THE ACTIVE SUBSTANCE FROM THE PERSPECTIVE OF CHANGE.

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In this contribution I will look for those elements in the theories of change that offer explanations and insights in the fact that games and gaming can have such an powerful effect upon individuals, groups and organizations. Gaming can be seen as a method or an instrument for change and learning.
First I will describe nine general "mechanisms" of change that play an important role in gaming. Then I will focus on the mechanisms of change on the individual level, the group level and organization level. I will conclude with some reflections on how to increase the effectiveness of gaming from a change perspective.

1. Change elements that work in gaming

I want to consider nine elements from change theories. Successively I will discuss the (loose) coupling of doing and thinking; the relation between espoused theory and theory in use; the learning cycle; the process of sense making or giving meaning and the process of verbalization; the state of being consciously incompetent; the concerns that people have in change processes; the role of emotions; coping with dilemmas and paradoxes and the concept of mirrors and windows. As far as I can see, this is the overview of the change elements that are important for gaming: they are essential in understanding how games work from a change perspective.

Coupling of doing and thinking
Karl Weick (1969;1995) acquainted me with the concept of loosely coupled systems. It pictures amongst other things the idea that opinions (or thoughts or mental maps) or often loosely coupled with behaviour. Opinions do not drive behaviour, but behaviour can be there independently of opinions. If you ask people about the reasons or motives for their observed behaviour, the they might construct an opinion that was not there before. Besides this, people may make statements or give opinions that are not consistent with what they do or show in their behaviour. The concept: 'cognitive dissonance' explains that thinking and doing may not be consistent. Gaming has the potential to develop tight coupling between thinking and doing. In a game individuals are frequently thinking, considering, acting and doing. The cycle: what will be the decision and how will I act and vice versa: what did I do and what do I want to do is executed very frequently. One can say that thinking and doing becomes tightly coupled: people become aware what they do, what their motives are.

Espoused theory and theory in use
Closely connected to the idea of coupling is the distinction that is made by Chris Argyris (2004) between espoused theory: which is what people say they do or will do and theory-in-use: which is what they actually do, what their theory-in-practice is. The gap between these might be big. The theory of Argyris makes people aware about

their defensive reasoning, their theories-in-use, their skilled unawareness and incompetence, and their organizational defensive routines. And he tries to teach them to reason productively and to test claims that people make ("how do you know?"). Underlying insights (practice theories, assumptions, reasoning) are examined and can be changed.

Learning cycle
The learning cycle (Kolb) is a very useful in designing and using games. A game is constructed in such a way that it consists of a series of successive cycles with each cycle covering the Kolb learning cycle in its entirety. In order to actually learn, four phases must be passed through. These phases form a cycle. Each cycle contains all the steps in the learning process. The reflection or debriefing sessions within the gaming process can lead to new experimentation, new thoughts or other behaviour.

(here Figure Kolb cycle; p 47 E gaming book)
Figure 1: The Kolb learning cycle

Sense making and verbalization
What individuals do in a game is very practical, tangible and concrete. The use of paraphernalia, the visibility of behaviour, the explicitness of decisions and actions and the effects of them make it possible to see and follow what is happening. Watching this and acting in the game develops a sense making process within individuals. They say: "Oh, is this what you mean by …….?" or they do something and see something happening that they did not expect. They develop meanings while doing, acting and thinking. Verbalization is an important part of this process. They seek for words to convey their meanings to others and to capture what is happening in words and sentences. They can make new words, new meanings, new sense while playing the game.

Consciously incompetent
Hersey and Blanchard (1988) distinguish two elements in the way people learn: competence and consciousness. Competence is the extent to which people are able to carry out tasks independently and to feel confident about doing so. Consciousness is the extent to which people are aware of their abilities. The two elements can be distinguished but they influence each other. Various combinations are possible: these determine four learning stages.

(Figure p 50 E gaming book)
Figure 2: Four stages of competence

In playing a game, people can come to realize that they have not (yet) mastered certain skills or that there are things that they are unable to do. This increases the motivation to learn. For players, games are a way to evolve from unconsciously incompetent via consciously incompetent to the two 'higher' forms of task maturity.

