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Elements of a Theory for 'Play with Work'

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Abstract
Organizations have been interested in the prospects of innovating through play, and efforts are being made to introduce theories from the play literature into management. To further this agenda, we are interested in how the 'play at work' literature can be usefully extended to accommodate situations where organizational objectives may deviate from individual goals, and where work and play are not all that clearly delineated. This is particularly true of settings where uncertainty and technological flux exists, and there is the potential for substantial change in objectives. We study this with the case of an emergent setting of a virtual world, where an organization in the field of space exploration sought to explore the applications of virtual world technology. Such virtual worlds were of interest to organizations experimenting with social media, community engagement and even innovation. The organization did this by setting up a community to engage with volunteers on content creation and usage through play-work interactions. Our contribution is to illustrate how six dimensions, adapted from the play literature – the goal of the player, objective of the organization, choice given to the player, boundaries of play, rules of play, and form of play itself – can be used to explain the phenomena of how the work and play intermingled, then fragmented. Through the case, we have a better understanding of when and how it is that deeper forms of play – ones suited to invention – may take place, especially in emergent settings.

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ABSTRACT

Organizations have been interested in the prospects of innovating through play, and efforts are being made to introduce theories from the play literature into management. To further this agenda, we are interested in how the ‘play at work’ literature can be usefully extended to accommodate situations where organizational objectives may deviate from individual goals, and where work and play are not all that clearly delineated. This is particularly true of settings where uncertainty and technological flux exists, and there is the potential for substantial change or differences in objectives. We study this with the case of an emergent setting of a virtual world, where an organization in the field of space exploration sought to explore the applications of virtual world technology. Such virtual worlds were of interest to organizations experimenting with social media, community engagement and even innovation. The organization did this by setting up a community to engage with volunteers on content creation and usage through play-work interactions. Our contribution is to illustrate how six dimensions, adapted from the play literature – the goal of the player, objective of the organization, choice given to the player, boundaries of play, rules of play, and form of play itself - can be used to explain the phenomena of how the work and play intermingled, then fragmented. Through the case, we have a better understanding of when and how it is that deeper forms of play - ones suited to invention – may take place, especially in emergent settings.
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1. Introduction

Scholars have been interested in how play and playing might be useful or relevant for organizations. Some findings include how play can improve morale, boost creativity, or cultivate a reservoir of new ideas (Andriopoulos and Gotsi 2005; Mainemelis and Ronson 2006). The idea of play as being useful to work and invention is relatively new (Johnson 2016), and such play has come to be viewed favorably through innovative firms such as the IDEO (Hargadon and Sutton 1997, 1999; Johnson 2016), 3M (whose “free time” for employees to invent is famous), and in to invest effort in employees’ special projects, e.g. Google.

These studies have built on the extant study and theory of play, or ludology, to build our knowledge of how “play at work” matters. The premise is that play is separable from work, and therefore, can be analyzed in its own regard. Furthermore, there is an assumption that the goals of work and play are concomitant or consistent with one another. We address this gap with our argument and framework that we use to illustrate situations where play may not be efficacious (either for its own purposes or for work purposes), possibly due to alignment or other issues. In fact, there may not even be a solitary form of play involved. This is especially true in cases that are emergent, where work-play boundaries are porous, were technologies are fluid and highly integrative, and where individuals’ identities and intentions are less well-known. This may increasingly be the case as larger trends such as digitization, virtual worlds, ubiquitous computing, and gamification continue. Because of these variant possibilities, and the need to separate organizational and individual causes and effects, it is important to separate the organizational and individual levels, and that relying solely on the dimensions of play inherited from play studies is not sufficient to analyze practices in settings such as ours, where the boundaries between play and work are sometimes porous, and sometimes airtight.

Our research into the use of a virtual world by an innovative technical organization illustrates a different, emergent, kind of play-work interaction than seen in many past studies’. In our case, an organization dedicated to the exploration of space has created a community with external volunteers, SimLab, within a playful virtual world, for the exploration of an innovative new technology’s potential applications. This was especially focused on the virtual world’s (VW’s) chief activity: that of user-generated content. While the effort and community was initially cooperative, this eventually devolved into a few different forms intermingling play and work. We argue that this might be more appropriately denoted as a ‘play with work’ setting, in that the play was variously embedded in or enmeshed in work, sometimes co-occurring with the work (play in work), sometimes occurring apart from work.

