wiki/James_Mark_Baldwin#Organic_selection

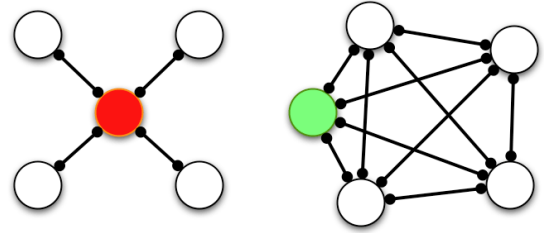
⁹ About the value of cultures; een inleiding in de kultuurfilosofie. Baarn: Ambo, 1976

¹⁰ <https://en.wikipedia.org/wiki/Guild> See also <https://en.wikipedia.org/wiki/Apprenticeship#History>

¹¹ The definition of doing well is debatable. In the context of an learning organization, doing well is successful adapting to a changing environment.

¹² https://en.wikipedia.org/wiki/Peter_Senge

extrovert), emotional IQ, knowledge level, experience, cultural background, gender and more. What in any case plays an essential role is mutual communication. In the figure two extreme communication models are illustrated for clarification. In the left figure there are only 4 communication channels in a group of 5 individuals. In the right-hand figure, there are 9 communication channels for an equal number of individuals. This simple figure illustrates the importance of communication in an organization. In a learning organization maximum communication is made to utilize the maximum available knowledge of all individuals. The learning ability is strengthened by the right mix and / or balance between the different individuals in the group. The saying " $1 + 1 = 3$ " applies to this.



As an individual, if you want to participate in the rat race, it is important to stay busy for life to improve his or her abilities and to set and realize personal (*learning*) goals. From the organization or group, therefore, positive feedback in this direction is very important. After all, there can be no learning ability of an organization if its members have no individual learning ability.

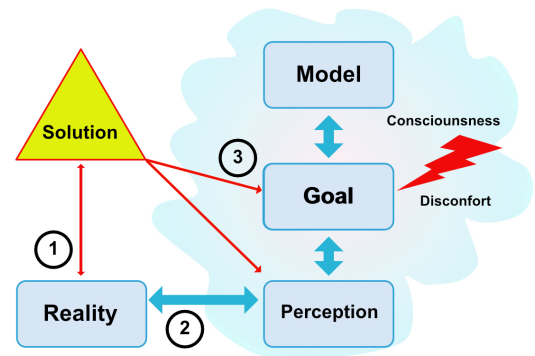
When composing or modifying a team, it is important to pay attention to the right balance in order to create or strengthen a learning organization.

2. Mental models and common vision

Each individual has a (*mental*) model of reality. If our perception, look at reality (1), does not match the (*mental*) model of the individual, then this creates discomfort. This discomfort is the motivation engine for an individual's actions¹³.

As a solution strategy for removing this discomfort, the individual has three options:

- (1) adjusting reality (*take action*),
- (2) adjusting the perception (*change viewpoint*) and

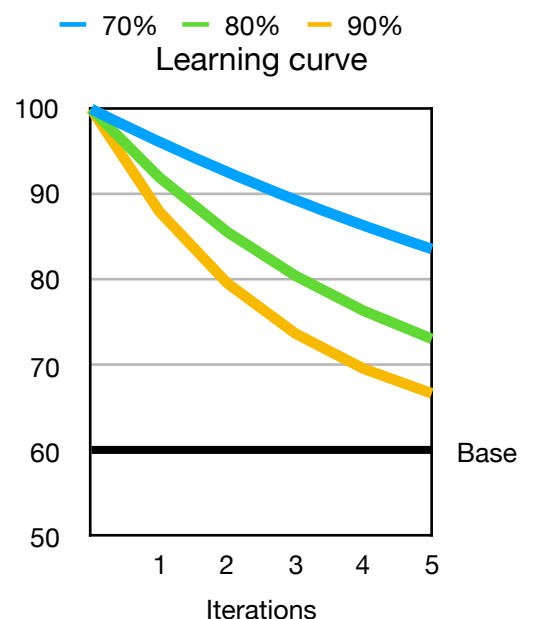


- (3) accept that reality deviates from the (*ideal*) model that the individual has in his or her head. (*resignation*)