Concerns Based Adoption Model
Hall (1977) invented the Concerns Based Adoption Model (CBAM). According to this model, when a change is introduced in their (working) environment, individuals will have certain concerns in a certain sequence and will ask a number of questions in

a fixed order. First they will ask what the change will mean for themselves: what will change for me personally? Will things be better? Will my status change? How will it affect me? After they have found acceptable answers on these questions they will go for the following questions regarding their work: what does it mean for my work, for my job, for what I have to do? When this has been adequately dealt with, then comes the third stage: questions regarding the cooperation with others. Hall calls these three groups of questions: 'concerns'. He points out that in structuring change processes it is essential to keep these three groups of questions in mind and to devote attention to them in this order. This helps to create a safe environment for learning, can reduce resistance to change and can provide a more positive way towards the change.

Role of emotions

David Lane (1995) states that game experiences are rich experiences in the sense that they elicit, release and use personal and emotional elements of learning. Events and experiences might become dramatic: people feel upset, are blocked, shaken or feel ashamed. Human reactions, interactions and emotions are part of the play. Dennis Meadows (1989) says it as follows: "Conducting a game is an interesting combination of theatre, system science, didactics and social psychology counselling". The fact that the gaming experiences are so closely linked with emotions might explain the impact: players do not forget the experience and remember it vividly.

Coping with dilemmas

Technically, an articulated dilemma consists of two contradictory statements, each one of which is defendable. The short term versus the long term perspective is typically a dilemma. Good managers are torn apart by this dilemma and are obliged to choose a position (Hoebeke, 2004): he or she has to position him- or herself in the field of tension between both perspectives. Dilemmas can create a dynamic of splitting. Many conflicts, inefficiencies and a lot of distrust between organizational departments are the result of this splitting.

These dilemmas can be part of a game. And an important objective can be to see the dilemma and to learn to cope with it.

People who cannot tolerate paradoxes are more likely to suffer from cognitive dissonance and selective perception: perceptions that do not fit into their view of the world become distorted or are suppressed. Games can be helpful in seeing and overcoming this phenomenon.

Mirrors and windows

Mirrors and windows are two generic approaches to change (de Caluwé and Vermaak, 2003). Mirrors are methods that allow you to look at yourself, often through the eyes of others. Examples are: giving feedback; working with benchmarks; coaching; intervision; surveys; introspection. Windows refer to new horizons in order to see that things can be done in another way or can be explained differently. Examples are looking at role models, off-site-visits, good practices, training or clinics.

These two approaches can be applied in gaming situations. One can have the objective to show participants what they are doing and how they are doing in order to give them insight in and awareness about their individual or collective behaviour. They then can decide to do something about it or not. Or one can have the objective to give participants a new perspective and bring them in a new situation or elicit them to experiment with new behaviour. So they can experience this new situation or behaviour.

The above described nine elements clarify to me why games work from a change perspective. They are probably not a complete, but it is what a gathered from literature and experience up to now.
In the next section I will focus on the different levels (individual, group and organization) that might be involved in gaming.

2. Change at individual, group and organization level

Individual level
Games can be very effective for individual change and learning. Both from experiences and from research we know that the impact of a game run might be very powerful for an individual participant. They can remember the experience for a long time; it can have dramatic consequences for insight, for opinions, for behaviour. The influence of games can be compared with the effects of therapy or coaching. It can be self steered or can be guided or counselled by a facilitator. Games can even be a part of an assessment.
Games can be an environment in which individuals can:

- experiment with new behaviour
- experience what their actual behaviour does to others
- explore their own assumptions and convictions
- get to know their preferences and/or pitfalls
- understand psychological mechanisms in themselves and others

It can be very useful to ask participants to formulate their own personal learning objectives and to let them reflect upon these during or after a game run.

Group level
Gaming has become famous in relation to group dynamics, development of teams and groups and learning in teams or groups.
It has been used for increasing group effectiveness. Usually the communication patterns and ways of decision making are subject of observation and discussion. Each participant in the game can intervene on (one of) these aspects, but there might be a trainer, supervisor, consultant or game operator that takes this task. Usually these interveners use some theoretical frame of reference when they observe, giving feedback and intervening in groups that are participating in gaming/simulations.
At this group level playing the game is seen as a group task and the way the group deals with the problem or task, the procedures they use and the interaction that develops are part of the learning and change process. The participants experience these processes, they can become aware that they work and interact in a certain way and they can deliberately change this, if they want to.