Our major finding and contribution is that when we are examining play-at-work, we need to study at least six particular dimensions of play: how choice, rules, objectives, boundaries and personal goals. These are the dimensions that enable play or playfulness to occur. The seventh dimension is the actual form of play engaged in, which could range from banter to
creative content building (i.e. creation) to engagement in the community’s themed setting as a hobby. By describing how these enable play to exist “in work,” we aim to provide a theory of play with work robust enough to analyze such contexts when they occur, that is, all play-work outcomes (at least as seen in our data).

We apply these dimensions to teasing out the differences occurring at the individual and organizational levels, so that we can determine when and how play and work are intermingled. We are able to discern some patterns of how play adds to work, how play occurs (and whether it occurs, or manifests differently), and what implications this has for acts of invention and otherwise.

In part, the complexity of multiple play forms and types of interaction of work and play is caused by the virtual world setting that we investigate, which has a highly emergent quality. In the ongoing trend towards exploring open innovation (including competitions), open government and participatory work settings, this can be a useful setting and set of dimensions to help come to grips with a wider sense of what play is about or can mean. Many of these involve organizations exploring the potential of the technology, and when involving users and communities, are emergent as well. As such, they may have high affordances and could be highly engaging of users.

**Literature on Play and Related Themes**

Our study is informed by both the literatures on play and on ‘play at work’, and in fact, most of the concepts used to understand the relevance of play to work (Mainemelis et al 2010, Spraggon and Bodolica 2014), come directly from studies of play. (Huizinga 1955, Sutton-Smith 1997). In particular, in their seminal work relating play to work (including performance), Mainemelis and Ronson (2006) proposed that the behavioral orientation of play can be defined by five related elements: an entry into a separate world or region with its own unique operating rules (i.e. a threshold experience); the need for focused boundaries (e.g. periods of time and within spaces) (i.e., boundaries in time and space); accepting uncertainty in outcomes (i.e. uncertainty-freedom-constraint); the freedom to act within the established boundaries (i.e. a loose and flexible association between means and ends); and positive affect. At this early stage, much of the literature on play is qualitative, and empirical settings tend to evaluate a single form of play in a single setting (e.g. Kolb and Kolb [2010] investigating a softball game), or play enacted precisely (say, via projects) in work settings (e.g. Andriopoulos and Gotsi [2005] discussing the use of ‘design challenges’, or what might be deemed ‘moonshot challenges’).

What is interesting and potentially of interest to us is that play may be useful to invention because of its boundary-crossing capability (i.e., its ability to foster new connections across heretofore unconnected domains or elements of artifacts from separate domains) (Johnson 2016). Within innovation, this has been discussed as being about play as involving iterative and collaborative processes and technologies amongst engineers to make design changes and choices fluidly (Dodgson et al 2005, Ewenstein and Whyte 2009). However, in traditional innovation settings studied in the past, the idea that such play could be playful, and could aid in crossing new boundaries, is still lacking.
A context such as our virtual world setting of play within an innovative milieu, where an organization explores a new technology and its potential innovations together with a community, can be beneficial to further theorizing on this mechanism. This setting is an emergent one where play and work interact, in part because the organization’s intent to explore has to engage with individuals’ interests to play. The context is important, as it shows that the play is caused by (and even “exhibited” as) different motivations at the levels of the organization and the individual. This combination of organizational imperatives and the needs of players can cause manifold interactions. This suggests that another perspective to the existing literature’s view that play can lead to good, positive consequence.

The six dimensions that we focus on - choice, rules, objectives, and boundaries, as well as personal goals, as well as the forms of play - are similar to dimensions described in the play literature. However, we specifically and iteratively developed them to be useful for disaggregating the “play with work” (or various play-work interactions) in SimLab, these being the factors that affected and guided the play, and the various motivations for the play. In other words, this provides a greater degree of specificity, explaining why people come to participate in more open settings, how they might interact with organizations, and even how different forms of play may be the outcome, or may become affected.

We will next highlight some of the literature and earlier foundations from play that lie behind these dimensions.

**Boundaries**
What is arguably the primary element in the construct of play is that of the ‘play space’ (or region in our case) as being delineated by a ‘boundary’ (Huizinga 1955, Callois 1961, Mainemelis and Ronson, 2006). Play is traditionally seen to be the set of activities enacted in circumscribed areas or zones separated from reality so that players can experiment or otherwise play in safety. Huizinga (1955) refers to this as the magic circle, or a space circumscribed by boundaries that protect the sanctity of the play and the “world” (e.g., context, rules) that it involves. The boundary concept is already in Mainemelis and Ronson (2006), but also lends itself well to creating the “threshold experience” defined by them. In games as well, the notion of boundaries is thought to connect to risk-taking, as it makes the play “safe” from real world implications (and presumably, within organizations, also provides safe boundaries for engaging in “creative time”).

