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Learning out of the box using LEGO® SERIOUS PLAY®

Apprendere out of the box con il LEGO® SERIOUS PLAY®¹

di

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Abstract:

The LEGO® SERIOUS PLAY® (LSP) methodology was born in the 1990s within the LEGO® Group to (re)-innovate managerial practices and has over time undergone significant development in various sectors including education, supported by constructivist learning theories. It affirms itself among the serious games due to the use of LEGO® bricks originally created for playful purposes, declined for the LSP methodology as an expressive, communication and collaboration tool, of co-construction and creative solution of real problems. In this essay we intend to present LSP as a methodology for learning "out of the box" within educational contexts aimed at adults, outlining its strengths and weaknesses, as well as outlining scenarios for future development.

¹ Il presente contributo è il prodotto congiunto delle due autrici. Ad ogni modo a Gina Chianese vanno attribuiti i paragrafi 3 e 4; a Stefania Fantinelli i paragrafi 1,2 e le conclusioni.

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Keywords: LEGO® SERIOUS PLAY®, learning “out of the box”, teaching methodology

Abstract:

La metodologia del LEGO® SERIOUS PLAY® (LSP) nasce negli anni '90 all'interno del Gruppo LEGO® per (r)-innovare le pratiche manageriali ed ha registrato nel tempo un importante sviluppo in diversi settori fra cui quello dell'educazione, sostenuto dalle teorie dell'apprendimento costruttivista. Si afferma tra i serious games per via dell'utilizzo dei mattoncini della LEGO® nati in origine con finalità ludiche, declinati per la metodologia LSP come strumento espressivo, di comunicazione e collaborazione, di co-costruzione e soluzione creativa di problemi reali. Nel saggio si intende presentare il LSP quale metodologia per apprendere “out of the box” all'interno dei contesti educativi rivolti agli adulti, delineandone punti di forza e criticità, tracciando altresì degli scenari di sviluppo futuri.

Parole chiave: LEGO® SERIOUS PLAY®, apprendere out of the box, metodologie di insegnamento

1. Definition of learning

It seems to us mandatory to start with some definitions of learning, in particular it is interesting going through the several nuances of the learning definition across the time, because it provides us a comprehensive view and description of learning concepts across the time. Going very far in the past, there are two examples partly still valid in the existing scenario.

Learning has been defined as a better adaptation of the response to the situation (Woodworth, 1929), this point of view recalls the idea of human adaptability and reshaping of information in order to find the best fit and match with the environment. Very similar to this perspective, there is the position of a gestalt theorist who defined learning as the result of experience through personal interactions with the environment (Kohler, 1929); it is interesting because it introduced for the first time the idea of interaction between individuals and environment. This personal interaction could take the learner to a sort of restructuring or rearrangement of different elements involved in the learning context, very different from “trial and error” learning; it was defined as the insight learning.

Selecting and connecting information or trial and error approach, was the learning process described by connectionism theorists; according to Thorndike (1931), learning is the connection between stimuli and responses. In the light of this theory, learning occurs when there is an association (or connection) between sensory experiences (perceptions of stimuli or events) and neural impulses, then the outcome will be evident in behaviours.

Later on, there has been some attention to the balance between goals and obstacles in the learning process, more specifically learning was defined as the increase, through experience, of the ability to gain goals in spite of obstacles (Washburne, 1936).

The author stated that a sort of balance is needed, as an increase in the goal attaining ability can appear in different ways, such as by an increase in the complexity of the goals which the learner may consider and strive for, by the number or the difficulty of the obstacles which have to be overcome, or by the decrease in the amount of help needed or effort expended. When a

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person overcomes more obstacles with less effort, then learning is successful, but if the learner overcomes more obstacles with just that much more effort, there is no effective learning. So if a gain or a loss in one respect is compensated by an equivalent gain or loss in certain other respects, no learning can properly be said to have taken place.

It was in the 1980 that learning was approached as a process: Boyd and colleagues defined it as the act or process by which behavioural change, knowledge, skills and attitudes are acquired (Boyd et al., 1980). For the first time there is a double definition of learning as an act or as a process, notwithstanding the majority of education institutions were used to approach learning as a product, almost ignoring the underlying activities; indeed, students' performance has often been measured through the outcome of the task, meaning learning as a product.

