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Understanding Innovation: Playing in the Sandbox with Friends

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Abstract: This paper presents a metaphor for understanding innovation, the metaphor: playing in a sandbox with friends. The paper outlines the importance of innovation in workplace, the link between innovation and creativity and how innovation & creativity connect. Play in the metaphor represents creativity as an approach to working with opportunities. The sandbox is a space that stimulates, allows focus, provides materials, and fosters collaborative creation. Friends represent a collaborative team that provides a comfortable environment for sharing, critiquing, and building ideas. The paper also outlines barriers to each of these important innovation components.

Key words: creativity; innovation; curiosity; discovery; play
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1. Introduction

Most organizations, particularly those in volatile environments, recognize the need to stimulate innovation in their workforce, since creativity can lead to new and useful ideas that can be highly profitable (Shalley, 2001). Is it possible to learn to be more innovative? Innovation may not be a matter of learning but of unlearning. We each have in us an instinctive drive designed to push us to learn and experience important principles of innovation; curiosity and discovery, exploration and experimentation, communication and socialization (Elkind, 2008). This instinctive drive is called *play*. Play has been shown to be crucial to the development of these skills through decades of research. This is especially true of the purest form of play: unstructured, self-motivated, imaginative, and independent, where people initiate their own games and even invent their own rules (Elkind, 2008). Children are intrinsically motivated to play and thus learn at tremendous rates in their formative years (Bowler, 1997); however, despite these natural tendencies, adults try to control young children's natural tendencies and inclinations for learning and communicate to them that it is time to stop playing and start working—it is time for school. It is time to control those physical urges and sit still, it is time to learn a set of rules, and it is time to stop talking to your neighbor. By emphasizing play, we are not saying that the principles of work are unimportant as Mihalyi Csikszentmihalyi (1997) states, "this playfulness doesn't go very far without its antithesis, a quality of doggedness, endurance, perseverance, and hard work." Together work and play can go hand in hand to create a fairly accurate model for innovation, a model that combines play and work or creativity and implementation. It is time to push back on the system and provide opportunities for unlearning those things that limit our creativity and to relearn those important attributes gained through the principles of play.

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2. The Metaphor

In this paper, the relationship of play to innovation is explored using the metaphor of "playing in the sandbox with friends". *Play* is an intrinsically motivated, immersive, [ambiguous], heuristic activity driven by curiosity and discovery, exploration and experimentation, and communicating and socializing (Elkind, 2008). The *sandbox* represents a creative environment, a time and place set aside for play, a place that stimulates ideas and promotes focus and collaboration while providing materials that help visualize, validate, and iterate ideas. *Friends* represent an open, safe, and collaborative relationship in which sharing, critiquing, and building ideas takes place. This metaphor of playing in the sandbox with friends helps to focus our discussion on the role creativity plays in innovation. While there are a variety of approaches to help us be more creative, one helpful approach is to remove barriers to creative thinking (Adams, 1974). These barriers fall into three domains: perceptual, *play* in the metaphor; environmental, *the sandbox* in the metaphor; and relational, *friends* in the metaphor. By focusing on the familiar idea of playing in the sandbox with friends, we are able to incorporate all three barrier categories.

3. How Innovation and Creativity Connect

The term *innovation* has its roots in the Latin word *novus*, which means "new," and is derived into the verb *in + novare*, which means "to make," giving *innovation* the meaning of "the act of making something new (*The American Heritage Dictionary* 2000). In general, "to make" is to implement—it is the realization of the idea. To be "new" requires creation. Leonard and Swap (1999) studied innovation in connection with creativity and found that innovation is the end result of a creative activity. Within this framework, they define *creativity* as "a process of developing and expressing novel ideas that are likely to be useful." (p. 3). This definition highlights the two of the hallmarks of creativity, first, the production of ideas that are new, novel, and unique, and second, these ideas must have value, be useful, and fulfill a need. Combining these two definitions, we arrive at a definition for innovation: "the successful implementation of creative ideas within an organization (Amabile, 1988)."

This paper focuses on the creative component that makes up innovation because we know work. Traditional public education focuses on the convergent thinking component of implementation; that is, a teacher provides problems to a class and students work using logical and evaluative thinking to critique and narrow ideas to the one best suited to the given situation. In other words, in school we were taught to find the single best correct answer to a standard problem in the shortest time (Cropley, 2006). As children, we used to know play as well. By nature, humans are born to play. Play is something we have all experienced and observed—an instinctive drive built into our nature to help us learn important skills for true survival (Gray, 2013). Playing is instinctive and is fundamental to our existence. Playing helps us survive and thrive by connecting us to other human beings and by creating energy and excitement within ourselves. Play is simultaneously a source of calmness and relaxation as well as a source of stimulation for the brain and body (Kemp, 2012).

