

The Science Behind the LEGO SERIOUS PLAY method

"SERIOUS PLAY" is the name that has been given to the process we have been using to bring the creativity, the exuberance, and the inspiration of play to the serious concerns of adults in the business world. Here we explore the key theories and one belief that make up the the LEGO SERIOUS PLAY foundation. We will be looking at

- 1) Play
- 2) Constructionism,
- 3) Hand-Mind connection and flow
- 4) Imagination
- 5) Using metaphors
- 6) Complex Adaptive Systems (belief)

We will explore the science behind the value of using the LEGO SERIOUS PLAY method to accomplish such tasks as constructing a metaphorical 3-D model of your business in a playful manner. Doing so will unleash creative imagination to develop an innovative and dynamic business strategy based on a clearer sense of a company's identity.

Play, Learning through Exploration and Storytelling

Play is our natural way of adapting and developing new skills. It is what prepares us for emergence, and keeps us open to serendipity, to new opportunities. (Brown Stuart: "Play", Avery, 2009).

We define three key components of play (in organization):

It is an intentional gathering were the participants

1. Want to utilize their imagination (not fantasy)
2. Agree that they are not directly producing a product or service
3. Are getting together with these two objectives in mind and agree to follow a special set of rules

In addition, adults play with one or more specific goals in mind: social bonding, emotional expression, cognitive development, and constructive competition.

At first glance, all this emphasis on play may seem incongruous. Most people view play as the very opposite of work, as something frivolous, as an activity to fill the leisure time when we are not attending to our more serious concerns. Indeed, the very term "SERIOUS PLAY" may seem like an oxymoron. The LEGO® Group has always taken play very seriously.

While play is usually fun, it is seldom, if ever, frivolous. The literature on play is in agreement on this fact: play always serves a purpose. We define play as a limited, structured, and voluntary activity that involves the imaginary. That is, it is an activity limited in time and space, structured by rules, conventions, or agreements among the players, uncoerced by authority figures, and drawing on elements of fantasy and creative imagination.

Yet, adult play is not precisely the same as a child's play. When adults play, they play with their sense of identity. Their play is often, though not always, competitive. Adult play is often undertaken with a specific goal in mind, whereas in children the purposes of their play are less conscious. We have identified four purposes of adult play that are especially relevant to our discussion of the LEGO SERIOUS PLAY method:

Social bonding

Emotional expression

Cognitive development

Constructive competition.

Social bonding is a significant benefit of play. It brings a sense of partnership, cohesion, security, cooperation and cultural expression.

Social bonding is an important purpose because it brings a sense of partnership, cohesion, security, and role attribution through cooperation and cultural expression. Moreover, social bonding provides numerous possibilities to develop leadership, cooperation, teamwork, perseverance, altruism, etc., all of which contribute to the development of a discriminative self-appraisal and a constructive concept of the self.

The motivational basis for play is described in the literature as primarily emotional (Fein 1984, Vygotsky 1978). The representations used in play are in fact representations of the player's own affective knowledge. Emotions such as love, anger, or fear motivate and shape the different forms of play in which a player engages, as well as the symbolic expressions the player produces. Since play involves the capacity to pretend, and to shift attention and roles, it provides a natural setting in which a voluntary or unconscious therapeutic or cathartic experience may take place.

Play can "drive home" abstract concepts and complex issues that may otherwise be difficult to comprehend. It has been described as the fertilizer for brain growth

In terms of cognitive development, we will see, in our discussion of constructionism, how play can contribute to learning and understanding. Through the use of modeling and metaphor, the objects of play can take on meanings and can embody abstract concepts, thus concretizing formal relationships that can otherwise be quite difficult to comprehend.

By constructive competition, we mean the sort of competition that allows us to measure our own skills against those of our opponents, not only for the purpose of "winning" but to enable us to strive to perform at our best. Huizinga believed that the major form of human play is contests, and that contests have a civilizing potential, developing social interest around which the society constructs its values (Huizinga, 1955). These "contests" need not be amongst the players, but can just as well serve a cohesive group "competing" for a shared objective. The critical feature is that play for adults can be as much tied to the real challenges of life as it is for children. Play is uniquely suited to hone our competitive intelligence.