For a learning organization it is important to create the right tension between reality and the (*mental*) organization model. This tension is the motivation engine that ensure that something happens. The group or the organization needs constant feedback about what reality looks like. Here lies an important task of managers or team or group leaders. The group must constantly be busy with reflection, clarification and improvement of (*or perception of the*) reality. All actions must be directed towards this. The common vision (*the mental model*) is what binds the team and what motivates the team.

3. Team learning

With the individual, different learning processes (*single loop, double loop, triple loop and quadruple loop*) are possible. What applies to the individual



¹³ Theories of motivation. See <https://en.wikipedia.org/wiki/Motivation#References>

also applies to a team or organization. In the vision of Peter Senge he describes team learning single and double loop learning.

An example of team learning is the concept of the 'learning curve'. If an organization becomes more experienced (*number of iterations / see figure above*) then the efficiency (*value*) will also increase. The increase in efficiency can be expressed in a percentage (%). In the concept of 'learning curve' a percentage is set by which the efficiency increases. This is a good example of single loop learning.

With double loop learning a feedback about the process is also given. By changing or optimizing the process, greater efficiency leaps are possible.

4. System thinking

Even greater learning efficiency leaps are possible when system thinking is applied. System thinking is the equivalent of triple loop learning for an individual.

System thinking is the realization that in one way or another everything is connected. It is seeing the whole. System thinking is the ability to see and understand relationships. It is the ability to make decisions that effect causes (*root causes of problems*), not symptoms.

The world around us consists of relationships, not separate facts, separate things or isolated events. In both figures the position on the earth, the Strabrechtse Heide ($1^{\circ} 24' 0'' N, 5^{\circ} 37' 3'' E$), is the same. The only difference between the two figures is the height. These two figures show that what we see depends on the viewpoint. The one can not be seen separately from the other.



As a human being we are born as system thinkers. As a baby, we learn to explore the world around us. We learn to see the coherence of everything. Later in school the focus is changing to obtaining a diploma. The understanding of mutual cohesion then comes second. This attitude is therefore applied in business.

With a learning organization that has reached the system thinking level, all individuals realize that everything is connected to everything in a particular way. The organization as a whole understands the relationships and acts accordingly. It sees the details and sees the big picture. It understands that the environment is not static but dynamic and that the organization as a whole must constantly adapt to it. Three core elements

Another classification of a learning organization is that of the three core elements. These core elements are being able, willing and allowing:

1. Being able

An organization can not be a learning organization if its individual members do not have the ability to learn. The individuals of an organization must have the ability to learn. As described above at the individual, each individual has a hereditary learning ability. This '**can**' ability is one of the conditions for creating a learning organization. It is therefore important when composing the organization

2. Willing

As described under mental models, each individual has a (*mental*) model of reality. The difference between the mental model and the view of reality (*the perception*) is the source of motivation for the actions of the individual.

Because an organization consists of individuals, the common vision (*the mental model or culture*) is what binds the team and what motivates the team. This common vision of an organization is responsible for the 'willing' from the organization. The common vision determines the codes of conduct, it determines the group learning processes, it determines how an organization learns.

The core element of 'wanting' in a learning organization can be achieved by focusing on the problem or on the challenge. To get a learning organization it is important that 'my vision is' is changed to 'our vision is

3. Allowing

If only the ability and willingness is present in an organization, there is no learning organization. The individuals of an organization also have to 'be allowed'. Allowing is very closely connected to power¹⁴. The influence of power is all-determining in a learning organization. Power is a natural given within a group. power is available in various shapes and sizes: power based on reward and punishment; power based on formal and informal influence; power based on personality traits (*expertise, experience and charisma*).