In the case of games and virtual worlds, the ‘world’ is the space circumscribed by the boundary, and the actions and rules that guide those actions within it. However, our case demonstrates that boundaries may not only be physical or time-limited, but could also be organizational boundaries, comprised of formal structures and social norms. As such, various types of boundary may affect the outcomes of creative play. When boundaries become diffuse, or motivations exist outside of those boundaries, then even more work-play interactions may be possible.

This may make it hard to ascertain the consequences of play for the organization, for individuals with their ulterior motives to play, and situations where these might conflict with other organizational interests and agendas.
Rules
Rules are essential in play, and are often seen in the study of games or pure play settings (Salen and Zimmerman 2003, Kolb and Kolb 2010), as well as childrens’ play, where, in order for play to be social, and coordinated, activities have to be guided. (As with rules, objectives are necessary in order to “operationalize playing”.) Conventionally, in games, rules are often part of the play and when followed closely, allow the players to construct strategies. Rules may also represent the properties of tokens in games, e.g. in chess then, the properties or rules are the moves a given piece can make. Importantly, in games, there are also procedures to facilitate “getting into the game” (e.g. players making moves in turn). For instance, in Kolb and Kolb (2010), there are rules of the game, but also procedural or meta-rules which operate outside of the game (e.g., who joins what team).

Rules are what offer the players structure, but in play, this also comes with uncertainty, afforded by other players’ strategies and reactions, or by the balance of agon (contesting) and paidia (playing) (Callois 1961), which many forms of play invoke. In fact, there are also forms of play that are less about contestation or balancing of tensions between the few goals. These include hobbies, frivolous play (Sutton-Smith 1997), and even cooperative games. Our study also illustrates this, as the case is as much about cooperation as it is about individual outcomes. As we will show, as work-play interactions take place, the types of rules that emerge or get exhibited become multifarious, including ones that facilitate work, more tightly coupled work-play activities, and just play.

Choice
Choice is also known as self-directed engagement (Mainemelis and Altman 2010). While it is not in the five dimensions cited by Mainemelis and Ronson (2006), it is indirectly tied to “freedom” and the “loose flexible association between means and ends”. Choice as we define it is tied to forms of play where higher concerns such as self-actualization are at stake, or where players have the volition to join in or to leave or reject (Kolb and Kolb 2010). In our context, choice involves the willingness to participate as well as the ability to make self-directed choices. Ultimate, the concept of choice helps us to differentiate between standard and higher level forms of play. Historically, in games, choices have historically been more limited, but the move from single-player games to multi-player ones also came with differentiated roles, including roles that involve taking less risks by playing, socializing and building and that are not about achievement (Bartle 1996). However, because our context is an emergent one consisting of volunteers, it is important to recognize the vital aspects of choice and free will that can underlie their engagement. Choice is also related to consent, as suggested by findings that consent is related to the positive effect of gamification at work (Mollick and Rothbard 2014).

Objectives and Goals
In our terminology, goals are associated more with individual participants in the play, while objectives have to do with the organization. In the play at work literature, objectives are more or less hidden as it is assumed to be a part of the organization’s intent, in that the organizations desire more efficacious work outcomes from the play. In the play literature,

1 In fact, this is a feature of more modern games as well, as recent games have provided choice as a means of customizing player experiences, as well as increasing the replayability of games.
goals are even broader and more diffuse, as they may be individual level aesthetics (pure pleasures of playing, such as seen in frivolous play), seen more in crafts and hobbies, social level ideals such as community bonding, or desire for individual progress (e.g. learning). (Sutton-Smith 1990). As we will see in our case, the organization’s enactment of a “play zone” and the resulting kinds of play or work-play activities can be conflated by its objectives, especially if the objectives are manifested in certain kinds of governance and even rules (i.e., organizational procedures).