We need play. The creativity aspect of innovation is discovering and defining a problem. Playing with multiple ideas and not taking any idea too seriously aims at "discovering" problems and understanding them by means of branching out, making unexpected associations, applying the known in unusual ways, and seeing unexpected implications (Lowery, 2007).

To be innovative, creativity (play) and implementation (work) are equally important (Csikszentmihalyi, 1997). There are numerous stories of creative ideas that were best implemented by someone other than the creator.

Bell laboratories were creative in developing the transistor, but Sony was innovative in its implementation into the transistor radio. Kodak developed the creative idea of digital photography, but Sony, Nikon, and Canon implemented it into successful digital cameras. Xerox invented the novel and useful mouse and GUI (graphical user interface), but Apple implemented them successfully into the Macintosh.

4. Creativity (Play)

There are numerous connections between the components of play and the attributes of creativity. *Play* is defined as a range of intrinsically motivated activities normally associated with pleasure and enjoyment (Garvey, 1990). Play is immersive (Garvey, 1990). Play is ambiguous (Sutton-Smith, 1997). Play is heuristic in nature in that there are little to no fixed rules, and if there are rules, they are often very fluid. Play is driven by curiosity and discovery, exploration and experimentation, and communication and socialization (Elkind, 2008).

Creativity is intrinsically motivated—the activity itself is its own reward—whereas work is usually an extrinsically motivated activity. If we can define task engagement for extrinsic reasons as "work" and task engagements for intrinsic reason as "play" it will be expected that states of highly creative activity will seem like play (Amabile, 1996). Creativity is immersive; Mihaly Csikszentmihalyi (1997) has studied creativity extensively and describes a flow state in the creative process that requires just the right balance of challenge and opportunity and compares this to play. Creativity is ambiguous; Vernon (1970) seemed to think that this [tolerance for ambiguity] was the most important trait for creative work. Creativity is heuristic in nature; it has no clear process and can be inhibited by rules and norms. Creativity is driven by curiosity, the desire to understand "Why?" How many times does a child ask that question? Children are naturally curious. And when do they stop asking that question? Research tells us this disappears about the fourth grade (Torrance, 1967). This is why, Neil Postman (1996) says, "Children enter school as question marks and leave as periods." (p. 53) Creativity is discovery. Woodrow Wilson said creativity is "seeing things with a fresh pair of eyes". William James (1907) described it as "perceiving in an un-habitual way." Creativity is exploration and experimentation. "The ability to relate and to connect, sometimes in odd yet striking fashion, lies at the very heart of any creative use of the mind" (Seidel, 1966). Arthur Koestler (1964) added that creativity "is the ability to make combinations of previously unrelated structures." Creativity offers opportunities to explore and experiment and fail with no repercussions. Creativity is communication. If you cannot persuade the world that you have a creative idea, how does the world know that you actually had it? It is impossible to separate creativity and persuasion—the two stand or fall together (Csikszentmihalyi, 1990). A man who can't communicate his ideas clearly is on the same plane as one who has no ideas (Pericles 429 BC). Creativity is socialization—learning to collaborate with others to explore ideas. Collaboration drives creativity because innovation always emerges from a series of sparks—never a single flash of insight (Sawyer, 2007).

Consistently in "kids against adults" activities like building a spaghetti and marshmallow tower or designing scribble robots, the kids win because they are willing to play. Kids are more adept at discovering, exploring, and experimenting without worrying about rules, failure, criticism, or looking foolish. "The kids were better at building the robots—faster and more effective—because they didn't have any inhabitations—they were willing [and know how] to play" (Wright, 2012).

5. Creativity (Play) Barriers

Perceptual blocks come from things we assimilate while growing up. People we've associated with and experiences we've had will help us to frame the world around us. We are taught to search for the one right answer, to focus on being logical, to avoid ambiguity, to be practical, and to view play as frivolous. Over time we develop thinking habits, which lead to stereotypic ways of thought and action (Davis, 1999).

6. Environment (Sandbox)

The sandbox represents a creative environment, a time and place set aside to play in, a place that stimulates ideas, promotes focus and collaboration, and provides materials that help visualize, validate, and iterate ideas. We can play anytime and anywhere, but an environment can be an important part in allowing play attributes to be expressed. There are many features of the sandbox, each supporting a different type of play activity. Creative play area includes the following conditions: *stimulation*, it is recognized as a place to play, where the mind is inspired or a thought process is triggered in some new way; *focus*, where a period of time is uninterrupted; and *collaboration*, where ideas are shared, compared, critiqued, and revised (Groves, 2010). A creative environment also provides materials for visualizing and making ideas concrete.

7. Spaces for Stimulation

Spaces that stimulate expose the mind to a variety of motivations, both planned and random, in order to encourage people to think differently. The environment can be used as a tool to communicate an attitude of exploration, discovery, and experimentation, and it can also provide materials to play with (Groves, 2010). It doesn't have to be an attractive place; many creative ideas have come out of a garage. The garage provides stimuli, a place to focus, and materials and tools to work with.