If there is a 'force majeure'¹⁵ in an organization, then this has a negative influence on the learning ability of an organization. If, as an example, the consequences of making a mistake are extreme, no mistakes will be made. *Because nothing is made!!!* In many organizations there is negative motivation by punishing. *It is NOT allowed ... In advance an approval must be obtained from ... You must follow the procedure. If it does not bother me. Not in my scope.* All these statements are an expression of a punishment culture. Although this culture can be very effective in the short term, it is not conducive to a maximum learning ability of an organization.

What is striking is that many (*almost all*) changes have arisen as a result of crises. In times of war, energy and food scarcity, most (*creative*) solutions are conceived. All these solutions were done because **joint problems** had to be solved. There had to be an advantage over the enemy. Loss had to be converted into profit. No costs were spared to achieve the set goal¹⁶. "Necessity is the mother of invention"¹⁷.

Every organization consists of a collection of individuals. The sum of the learning ability of an organization can be more than the sum of the learning ability of the individual. In practice, it may also be that the total learning capacity is even less than the sum of the individual learning ability. The learning capacity of an organization is constantly being 'successfully' adapted to a changing environment. The learning capacity of an organization is also the ability to turn information into knowledge in order to turn knowledge into action. Communication is playing an essential role here. Organization cannot learn without communication.

Measuring the learning ability of an organization

In order to be able to measure the learning ability of an organization, we have to be able to quantify it in one way or another.

1. Questionnaires.

For the learning ability of the individual, there are all kinds of tests that measure the plasticity of the individual. These tests usually consist of a large number of questions to give the correct answer as quickly as possible. Some questions are about the language concept, others about spatial insight. The total score on the various tests then results in a number with which the learning ability can be quantified. In organizations there are no generally accepted tests that can quantify the learning ability. There are, however, measurement methods in the form of questionnaires. These questionnaires provide a picture of the learning ability of a company. Based on the difference in what it is, and what it should be, specific measures can then be taken.

2. Age of an organization.

In addition to the questionnaires, there are indirect methods to measure the learning ability of an organization. One of the indirect methods is to look at the age of the organization. After all, the goal of a learning organization is to successfully apply new

¹⁴ Graduation thesis 'Sociocratie als lerende organisatie'. Margreet Frieling. Onderwijskunde, 2004. Rijksuniversiteit Groningen

¹⁵ An unexpected event https://en.wikipedia.org/wiki/Force_majeure

¹⁶ Create a learning organization, create a crisis!! (personal note)

¹⁷ Early American Proverbs and Proverbial .Phrases Bartlett Jere Whiting. Harvard University Press, 1977. ISBN 9780674219816

knowledge and new skills. If this fails, this will irrevocably mean the end of the organization. So organizations with a long history have done well in one way or another. Examples of organizations that have existed for a long time are the Church and the Dutch Royal Shell. The characteristic feature of these organizations is that they have a simple long-term vision, that everyone in the organization knows this vision and is thinking about (= *3rd form of learning*) how to realize this vision. All organizations that no longer exist were generally too rigid to adapt to the changing external circumstances. 'Too rigid' means that they are so guided that they have fallen asleep. It was too easy for them, they did not realize that circumstances were changing at all. The leadership of these organizations has gathered people of the same kind around them. This phenomenon of the dying organizations reminds me of the fables of the boiled frog.

If the water is heated up slowly enough then a frog, although it has the possibility to jump out of the water, will choose to be cooked live¹⁸.

This phenomenon, not noticing the changing circumstances, also occurs with organizations. If the change is too gradual, they apparently do not notice and no measures are taken. Apparently, it is necessary in an organization to have (or create) a crisis with regularity.

To measure the learning ability of an organization, one can look at the age and the number of crises that they have successfully navigated.