**Forms of Play**
We have already noted that a variety of forms of play exist, including very self-efficacious hobbies. Other forms of play that can be expected to be seen if not are commonly seen in organizational environments may include lighter social play relating to social-competitive events (Kolb and Kolb 2010, Mainemelis and Altmann 2010), and traditional games played as part of exercises or organizational building (Mollick and Rothbard 2014, Mainemelis et al 2015) and videogames (Salen and Zimmerman 2003). However, these only comprise a subset of the range of forms of play. In our setting, we are fortunate to see not only social play and frivolity, but also (and mainly) creative (content) construction, which may range from a more prescriptive form to a more empowered form, hobbyist notions of engaging with themes, and finally, a lighter form of role-playing (some of these are derived from a comparison with Sutton-Smith [1997]).

2. **Methodology and Setting**

2.1. **The Setting**

Our setting is a virtual world that was created to enable user-created content. At the peak of the virtual world boom, many organizations became interested in the phenomena, in anticipation of the additional commerce or functionality that might have resulted (e.g. Dodgson et al., 2013; Au 2008). Many of these virtual worlds involved users manipulating a human avatar within a 3D environment that was game-like (Castronova 2008). Many like *Active Worlds, Second Life or There* allowed users to create content, and some would allow an economy where users could create content for sale.

The virtual world Simworld (true name hidden), was developed by Simworld’s developer at a time virtual worlds were becoming popular, and when much venture capital attention was being devoted to this new technology, the central idea being that the Internet could evolve via these new platforms to become an immersive, avatar-based, virtual 3D world, where users could view and manipulate information, amongst other things. Simworld was initially envisioned by its founders to be a collaborative virtual world dedicated to creating the content needed to populate the world within this vision. Initially, content was made free, but eventually, Simworld’s developer created an economic system with a virtual currency and various intellectual property rights, so that content developers (usually denizens of Simworld itself) could profit from their creation. It worked, as a legion of entrepreneurs came about, energized by the profits that could be made from their content creation.

Businesses and government agencies also started to explore the potential of virtual worlds for their own business. Some businesses were advised by advertising firms and VW
consultants to start creating islands or “regions” in Simworld, in manners much like they would put out websites on the Internet. Most of these failed, as they failed to grasp the fundamental difference in nature between Simworld and the Web. That its interactivity, 3D and avatar-based nature meant that people were not only online but expecting to do something with someone, i.e., to socially interact. The heavy interest in virtual worlds led Space Organization X [SOX] (true name hidden) in 2006 to experiment in Simworld by investing time and resources to create a volunteer community – one that SOX’s own employees were to become involved in. SOX’s was dedicated to the exploration of space, an activity that included the development of space craft. At this time, government and private settings alike were already starting to involve thoughts of engaging public participation, such as through open innovation competitions.

The story of the community’s beginning is in a way the story of the first part of the SOX organization to become involved in Simworld. At the time, ideas of Web 2.0, the next Internet and the high-tech organization of work were further reinforcing the thoughts of many that virtual work could be an even greater reality, and could take the form of collaborative work through virtual worlds). Space Organization X (SOX) started a community within one of the virtual worlds that was predicated on user generated content. The idea was to rely on volunteering directly from both the VW itself and to a lesser extent, the real world (RW), who were interested to participate in this exploration. Many volunteers had the requisite skills to do basic content creation (e.g. at the level of making the form of a launch vehicle, if not also the animating of it with the basic scripting language of the VW).

2.2. Methodology

The qualitative methodology we employed involved participant-observation and involved the retrieval of a substantial amount of archival data. We initially visited the virtual world and engaged with several communities, eventually settling on the SOX community. We engaged with several volunteers at the time, and visited the region multiple times, attending meetings, meeting volunteers to interview them, and visiting the spaces and content that was produced. We also visited four of the regions associated with the main SOX region. We eventually interviewed ten people associated with the region, about half being volunteers and half being SOX employees, half of them multiple times. We also interviewed several other informants in other regions, some of them related to SOX.

Our main source of data is a tranche of about 180 meeting transcripts of the weekly meetings, that ran over the five-year lifespan of the community from the mid 2000s to the late 2000s. We have analyzed and coded about 130 of these, including the most formative early (three) years, and have developed elements of our theory by iterating between theoretical concepts (including play, work, governance and community concepts), and data induction.

We analyze major projects, based on proposals in the meetings, followed up by updates and any completion stages or final outcomes. Most of the meetings involved a mix of reporting of activities including “events” such as lectures (including ones taking place outside of the community), reports of advertising of the community’s efforts by members, discussion of how leaders were being approached on the VW’s potential, and occasionally, projects that
were undertaken. There was also casual banter or discussions about the relevant information about the space theme (including real world “events”), but for the most part, meetings usually had a central focus on the projects, or the organization of the work-play activities.