Learning from and with each other is, therefore, a prerequisite if a group or team wants to change. Learning can be seen as the exchange of mental models. Wierdsma and Swieringa (2002) state that one of the most essential conditions for getting learning processes underway is: exchanging and supplementing the images that one has of the work processes, of other people's behaviour and of one's own. The fact is that an important part of the organization is in people's heads. And it is those images of reality in people's heads that determine behaviour. The individual images are often different and incomplete.

This exchanging and explicating of the mental models forms the core of group learning. Geursen (1995) says that learning in teams consists of the art of controlling dialogue and discussion. This does not mean getting one's own way. but rather making creative use of the different insights and experiences of each team member. He sees dialogue as: the spontaneous flow of meanings between people. Through the dialogue a larger pool of shared meanings is created.

Collective learning and developing collective competences attract much attention nowadays, because it can make groups and organizations viable and capable to adapt to new circumstances and to be able to innovate. Games can be an important method to develop these collective competences of groups, teams and organizations. Games can be a temporary setting to become aware, to exercise and to develop these collective competences which then can be practised in e real working environment. The temporary setting of a game is effective, because of the possibility of collective discussion, creating of (new) shared meanings and experiment with desired behaviour. The game setting gives also room for collective feedback, collective reflection and for a facilitator to help in the process.

Organization level
Teams and groups are a core element in organizations. What we wrote above about development of teams, is relevant for the development of organizations. Participating in a game can develop the role and system awareness of the participants. They can understand how the 'social system' works and they can even change the way it works, if they want to. They can see how every participant plays his or her role in the system and they can optimize the roles in order of a better functioning of the whole system.

The concept of the Learning Organization is of course a very relevant idea in this context. Senge (1990) describes five crucial skills for a learning organization:

- system thinking: be aware of the whole
- personal mastery: develop your own talents for the whole
- evaluation of one's own mental model
- form shared perceptions
- team learning

Each of these skills must be seen as a discipline, a functional totality of methodology and technique that requires constant practice in order to master it and be able to apply it in practice.

A game can be seen as a microcosm of the learning organization. Single and double loop learning can take place; learning is problem-oriented and methodical. Differences in perspectives and mental models are consciously made visible and discussed. The conditions for learning are built in the game run and are monitored and steered by the facilitator.

Games can play an important role in Strategic Culture Change (Cummings and Worley, 2004): an approach to bringing about an alignment or congruence among an organization's strategy, structure ánd human resources and culture, as well as a fit between them and the larger environment. Culture change is seen as team learning processes with the (amongst other things) the use of gaming/simulation. An extensive

evaluation study with interesting empirical data shows that gaming can contribute a lot to corporate culture change (de Caluwé, 1997).

3. Some reflections

In this section I will conclude this chapter by giving some reflective ideas about increasing the effectiveness of gaming/simulation from a perspective of change.

Learning curve

We found a learning curve as an effect of a large scale intervention using a game: in the short term there were very positive effects, which largely subsided (after one year) but subsequently tended to become positive again.

(figuur p.193, E gaming book)
Figure 3: The learning curve bases on five points of measure.

We can explain that as follows:
In the first phase of the curve the effects can be characterized as: people become consciously incompetent, the resistance reduces, the change becomes clear (in words, in desired behaviour and meanings). It puts in place important building blocks for the second phase in which teams themselves are 'in the lead'. Managers can assist them, discuss experiences, communicate about best practices, develop new symbols and results. Formal and informal reward systems support then the gradual institutionalization of the new cultural web (Johnson and Scholes, 1997). In the first phase the function of the game is to 'communicate' the change, make people aware about what they need to do and to lower resistance. Learning is done via imitating, trying, experimenting and through role models. In the second phase of the curve people master new skills in situations that were not experienced yet. The learner discovers how new behaviour can be made a part of his personal way of structuring, enjoying and improving life in daily practice: the change becomes internalized. The first phase can be influenced by gaming methods, the second phase can hardly be influenced. Factors like: support by peers, continuous feedback, the 'guts' to accept mistakes and relapses are the learning principles.

Functional groups

We worked with teams and groups of different compositions. We found that groups that work together (before and after the game run) can have much more learning effect than 'groups' that come together only occasionally. Those functional teams can formulate their own learning objectives and can put the things that they learned into practice immediately after the game run. The transfer of training goes more smoothly and is carried over by the participants as a collective group.