8. Spaces for Focus

John Cleese advocates creating an "oasis" away from the daily stresses (and interruptions) where your creative mind can safely come out and play, guarded by boundaries of space and boundaries of time (2009). Periods of focus coupled with time to relax and unwind set up the right conditions for brains to be creative (Groves, 2010).

9. Spaces for Collaboration

Spaces for collaboration are spaces where groups can work together, share, discuss, critique, and modify creative ideas. Creative spaces with a feeling of play open up lines of communication between people and help them try new things and sometimes just have fun. Because these spaces may be used for multiple activities, they require great versatility and configurability.

10. Spaces with Materials

Spaces with materials provide players with materials for experimentation, and the more versatile the materials, the better. This concept is shown by the experience of kids on Christmas morning playing more with the

box than with the toy. Why? The box gives them freedom to explore, discover, and experiment—things that the toy inside may not provide.

The materials used in innovation are used to make ideas concrete by providing a means to visualize those ideas. It helps the innovators understand the idea, gives them tools to communicate the idea to others, and enhances collaboration. These visualized ideas are called prototypes. The word *prototype* derives from the Greek *protos*, "first", and *typos*, "impression". These creative first impressions are both 2-D and 3-D and can include sketches, diagrams, videos, role-playing, storyboards, models, mock-ups, and simulations.

Prototypes are tools for exploring ideas, ways to clarify thinking; they help validate ideas, discover unexpected problems, explore alternatives, and make adjustments. Prototypes leave less room for misinterpretation; they give the team something tactile as a tool to understand experiences, behaviors, and perceptions. They can be used to get feedback, experiment with ideas, and sell ideas. First we shape our models, and then our models shape us (Schrage, 2000).

11. Environment (Sandbox) Barriers

Some blocks to creativity occur in our environment, the sandbox. There are cultural elements related to the environment that remind us that we must conform, fit in, follow the rules, do it this way, and work hard. Most of the time these notions give order to life, but we need to recognize them so that we can overcome these barriers when we need to. If you want to be creative, it is a good idea to go to a place where you feel less constrained by these environmental blocks.

12. Collaboration (Friends)

The metaphor uses the term *friends*, but not everyone we work with is a friend. *Friends* represent an open, safe, and collaborative relationship for sharing, critiquing, and building ideas with others. In creative collaboration, we need to have a trusting, open, and safe environment to allow ideas to be expressed—a friendly environment.

The idea of the lone creative genius has been the image of innovation for many years, but it generally doesn't exist. In reality, very few great ideas come from the lone genius in our innovation-driven world (Sawyer, 2007).

Collaboration helps creativity in four ways. First, collaboration provides different points of view, opportunities for unique combinations, and connections between ideas, marks of creativity. Second, collaborative feedback speeds up visualizing, validating, and iterating of ideas. Speed is the last great competitive advantage, and speed is enhanced by having people around who can validate whether the idea has value and can point out options or problems that help build the idea. Third, collaboration results in more associations and connections that can help push a good idea forward. Finally, teams can provide energy and help overcome resistance and discouragement.

The fear that people working together would lead to a design-by-committee approach—indeed, too much consensus would be the opposite of creative. This fear is certainly valid when looking to implement, but in creative collaboration, each person works together to stimulate the production of ideas, so there is no effort to achieve consensus.

One of the principles implied in the metaphor is that the playing is done without adult supervision. Research has shown that creativity is stifled by the expectation of evaluation and the introduction of extrinsic motivations, that is rewards (Amabile, 1996).

The chief executive officer of Yahoo, Marissa Mayer, has just ordered employees at her struggling internet company to stop working remotely and to resume daily face time at the office. It's seen as a step to boost innovation at Yahoo. In Mayer's widely talked about memo she wrote: "To become the absolute best place to work, communication and collaboration will be important, so we need to be working side-by-side. That is why it is critical that we are all present in our offices." (Kleinman, 2013)

13. Collaboration (Friend) Barriers

We are social beings, and community plays an important part in our development. Thinking that someone would find us ridiculous or foolish restricts our behavior. We fear making mistakes and failure because we are afraid of how we will be judged by others. We don't want to have our ideas criticized, even though feedback is very valuable (Oech, 2008). Authority figures wield a lot of power over us in defining how we act and think.

14. Summary

Most organizations recognize the need to stimulate creativity in their workforce since new and useful ideas can be highly profitable (Shalley, 2001). Innovation is important, so remember the phrase "playing in the sandbox with friends," which illustrates three keys to the creative side of the innovation model: creativity, environment, and collaboration. Add the work component (implementation) and you have a fairly complete model for innovation.

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