3. Observations of Simlab Play and Play-Work Interactions

We will arrange our data in a timeline roughly corresponding to each of the years, and will focus first on year one, to illustrate the variety of phenomena that occurred, both in terms of the forms of play, as well as the various changes in governance and community participation.

Changes in Governance from Year One to Year Three
The Simlab sim and community was to meet and collaborate for about 5 years, until it was shut down by the removal of funding, essentially ending the experiment. At its peak, the community was to reach a few hundred members, although there were about 30 core members from both SOX and the volunteers. A much larger number were occasional, or came for a few of the weekly meetings.

Different parts of SOX took turns leading the effort in the VW, with the initiative started by SOXA, which held the leadership for over a year. This was followed for a short while by a program manager from SOXB, then one from SOXC. Each organization governed Simlab slightly differently, and as a consequence, shifted the nature of SOX’s interactions with the community, and the nature of SOX’s participation. In fact, each organization that came onto Simworld, actually recreated its real world functions, either in content form, or in trying to extend the real world functional expertise of its organization via the VW.

The first phase of engagement involved SOX’s employees meeting with representatives of other science and technology related organizations with regions in Simworld to gain their help and advice in planning the SOX region in Simworld. This took place before the first year. Virtual land (for building a presence) had to be rented from Simworld’s developer, and SOX employees acquired a budget from one of the centers to fund this exploratory effort in Simworld. The plan at the time was to reach out to the engineering personnel in SOXA’s center at the same time, to demonstrate the virtual world technology’s applications to their work, including virtual conferencing and data visualization (e.g. representing planetary data for scientific purposes). Initially, the idea was to rely on volunteers for building the virtual content and “presence” in Simworld, so that the virtual facility could be seen to be “live” and “participatory”.

In the next few sections we highlight the key differences that affected the volunteers’ play by causing them to try to play outside of the core SOX areas, even as they continued to maintain a presence in SOX (usually by attending meetings or the odd events – usually live lectures at SOXC, which had been set up as an education hub for SOX).
3.1. Governance and Changing Objectives Fragmenting the Community’s Play

The key phenomena that we wish to point out is that the community was losing its ability to cooperate effectively on work and play. This had as much to do with the various SOX’s instrumental needs to get “work done” (even if it was in the “play world” that Simworld was), as it was due to the volunteers’ desires to “play effectively”. The volunteers’ play in SOX and their own regions usually took the form of hobbyist play, e.g. engaging in discussions on space, while their content creation usually.

Governance and Content Strategy in the First Year

The team to initiate and be the first managers of the SOX presence (especially for years one and two) was from SOXA. (We have added events from the two months in the previous calendar year into the first year). Much of the activities took place on their ‘region’ or land parcel (SOXA, which was to become the first and central for SOX activity). The region itself was about the size of a small university campus.

In the first year, the mood in the community at this early time was decidedly enthusiastic and cooperative. There was a weekly governance mechanism, where SOX employees or trusted volunteers were called on to run the meetings on SOXA. Many of the early meetings went into planning organizational systems for work, including which software platforms to use, a proposal process, and the design for the main region, including the meeting facilities, the landscaping, and what was being proposed by volunteers, to be one of the first pieces of demonstration content for the subregions.

The first table illustrates most of the key activities of the first year. Most of the activities took place on the main SOX region, SOXA (including all of the meetings), but eventually, more and more took place on other SOX and volunteer regions (SOXB and SOXC, and VOL-Society and VOL-Frontier respectively). In succeeding years, governance was characterized by the various SOX organizations increasingly running the community with instrumental (work) reasons in mind, and doing what it wanted, with or without the volunteers’ help.

A particularly different project was SOXC’s proposal for an entire role-playing game to be made apart from Simworld. This indicated the limitations that SOXC already viewed Simworld to have, but also showed a lack of interest to experiment in Simworld with the same idea. In contrast, the volunteers themselves sought to organize a role-playing simulation by leveraging on their already made community-made content.