Across the time, scholars expanded the theoretical perspective concerning learning and education implementing a more systemic point of view, it was Bandura (1986) who defined learning as “an information processing activity in which information about the structure of behaviour and about environmental events is transformed into symbolic representations that serve as guide for action” (Bandura, 1986, p. 51). Through the formulation of the Social Cognitive Theory, Bandura defined three major factors that interacting with each other could determine human behaviour and learning: environment, personal characteristics and behaviours. In line with this perspective, learning occurs either actively through actual doing or vicariously by observing models performing actions. This assumption constitutes one of the premises for constructivist theoretical approach: the situated cognition or situated learning (Greeno, 1989). Thinking, learning and cognitive processes do not exist only in humans' minds; rather, there are physical and social dimensions to be included.

Thus, learning is meant as a social process where learners interact with peers or models, as well as with situations.

Apart from specific definitions of learning, there have been some monumental theories, sustained by many scholars and that framed several theoretical approaches; because of the topic and the aim of this essay, we will focus on just one of them: the constructivism theory. Social constructivist theorists emphasised the importance of social interactions and interactions with objects, in acquisition of skills and knowledge. Humans have an active role in learning, which is defined as a constructive process based on personal past experiences, so that learners produce a subjective interpretation of external objective reality (see for example Dewey, Piaget, Vygotsky). In this vein, it is possible to sustain that learning is not focused on a passive procedure, it is not about accessing or retrieving information, it is rather a real active experience, even more effective when the participants are involved in the process, both learners and teachers.

2. The co-creation of learning

There is a recent and interesting analysis of the concept “co-creation of learning” conducted on 52 scientific papers (Kaminskiene et al., 2020), which provides a useful framework to our in-depth consideration of the constructivist approach for learning. According to scientific literature, the term co-creation can have several attributes, which indicate some strengths and virtues of a constructivist learning, such as: transformative interaction, learner's agency, value co-creation, metacognitive practices. The transformative interaction deals with the experience

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of knowledge modelling and creation, so that each individual is involved in a progressive transformation of both personal beliefs and interactions with other learners.

The value co-creation and learners becoming active are useful processes able to develop a shared responsibility on their own learning, moreover there is evidence that correlates the co-creation to the improvement of some soft skills, for example: leadership, communication and teamwork (Cook-Sather et al., 2014; Lubicz-Nawrocka, 2017).

When talking about metacognition, which refers to the self-awareness of personal cognitive processes and thoughts, it is relevant to consider how the collective dimension of co-creation and the collaboration with others, can facilitate the individual introspective thinking of metacognition.

In order to have a more effective learning outcome, it is possible to design a constructivist learning environment, according to some guiding principles (Schunk, 2012): first, learners need to face some tasks that are realistic and relevant to them, so that they can feel interested in dealing with the problem. Moreover, learners should be provided with primary concepts across a sort of holistic teaching (Brooks & Brooks, 1999). Third, each individual's point of view should be heard and enhanced, in order to truly deepen the learners' knowledge creation process. The fourth principle is in line with the classical theory of goal setting (Locke & Latham, 1990), which defines the need to set goals that are hard enough, challenging and that are designed on learners' capabilities. Finally, to reach a constructivist learning environment, it is assumed that the assessment of learning permeates the whole process and all participants. Social collaboration and interpersonal communication are essential components of a constructivist knowledge base process (Jonassen, 1994). According to constructivist principles, a learning environment should promote some attitudes, such as: collaboration with others in order to socially construct knowledge, rather than replace it. Indeed, knowledge is a human product, the meaning is created by the social interactions and by the interactions with the environment. As a consequence, learning is framed as a social process: social activities are the facilitators elements for a meaningful learning process (Gredler, 1997).

Thus, "learners become change agents, active partners and producers of their own learning" (Kaminskiene et al., 2020; p. 342). The co-creation of learning produces several beneficial outcomes: learners and teachers can be more engaged, also the experience of learning becomes more efficient and the understanding of the process could be more robust (Cook-Sather et al., 2014).

The constructivist approach puts the human experience as the central element, so that it is possible to define the related perspective of experiential learning as a holistic, systemic approach, which includes perception, cognition and behaviour (Kolb, 2014).

Moreover, when referring to the constructivist approach, it has to be underlined that knowledge is a dynamic process, subjected to change and it is particularly clear when learners are able to transform complex information or situations into something different and individualised. Learners are required to implement several activities, from the simple reception of information, to the elaboration, transformation and interaction either with environment or with other learners, derive and modify concepts by experience, so that they would be better defined as thinkers (Muhajirah, 2020). A learner as an active thinker is used to re-shape ideas through

experience, and an undoubted fact is that experience is characterised by continuity (Dewey, 1938). This latter assumption represents another core element of experiential learning.