Storytelling and Metaphor

Storytelling and the use of metaphor are both key components of serious play.

Storytelling and the use of metaphor are both key components of play. When children play, ordinary objects are transformed into mommies and daddies, animals, trucks and cars, and all sorts of characters in the narratives that children create in their play.

Of course, it is not only children who engage in such activities. Storytelling has been an integral part of the whole of human experience. Through myths, sagas, fairy tales, and family legends, people have used stories as a means for expressing ideals and values that are important to them. In stories, we deal with issues of culture, religion, social and personal identity, group membership, good and evil, etc. We often use the characters in our stories to express our hopes, deal with our fears, and resolve our conflicts.

Storytelling – or, more accurately, storymaking – is a fully active and concrete endeavor. As active participants, we step in and out of the process to elaborate, refine, or evaluate the characters, the setting, or the plot, as we go along. In doing so, we place ourselves in a unique position to make sense of the social, cultural, and interpersonal material that makes up the story in an active, dynamic way.

In organizations, stories contribute to the construction, reproduction, or transformation of values and beliefs.

In organizations, stories contribute to the production, reproduction, transformation, and deconstruction of organizational values and beliefs. Organizational members dramatize organizational life through stories transforming mundane events into symbolic artifacts that contribute to the organization's history. In this respect, members have the power to "challenge" their organizations with a new story (Boje, 1991). Boje defines the storytelling organization as follows:

"...a collective storytelling system in which the performance of stories is a key part of members' sense making and a means to allow them to supplement individual memories with institutional memory."

— Boje, 1991

In organizational contexts, narratives serve a number of purposes: the socialization of new members, the legitimization of bonding and organizational identification, cultural control, and they serve as a lens through which organizational action may be understood and interpreted. (Putnam, 1995.)

The most vivid storytelling makes ample use of the linguistic construct known as metaphor; that is, a form of thinking and language through which we understand or experience one thing in terms of another. MIT professor Donald Schon has argued that metaphors can actually generate radically new ways of understanding things (Schon, 1971.) He observed how product development researchers, trying to make an artificial bristle paintbrush, had a breakthrough when one member of the group observed, "A paintbrush is a kind of pump." According to Schon, metaphor is much more than just "flowery language"; it can play an active, constructive, and creative role in human cognition.

Constructivism and Constructionism: Building Knowledge by Building Things

The method draws on many ideas from the fields of psychology and behavioral science. In this section we will explore two such ideas:

Constructivism

We build knowledge structures based on our experience in the world.

Jean Piaget is perhaps best known for his stage theory of child development. But even more fundamental than his stage theory was his theory that knowledge is not simply "acquired" by children bit by bit, but constructed into coherent, robust frameworks called "knowledge structures." Children build these structures based on their experience in the world.

Piaget discovered that children are not just passive absorbers of experience and information, but active theory builders. In one of his more famous experiments, Piaget discovered that young children believe that water can change in amount when poured from a short, wide glass into a tall, thin one. These children have built a theory – which, indeed, works most of the time – that states "taller means more." This theory was no doubt built out of many experiences (measuring children's heights back to back, building block towers, amount of milk in one glass) into a robust structure. Mere insistence could not convince these children

that the water did not change its amount. In other words, you could not simply tell these children the "right" answer. They wouldn't believe you if you did. They have to build a new, more sophisticated knowledge structure that takes into account the theory, again based on their experience, that "wider" can also mean "more", before they will consider that the water does not change its amount.

Piaget's theory of knowledge, stipulating that knowledge is built or constructed by the child, is known as constructivism. Children are not seen as empty vessels into which we can pour knowledge. Rather, they are theory builders who construct and rearrange knowledge based on their experiences in the world.