Indicators and contra-indicators for the use of gaming

By comparing many game runs with the same game we found favourable and unfavourable conditions for learning and changing with the use of a game.
Favourable conditions are: people are motivated, keen to learn and favourably disposed towards the change; the importance of the change is understood; the training environment is seen as realistic.
Unfavourable conditions are: little motivation and little acceptance of the change; a feeling of loss of status due to the change; no active leadership or a not accepted

leadership; hidden agendas or conflicts; uncertainty about the future; disenchantment in practice or overestimating one's own abilities.

Outsiders and insiders
We have good experiences with duos of game facilitators, in which one is an outsider and the other one is an insider (of the organization where we work for). The outsider is in the position to question and to confront the participants in their thinking and doing in the game. He can give an outsiders view and opinion. The insider can work with the participants in actually changing their thinking and doing in the organization itself. He can show a warm understanding of the difficulties and blockages that might arrive. The combination of both roles in the game facilitation is very powerful.

Accelerate and slow down
Usually a game accelerates time and events; it produces time pressure to evoke decisions. It lacks all the detail of real life and concentrates on certain key elements.

But, in order to learn, an important aspect is to slow down at the same time. This is important to be able to reflect and to see things from a little distance. During reflection time and debriefing, participants should not produce a new conversation as they are accustomed in real life or during the unfolding of the events of the game. They have to remind themselves that learning new skills and insights does require that you have to slow down (see also Argyris, 2004). The active facilitator can play an important role in this process.

In this chapter I gave an overview of nine change mechanisms that work in games and gaming. These nine mechanisms came from my experience with the literature on change and the designing and facilitating of many games and gaming activities. Games can evoke different changes and by different processes on the individual level, the group level and the organization level. We gave five reflections on how to increase the effectiveness of gaming from a change perspective.

References:

Argyris, Chris (2004): Double-loop Learning and Organizational Change: Facilitating Transformational Change. In: Boonstra, Jaap (ed.): Dynamics of Organizational Change and Learning. Chichester, Wiley.
Caluwé, Léon de (1997): Veranderen moet je leren. Den Haag, Elsevier.
Caluwé, Léon de and Hans Vermaak (2003): Learning to Change. A Guide for Organization Change Agents. Thousand Oaks, Sage Publications.
Geursen, G. (1994): Virtuele tomaten en conceptuele pindakaas. Deventer, Kluwer.
Hall, G and S. Loucks (1977): A Developmental Model for Determining whether the Treatment is actually Implemented. American Educational Research Journal, 14 (3), 263-276.
Hersey, P. and K. Blanchard (1988): Management of Organizational Behavior. Englewood-Cliffs, Prentice Hall.
Hoebeke, Luc (2004): Dilemmas and Paradoxes in Organizing Change Processes: A Critical Reflection. In: Boonstra (ed.): Dynamics of Organizational Cahnge and Learning. Chichester, Wiley.
Johnson, G. and K Scholes (1997): Exploring Corporate Strategy. London Prentice Hall.

Kolb, D., I. Rubin and J. Osland (1991): Organizational Behaviour: an experiental approach. Englewood Cliffs, Prentice Hall.
Lane, D. (1995): On a resurgence of management simulations and games. Journal of the Operational Research Society, 46, 604-625.
Meadows, D. (1989): Gaming to implement system dynamics models. In: P. Milling and E. Zahn (ed.): Computerbased management of complex systems. Berlin, Springer Verlag.
Senge, P. (1990): The Fifth Discipline: the act and practice of the learning organization. New York, Doubleday/Currency.
Weick, K. (1969): The Social psychology of Organizing. Reading, Addison Wesley.
Weick, K. (1995): Sensemaking in organizations. Thousand Oaks, Sage Publications.
Wierdsma, A. (2007): A Methodology for Increasing Collective Competence: A Context for Co-Creative Change. In: Boonstra, J and L. de Caluwé (eds.): Intervening and Changing: Looking for Meaning in Interactions. Chichester, Wiley and Sons.
Wierdsma, A. and J. Swieringa (2002): Lerend organiseren: als meer van hetzelfde niet helpt. Groningen, Stenfert Kroese.