For what concerns the effectiveness of learning, there is evidence that confirms the positive impact of experiential learning (Watkins et al., 2007), however aim of this contribution is to deeply consider a specific kind of experiential and unconventional learning; in particular, the “out of the box” method applied to learning is the LEGO® SERIOUS PLAY® (LSP) methodology.

3. Why learning “out of the box”?

Why do we talk about learning “out of the box”?

This question also appears crucial in the light of the impacts generated by the Covid pandemic on the quality of learning. In the case of both children and adults, in the face of enforced closures, the response to training needs has been through recourse to digital with distance learning and virtual or 'on demand' through recordings.

On the one hand, this has led to broader access to training and learning opportunities for adults, opening up new forms of reconciliation of personal and professional life; on the other, it has highlighted digital inequalities that have limited access to training for adults or workers with limited skills with consequences in terms of exclusion and alienation (Özdemir et. al, 2022).

This resulted in a profound gap between those who were in fact included and those who were not, thus calling into question the egalitarian nature of lifelong learning capable of generating both individual and community improvement and well-being.

What contribution can LEGO® SERIOUS PLAY® (LSP) make in this context and from an 'out of the box' learning perspective?

First of all, it is important to clarify that LSP was developed within a collaborative and transdisciplinary process between LEGO and the IMD Business School in Lausanne, an 'out of the box' experience that allowed LEGO itself to create a new method for serious play (Roos, Victor & Statler, 2004). The process led in 2010 to the adoption of LSP as a method within higher education to develop facilitation and problem-solving processes (Gauntlett, 2018; James, 2015). An important aspect of the LSP process is the free, non-judgmental and playful interaction between participants that allows for improved communication and creativity (Gauntlett, 2007; Andersen, Kragh, Lettl, 2013). The 'Hands-on, Minds-on' philosophy of LSP allows participants to explore problems as metaphors aiding understanding of complex topics in a safe space (Lakoff & Johnson, 2003).

LSP can be used in different contexts and for various purposes, ranging from brainstorming, team building, product development and even career development. LSP also allows participants to share their experiences, reflect on their values and express their emotions as part of the process (Wall, Russel & Moore, 2017) creating strong social bonds (Rhee & Yoon, 2012; Spoor & Kelly, 2004).

The main procedure is based on a four-step process in which participants initially generate ideas and answers to stimulus questions through individual construction and then group sharing until a shared scenario is constructed.

Research shows that engagement in playful activities through LEGO® SERIOUS PLAY® leads to increased self-awareness, improved ability to listen, observe and establish positive

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relationships, and the creation of 'responsive awareness' (Eisen, Cherbeneau, & Worley, 2005). Thus, the key role of 'serious play' in enhancing strategic thinking, motivation and teamwork effectiveness (Statler et al., 2011) and in generating meaningful, serious and sensible outcomes, as well as channelling emotions is highlighted. Innovating educational and teaching methodologies is, therefore, a key aspect of quality education. The European Commission's report (EU, 2015) on "The Changing Pedagogical Landscape" also emphasises the need to develop new teaching and learning methods, as well as to change the culture and mindset, especially with regard to innovative approaches and new teaching paths, particularly favouring group teaching. Furthermore, it intends to foster innovation capacities, using existing methods in a creative and value-adding way (Lehto, Penttilä, 2013).

4. “Out of the box” learning with LEGO® SERIOUS PLAY®

Several researches have valued the need to provide students with experiential learning environments to promote reflective thinking through different methods and media that produce kinesthetic experiences. According to Montesa-Andres, Garrigós-Simón and Narangajavana (2014), the identification of new learning methods such as LSP allows for a rethinking of the teaching-learning process, placing the teacher as facilitator of the process. This aspect is very important in the case of adult education. In 2018 Dann presented, based on his research, guidelines for bringing LSP techniques into university classrooms. He emphasises the need for a safe environment that through play allows participants to activate a discovery process through modelling and making their meaning explicit (Dann, 2018).

LSP in academia can be used in a variety of ways: as a multisensory approach to reflecting on learning, to explore identity and stimulate self-reflection, to enhance learning in the creative arts, to improve participatory communication about development and as a participatory research method (James, 2021; Nerantzi, James, 2019, 2018; Nunez, 2018). Although the method is content-neutral, it is particularly suitable for complex problems that deserve to be examined from multiple perspectives. Furthermore, especially for adults, LSP supports individuals to clarify career concepts and professional identity, develop career responses and define career guidance (Harn & Hsiao, 2018 Kristiansen & Rasmussen, 2014). LSP activities have resulted in improved academic performance, increased self-confidence and the development of group cohesion (Peabody & Noyes, 2017). It means learning to look at situations, both contextual and learning challenges through divergent, creative thinking.