Constructionism

Seymour Papert was a colleague of Piaget's in the late 1950s and early '60s. He was convinced of Piaget's theory of constructivism but wanted to extend Piaget's theory of knowledge to the fields of learning theory and education. He wanted to create a learning environment that was more conducive to Piaget's theories. He saw conventional school environments as too sterile, too passive, too dominated by instruction. Such environments did not allow children to be the active builders that he knew they were. Papert eventually called his theory "constructionism."

It included everything associated with Piaget's constructivism, but went beyond it to assert that constructivist learning happens especially well when people are engaged in constructing a product, something external to themselves such as a sand castle, a machine, a computer program, or a book.

Since constructionism incorporates and builds upon Piaget's theory of constructivism, two types of construction are actually going on, each reinforcing the other. When people construct things out in the world, they simultaneously construct theories and knowledge in their minds. This new knowledge then enables them to build even more sophisticated things out in the world, which yields still more knowledge, and so on, in a self-reinforcing cycle.

Learning happens especially well when we actively construct something external to us.

Papert first began thinking about constructionism in the late 1960s, after observing a group of students, over several weeks, become deeply and actively engaged in creating soap sculptures in an art class. The experience left a deep impression on him. Several things struck him: the level of engagement of the children; the elements of creativity and originality in the actual products; the interaction and collaboration among the children; the longevity of the enterprise, and the sheer sense of fun and enjoyment that permeated the experience.

Being a mathematician by training, Papert could not help wondering why most mathematics classes were so unlike these art classes. He observed that math classes, by comparison, were dull, boring, un-engaging, passive, dominated by instruction, and anything but fun. Why was this so? He knew from his own experience that mathematics was exciting, beautiful, challenging, engaging, and every bit as creative as making soap sculpture. Why was it being ruined for so many children?

Papert's contemplations on that soap sculpture class led him on a many-year journey to design a more constructable mathematics. He knew he would have to work with media more sophisticated and powerful than simple art materials.

In the 1970s, Papert and his colleagues designed a computer programming language called Logo, which enabled children to use mathematics as a building material for creating pictures, animations, music, games, simulations (among other things) on the computer.

Then, in the mid-1980s, members of his M.I.T. team developed LEGO[®] TC Logo, which combined the computer language with the familiar LEGO[®] construction toy. LEGO[®] TC Logo enabled children to control their LEGO[®] structures by creating programs on the computer. The resulting behaviors of such machines can be arbitrarily complex. It was out of the repeated

experience of seeing children use these sorts of materials – not just in order to learn about mathematics and design but to actually be mathematicians and designers – that led Papert to conclude, “Better learning will not come from finding better ways for the teacher to instruct, but from giving the learner better opportunities to construct.”

The Value of Concrete Thinking

Although Papert’s constructionism embraces and builds upon Piaget’s constructivism, over time, Papert eventually came to see some drawbacks to Piaget’s stage theory. In 1990, Papert wrote:

“...I think now that the ...most outstanding corrections one must make to Piaget’s epistemology are related to his supervaluation of the logical, the formal, and the propositional forms of thought. His most important contribution is recognizing the importance of what he calls concrete thinking. His major weakness is his resistance to giving up the value system that places formal thinking “on top.” This resistance leads him to see concrete thinking as children’s thinking, and so keeps him from appreciating the full breadth of his discovery of the “concrete” as a universal form of human reason.”

— *Papert, 1990*

Papert came to view the notion of “concrete thinking” not as a stage that children outgrow, but rather as a style of thinking that has its benefits and uses, just as logical or formal thinking has its benefits and uses. In other words, unlike Piaget, he does not see concrete thinking as the cognitive equivalent of baby talk. He sees concrete thinking – i.e. thinking with and through concrete objects – as a mode of thinking complementary to more abstract, formal modes of thought. It is a grave mistake, in Papert’s view, to forsake or cast off concrete thinking, (as a snake sloughs off its skin,) in favor of purely abstract thought, for to do so would seal oneself off from valuable modes of thinking and pathways to knowledge not as accessible by other means.

Thus, constructionism is not just a theory about how to facilitate children’s learning. It applies to adults as well. Constructionism is a way of making formal, abstract ideas and relationships more concrete, more visual, more tangible, more manipulative, and therefore more readily understandable.