3. Organizational culture

Another way to look at the learning ability of an organization is to measure the culture. The organization or corporate culture starts at the top. In the fairy tale of the Emperor's new clothes, it is made very clear in a penetrating way that the management of an organization has a very large influence on the learning capacity of an organization. Besides giving the good example, listening to the right people in the organization is also very important.

The Emperor's New Clothes.

The fairy tale is about an emperor who is very fond of his appearance. His tailors manufacture a robe of a material that does not exist. Ultimately, it is a child who has the courage or naivety to tell how it really is. For the whole story see:¹⁹

In many organizations it is the same. Who dares to tell the management how it really works? Culture is the enumeration of all norms and all values of an organization. Culture is the control of the behavior of all individuals of the organization. With a change of an organizational culture it is always the communication that makes the change possible. This communication can take place in the form of exemplary behavior, myth, rituals, rules, punishments and the most effective rewards. Many management books are written about how to change a culture of an organization. In the context of a learning organization, it is important what and how it is communicated. Via the current means of communication (*internet*) it is fairly easy to determine what the organization communicates. (*People make the difference?*). In the history of mankind, it is the elderly who have a stabilizing role in society. Would this also apply to an organization? What is the culture of your company? A visit to the local café to listen to the stories of the company can provide a lot of information about the learning ability of an organization.

To measure the learning ability of an organization, it can be investigated how the employees culture of the organization is communicated and how it is experienced by outsiders.

¹⁸ http://en.wikipedia.org/wiki/Boiling_frog

¹⁹ https://en.wikipedia.org/wiki/The_Emperor%27s_New_Clothes

4. Popularity.

In a learning organization, the maximum power is taken from the employees. (*Maximal empowerment.*) Just as with top athletes, the knowledge and expertise of the employees are called upon. The members of the organization are proud to be part of this organization. This pride radiates to the environment. People would like to work with such an organization. Another method to measure the popularity of an organization is the question: [Would you recommend your children, your most precious asset, to work with this organization?](#)²⁰

By measuring the popularity of an organization, the learning capacity of this organization is measured indirectly.

5. Empowerment²¹

Another characteristic of a learning organization is the degree of empowerment. This is the extent of the ideal meaningful life of the individual participants of an organization. If the empowerment is large, then the motivation is also great to learn. There are examples of organizations²² where 15% - 20% of the working time can be spent on own research.

By measuring the extent to which there is freedom of action within the organization, the learning capacity of the organization can be measured.

Conclusion

As an individual, we are only prepared to change our behavior if there is an intrinsic need for it²³. This also applies to an organization. As with the individual, giving a positive reward for an organization is the only lasting stimulator. "We" is the characteristic of this approach.

Another characteristic of a learning organization is that it constantly adapts to a changing environment. A learning organization is constantly changing. A learning organization is constantly working on experiments to apply new skills. It is bustling with the measurable 'team creativities'.

The most common definition of a learning organization is: successfully applying new skills. [Measuring the learning ability of an organization is thus measuring the new skills that have been applied successfully.](#) Conversely, a learning organization can easily tell you which new skills have been successfully applied recently.

All these things are easy to measure.

Learning is the application of knowledge in new or previously unforeseen ways.

Learning is the ability to learn new things.

However, usually to unlearn old things.

Learning is changing.

Comments of any kind are always welcome.

Juni 2018²⁴, Laurens



²⁰ Needs citation: reliability of decision based on the gut feeling; the persuasive power of rules of thumb (*De persuasieve kracht van vuistregels – Masterscriptie Joris v. Hittersum 25-8-2010*): Etc ...

²¹ <https://en.wikipedia.org/wiki/Empowerment>

²² Innovation : Breakthrough Thinking at 3M, DuPont, GE, Pfizer, and Rubbermaid (Businessmasters Series) John Kao. 1997.

²³ Change or Die. www.fastcompany.com Wed Dec 19, 2007 ALAN DEUTSCHMAN

²⁴ Originally published in the Dutch language 2009 'White paper: De lerende organisatie.'