Divergent thinking refers to the ability to follow new approaches, think of original and different ideas, and discover new methods of 'doing' by making flexible connections between ideas and pieces of information, taking different perspectives, and generating lots of ideas (Cropley, 2006). In essence, divergent thinking brings forth novel, unusual, or surprising ideas.

Several studies have shown that creative people share a core set of tendencies, particularly related to the personality dimension of 'openness/intellect'. It is steadily related to measures of creativity, including creative thinking, creative professions, and creative personality typically (Batey & Furnham 2006; Feist & Barron, 2003).

'Openness to experience' describes an individual's receptivity to engage with novel ideas, imagination, fantasy, aesthetics and emotions, and predicts creative achievement in the arts; 'openness to intellect' describes an individual's receptivity to appreciate and engage with

abstract and complex information and, in contrast to openness to experience, seems particularly correlated with scientific creativity (Kaufman & Sternberg, 2019).

Critical and divergent thinking is closely connected with the development of European competences for lifelong learning (EU Council, 2018); in particular with respect to entrepreneurship competences “Entrepreneurship competence refers to the capacity to act upon opportunities and ideas, and to transform them into values for others. It is founded upon creativity, critical thinking and problem solving, taking initiative and perseverance and the ability to work collaboratively in order to plan and manage projects that are of cultural, social or financial value” (p. 11).

Furthermore, with respect to “Cultural awareness and expression” the document states that

“Competence in cultural awareness and expression involves having an understanding of and respect for how ideas and meaning are creatively expressed and communicated in different cultures and through a range of arts and other cultural forms. It involves being engaged in understanding, developing and expressing one’s own ideas and sense of place or role in society in a variety of ways and contexts” (p. 11).

Cultivating divergent and creative thinking, in this case through the use of the LSP, recalls the 'creative learning spiral' (Resnick, 2018), which identifies the stages of the learning process that are constantly repeated: imagining what one intends to do, creating projects through play, sharing ideas and creations with others, reflecting on one's experiences. Comparing this spiral with the stages in the LSP, it is very easy to see the points of union.

Conclusions

Learning as a human process is mainly characterised by social interactions and by the constant relation with the experience, meant as a source of information to build and re-construct knowledge. According to the theoretical perspective presented in this essay and to the definition of LSP, it could be interesting to contemplate some possible strengths and weaknesses related to the implementation of LSP as an educational tool.

For what concerns strengths of a constructivist and “out of the box” learning, as LSP could be, there are theoretical and empirical frame of references, able to confirm several positive dimensions. According to Damşa and Ludvigsen (2016) who performed a qualitative study centred on participants’ perceptions and definitions of co-constructed knowledge objects, they assume that a co-created knowledge object can represent the outcome of a specific activity, it can also communicate an answer to a question or even hypothesise future scenarios. Intersubjectivity as a central characteristic of constructivist learning (Rogoff, 1990) is highly enhanced in the LSP method, allowing individuals to properly shape their meanings in 3D models; thus learners become real active producers. An hypothetical use of LSP as an “out of the box” educational tool should also take into account possible weaknesses: being an “hands on” activity and a fully concrete experience, LSP can hardly be implemented in a remote environment expecting the same outcome of learning, engagement and satisfaction.

Looking to future scenarios, first of all, it seems that constructivist guiding principles for learning environments could perfectly design future environments to implement LSP for

learning. But, at the same time, there is the need for an efficacy learning assessment derived by the use of LSP.

In line with the European Commission's report (EU, 2015), the quality of education can be improved through the innovation of methods, the use of LSP provides the possibility to implement an “out of the box” technique for education. In particular, there can be highlighted some key major elements that characterise the LSP beneficial contribute to learning: being a serious game, the LSP method is able to reduce the risk of opposition or resistance from participants. The creation of either learning or building challenges, is functional to the design of a playful and positive educational setting. Indeed, having challenges or relevant tasks to solve, can generate a state of *flow* in learners (Csikszentmihalyi, 1997), so that when personal abilities are pushed, individuals can experience well-being associated with learning.

Furthermore, LSP offers to learners the perfect opportunity to properly build their knowledge as active agents, through a co-construction process; and they have the chance to also create a shared collective knowledge. Thus, it is possible to sustain that LSP as an educational method can potentially produce several positive outcomes: self-efficacy in the process of learning, general empowerment and cultivating divergent and creative thinking.

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