When we “think through our fingers” we release creative energies, modes of thought, and ways of seeing things that may otherwise never be tapped.

The emphasis that constructionism places on concrete thinking has obvious import for the LEGO SERIOUS PLAY method. At the core of both ideas is the notion that when we “think with objects” or “think through our fingers” we unleash creative energies, modes of thought, and ways of seeing that most adults have forgotten they even possessed. But we were all children once, and we all knew how to play. The LEGO SERIOUS PLAY approach stakes its reputation on the belief that adults can regain their ability to play, can dust off those modes of concrete thinking and put them to use again, and that when they do, great benefits are in store for them.

A business or company is so much more than a building and the people in it. It is a vast network of interconnections and complicated relationships on many different levels. Conveying such abstract relationships on paper through graphs, flowcharts, block diagrams, etc. often fails to capture the dynamic nature of the enterprise. While computer modeling and simulations are a step up from static models, these too are limited. It is often very difficult to comprehend the totality of these complex interrelationships. The LEGO SERIOUS PLAY method is a bold attempt to take the power of constructionism and apply it to the complexity of the business world, thereby making the abstract network of interrelationships that make up any business, concrete, appropriable, and comprehensible.

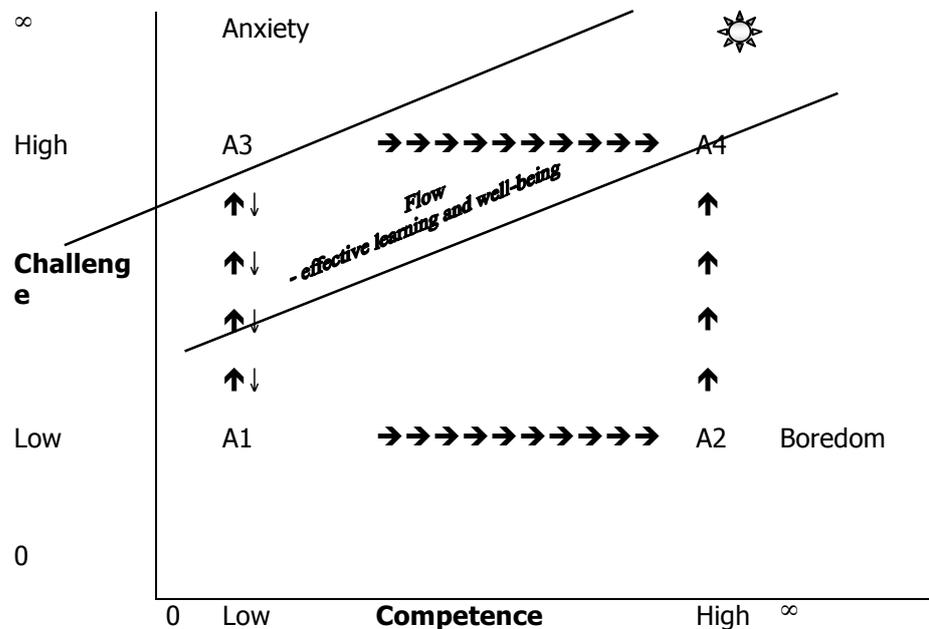
In our experience, when such a “model” of a business is constructed – not of the buildings, but of the business in a systemic sense – people see things they couldn’t see before. They

can look at a 3-D metaphorical model of their business and its landscape and visualize strategies that were formerly opaque and closed off to them. They can see their business enterprise in a more holistic sense. They can manipulate it, play with it, and ask all sorts of "what if" questions by physically manipulating their business model.

"What if our key supplier goes bankrupt?" "What if we relocated our marketing team to Asia?" "What if our sales suddenly doubled?" Getting managers and employees to "play" with their business may seem like a radical departure from the serious concerns of the boardroom. But that depends on your notion of play. Play is not a leisure pursuit but as a serious activity that can unleash creative energies so sorely needed in the business world today.

Flow

When participants go through the workshops using the LEGO SERIOUS PLAY method, they will experience what some call a "roller coaster ride". Participants will feel varying comfort levels as they move through the process and the challenges. The processes were designed deliberately this way so as to greatly increase the chance that real changes and long-term learning will take place, along with a deep feeling of accomplishment. The "Flow Model", modified from work done by Mihaly Csikszentmihalyi, in 1991, best describes this roller coaster experience.



Model 5: Flow: The natural balance between challenges and skills (Knoop 1997 after Csikszentmihalyi, 1991).

The model illustrates how we arrive at the condition of "flow" – when our competence and the challenge we face are in balance with each other. The model also shows how a lack of challenge leads to boredom and how being faced with challenges that are too great creates anxiety. The model further shows how our personalities become more complex (competent) as a result of our experiencing flow (high-point experiences / high quality of life).

Enjoyment and learning are two sides of the same coin. We can see how adults appear to be happiest when they are learning most effectively, and we can even go so far as to assert that "effective learning is experienced as playful" – where "play" is considered broadly as the

preferred mode of human being. Effective learning is what takes place when we are genuinely engaged in something, when we are doing something we really desire to do.”

— Csikszentmihalyi, 1991

The Hand-Mind Connection

We often distinguish between “blue collar” manual laborers and “white collar” knowledge workers, and thus may have a tendency to believe there is no meaningful connection between what one does with one’s hands and what one does with one’s mind. Yet, this distinction says more about our class structure than it does about the real facts of intelligence and the mind. There is well-grounded scientific evidence pointing to the profound interdependence of the hand and mind.

The work of anthropologists and paleontologists like Louis and Mary Leakey, their son Richard Leakey, Don Johanson, and Sherwood Washburn shows very clearly the development of the relationship between the hand and brain.

Starting about 3.2 million years ago, the human ancestor species we call Australopithecus Afarensis (the “Lucy” skeleton) is the first to show clear bipedalism (walks on 2 legs only), which meant that the other extremities (the hands) could be used for other things. Already “pentadactyl,” that is, five-fingered, the hand of “Lucy” also begins to show the first clear signs of a modern opposable thumb – the crucial development that makes the “precision motor grip” of the human hand possible. Lucy’s brain size was about 400-500 cc. The opposable thumb appears in a more clearly modern form with the species we call “Homo Habilis.” This is dated to about 2.1 million years ago, and has a brain size of 600-700 cc. Homo Habilis is a watershed in the human experience, because this is the first prehuman species also associated with what are clearly manufactured “tools,” in this case, chipped stone implements used for pounding, cutting, cleaving, etc. As Wilson explains, “the whole list of recently acquired and uniquely human behavioral attributes must have arisen during the long process of brain enlargement that began with the expansion of novel and inventive tool use by Homo habilis.” (Wilson 1998).

The intimate link between the hand and the brain in human development appears clearly in modern human physiology. Canadian neurosurgeon Wilder Penfield developed a “map” of the brain that shows the proportions of it dedicated to controlling different parts of the body. What immediately strikes one is the enormous size of the part devoted to the hand. This clearly shows the profound interconnection between the hand and the brain. But what does this have to do with the higher mental processes of abstraction and reasoning?

Jean Piaget, the father of our modern understanding of intelligence, introduced the idea that intelligence grows from the interaction of the mind with the world. Thus, the complex, abstract ideas such as time, causality, space, etc. are all active operations that grow from the feedback processes between the living mind and the encompassing world. A proselytizer of Piaget’s work, Hans Furth, argues that the key insight of the great psychologist’s work is that “knowledge is an operation that constructs its objects.” As we know from the work of human paleontologists, the connections between the hand and the mind are central to the development of the human being. This fact, together with the scientific insights of Penfield and Piaget, would suggest that using the hand to manipulate and construct the world is not only a profoundly human thing, but also a primordial way that the brain uses to construct its own knowledge of the world. Whereas manipulative play is common to all primates, symbolic play is exclusively human, and many play theorists have regarded it as an essential precursor of adult conceptual abilities. Piaget claimed that symbolic play stems directly from the earlier manipulations of the child, and that in fact there was no play, only exploratory manipulations, before the child acquired the possibility to act symbolically, at around 3 years of age.

The Three Kinds of Imagination

Throughout history, the term "imagination" has taken on many different cultural and linguistic connotations. While all share the basic idea that humans have a unique ability to "image" or "imagine" something, the variety of uses of the term "imagination" suggests not one, but at least three meanings. The strategic imagination is the result of the unpredictable and rich interaction among the three kinds of imagination, fueled by essential information and relevant experience. The three kinds of imagination are descriptive, creative and challenging.

Descriptive Imagination – Are you caught in a rut?

Descriptive imagination not only reveals what is happening in the often-confusing world "out there", but it enables us to make sense of it and to see new possibilities and opportunities.

Our descriptive imagination is about seeing the world "out there," as it is. It enables us to identify patterns, find and label the regularities that allow us to cut through and perceive the mass of data that surrounds us. This need and ability to mirror the world is central in strategic management practice. For instance, modeling Porter's 5 industry forces, value chains, and the ubiquitous 2x2 matrices all invoke our descriptive imagination. Also, the use of metaphors, such as landscapes, to describe the world in different ways helps us to expand our (descriptive) imaginations. This is the way that humans typically deal with confusing or complex information. By adding structure to information we are effectively using descriptive imagination to focus on repeating patterns and so see things in a new way.

Creative Imagination – Can you think outside the box?

Creative imagination allows us to see what isn't there. It evokes truly new possibilities from the combination, recombination or transformation of things or concepts.

The creative imagination is about generating truly new possibilities from the combination, recombination or transformation of things or concepts. Creativity takes a central role in the strategy process, and is often associated with "innovative" strategies. There is, however, a clear division between creative imagination – where one focuses on possible realities and the making of reality, and fantasy – the domain of the impossible. The creative imagination, when taken to a negative extreme, risks indulging in fantasy, the impossible and the improbable. Strategy-makers who lose touch with their experience risk fantasizing.

Challenging Imagination – Deconstruction and Beyond

Challenging imagination, often using deconstruction and sarcasm, overturns all the rules and wipes the slate clean.

A third kind of imagination is completely different from the other kinds. The challenging imagination encourages us to negate, defame, contradict and even destroy the sense of progress that comes from descriptions and creativity. Some common methods used by the Challenging Imagination include deconstruction and sarcasm. It might require throwing away and starting all over. This fuels the fire in the angry assaults on business strategy by such "mainstream" writers as Tom Peters, Gary Hamel, as well as the hugely popular Dilbert by Scott Adams. The challenging imagination enables us to see the disillusioning, the absurd and the outrageous that is often present in everyday life. The inherent risk of the Challenging Imagination is to have nothing new to put on the slate once it has been wiped clean.

Summary

We call attention to the value (and danger) of each of the three kinds of imagination because we have found that most people tend to view imagination as the product of only the creative imagination and as being only positive. While the challenging imagination, for example, is commonly viewed as being wholly negative because of its social effects on group interactions, it can also provide tremendous imaginative power. This suggests that the facilitator has an important role in creating space for the expression and positive benefits of each of the three types of imagination, while being sure to discourage the common negative social affects negative social affects.

What we might call STRATEGIC IMAGINATION is a process that emerges from the complex interplay among these three kinds of imagination. While this interplay of imaginations is not directly observable, what we can observe are the manifested social dynamics among the strategy makers. These social dynamics fall into three categories:

- 1) The construction of knowledge gathered from knowledge and experience
- 2) The sharing of meaning emerging from that knowledge
- 3) The transformation of identity assimilating the new knowledge

Metaphors

Metaphors are forms of thinking and language in which we understand or experience one thing in terms of another thing. We use metaphors drawn from the natural and physical sciences routinely in our business conversations – niche, life cycle, peaks and valleys, for example. Thus we might assert that, “Our current CEO will guide us through the choppy seas of competition”. We also make widespread use of the world of sport: “The sales team really dropped the ball on that client lead”. Or, “We want to be first past the post with this one”. Unfortunately, most people believe that the use of metaphor is an unusual, an uncommon, or an artistic way of speaking – that is, a sort of “color” we use to make language more interesting. In some cases, it is even regarded as a bad form of language and thought, as if metaphors are used when you can’t say something accurately. In fact, these common views are not true.

George Lakoff, a professor of Linguistics, and Mark Johnson, a professor of Philosophy, provided clear evidence in *Metaphors We Live By* (1980) that metaphors are actually common and widespread features of language – and that most verbal interaction is almost impossible without their use. Donald Schon (1971) argued that metaphors could actually generate radically new ways of understanding things. He observed how product development researchers, trying to make an artificial bristle paintbrush that mimicked the properties of natural bristle, had a breakthrough when one member of the group proposed the metaphor that “a paintbrush is kind of a pump”.

So, instead of being viewed as “flowery ways of speaking”, Schon proposed that metaphors actually play a practical and constructive role in human cognition. More recently, Morgan, in *Images of Organization*, details how a series of dominant metaphors shapes the way we understand the organizations in which we work.

Metaphors, therefore, are not something that we should instinctively mistrust or avoid. It has long been argued that how we think about experience, and the way we understand meaning in the world, are both founded on figurative schemes of thinking that include metaphors. (See, for example, the early writings of Quintillian, Ramus, or Vico.) Thus, metaphors should not be viewed as false ways of presenting experience. Instead, they are innately human ways of giving a deeper meaning to our surface understanding of reality.

Complex Adaptive Systems and Simple Guiding Principles

Finally, it is worth shortly mentioning that the LEGO SERIOUS PLAY method was developed based on a systems-understanding (belief) where the agents and the identity co-evolve, and no-one constrains the other completely.

This indicates non-linear relations and that system the system is understood as complex and adaptive. Such systems are prone to emergence, i.e. a small event can lead to a new state in the system.

Consequently, focus should not be on predicting, but paying heed. The concept of Simple Guiding Principles was developed accordingly.

Inspiration and background reading.

Below is a list of articles and books which can help cast light on the foundation of the method:

Csikszentmihalyi, M. Flow—*The Psychology of Optimal Experience*. New York City: HarperPerennial, 1991

Hamel, Gary: "Strategy as Revolution", Harvard Business Review (July-August 1996), p 69-80

Harel, L. and Papert, S. (1991) *Constructionism*. Norwood, NJ: Ablex Publishing Corporation

Lissack, Michael and Johan Roos: "The Next Commonsense, Mastering Corporate Complexity through Coherence", Nicholas Brealing, 1999

Mintzberg, Henry: "The Rise and Fall of Strategic Planning" (January – February 1994) 107-114

(see also the book of the same name published by Prentice Hall, 1994)

Oliver, D. and Roos, J. (2003) Constructing Organizational Identity, *Imagination Lab Working Paper 2003- 10*, Lausanne, Switzerland.

Oliver, David and Johan Roos: "Striking a Balance: Complexity and Knowledge Landscapes", McGraw-Hill, 2000

Roos Johan and Bart Victor: "Towards a New Model of Strategy-Making as Serious Play", European Management Journal (August 1999), 348-255

Roos, J., Victor, B., and Statler, M. (2003) Playing Seriously With Strategy, *Imagination Lab Working Paper 2003-2a*, Lausanne, Switzerland.

Said, R., Roos, J., and Statler, M. (2002) Lego Speaks, *Imagination Lab Working Paper 2002-7*, Lausanne, Switzerland.

Weick Karl E and KH Roberts: "Collective Mind in Organizations: Heedful Interrelating on Flight Decks", Administrative Sciences Quarterly (September 1993), 357-381

Recent publications that have chapter on or focus entirely on LEGO SERIOUS PLAY include:

Gauntlett, David: "Creative Expressions, New approaches to identities and audiences", Routledge 2007

Møller, Louise: "Personal- and Shared Experiential Concepts"; phd dissertation. Aalborg University, 2009