Changes in Governance and Content Strategy in Later Years

As can be seen from the second half of the year in Table 1, the content strategy employed by the first program management team from SOXA was already changing half way through year one, and different organizations, and volunteers with the help of NGOs were creating new regions (VOL-Frontier, VOL-Society) and investing more and more time in their own regions rather than in SOXA. Even later SOX organizations to join (e.g. SOXC, SOXD) also started working with content internally using staff hired for this purpose or contracting, and relied less and less on volunteers.
Over the next two years, changes appeared to move in the same direction. The community matured, but also underwent two program leadership changes. In particular, the third program manager, the SOXB lead, had a different way of managing content – he would only work with volunteers who took specific orders to make specific types of content (often associated with SOXB’s historic achievements). He had already hinted of his approach to content when handling volunteers in his own region, SOXB (which was acquired part way through year one). When he took over the SOXA central region in year three, he also altered the governance of the region to be more structured and top-down.

As a result of all of these, volunteers could be seen to be playing more and more on their own in their own regions while the first region – SOXA - became more of a coordination point, e.g. for meetings to mainly discuss what was going on in the different regions, although there were occasional proposals for new content (many of the publicly mooted ones did not appear to go anywhere). It also became an area for holding some content (approved by the SOXB program manager) over the long run, and became more like the SOXB region: a ‘content museum’ as it were.

The tables show the key events (i.e. activities) coded for the first three years, which are usually substantive projects. Because volunteer’s own play projects were given shorter shift in the meetings (which were essentially SOXA meetings), we interpreted any mention of a volunteer project to be more significant than it would have seemed in the transcript.

A key indicator is the last column, which shows the degree of cooperation in the community between the volunteers and SOX. The difference between the first part of the year (roughly the first half) and the second part is fairly stark, once SOX gains its footing and starts asserting itself.

[INSERT TABLE 1]

Years two and three show the continued separation of volunteers’ play and work. To the extent they “work” for SOX, it is usually under a tight regime (e.g. SOXB’s lead), or it involves marginal participation, such as in events, which are some of the most interesting activities to the volunteers. In both years, the number of participatory projects between SOX and the volunteers is almost nil, with the exception of certain large infrastructural facilities, that appear to be needed on SOX.

Year three saw similar changes. Under the new program manager, certain volunteers received approval for their content project proposals. These were usually approved according to a certain aesthetic, e.g. were “useful” buildings. On the whole, however, as shown by the lack of volunteer engagement (see last column of both tables 2 and 3), not as many innovative, volunteer-led projects appear to have been proposed, or accepted. It appears that most of the volunteer’s content experimentation are now located in other regions, typically ones more open to the sort of variety volunteers are experimenting with.

Other projects were not supported – At least one project proposed by Vol-F - an event based on an astronomical phenomena, could have received attention, but was not hosted,
in part because of serious concerns by one member that the member’s building – an important part of the region – might be damaged.

[INSERT TABLE 2]

[INSERT TABLE 3]

The tables show significant “events” (activities and changes) in the community’s life, with the content creation activities in bold. Four categories of play:

3.2. Key Categories of Play Observed

This section describes each category of play as seen on Simlab and in its associated regions. The forms of play that were seen in Simlab ranged from lighter events (ranging from intensive ones requiring preparation, to lectures) and social banter during meetings to more serious building (content creation) play. Where feasible, we explain how the form of play evolved across the first three years.

Content Creation Play

The most interesting form of play in Simworld was that of content creation, the opportunity to create after one’s own imagination being what attracted most of the advanced users to Simworld in the first place. Early on, building play took place on Simlab under the auspices of a collaborative community content creation initiative, especially for the creation of a work space (essentially, a building with meeting rooms) (#4). The first project was presumably set as such so that the community could advertise itself as a “lived-in” community – that is, one with avatars showing themselves to be moving around and interacting with the content. Volunteers from the wider community, including expert builders, contributed the majority of the “large” content. At least two particularly significant volunteer efforts depicted engineering systems and habitats for living in outer space, but after allowing this on SOXA for part of the first year, the leadership eventually asked for the larger one to be moved. It was eventually housed on VOL-Society’s region, where the volunteers continued to work on it.

As time wore on, the content creation became more strategic, and eventually, decisions were made by SOX. During the first year, it was already clear that volunteers and SOX had different projects in mind. SOX-dictated projects were first proposed to the community, but the volunteers argued that they were too complex and were infeasible, and anyway, they had their own projects. SOXA eventually hired their own content creator to handle two of the proposed demonstration projects (#7, 8). The volunteers who participated earlier on also moved away to build their own projects on their own lands (#9), often acquired by non-profit organizations they were affiliated with, starting at around the middle of the first year. This included the moving of the first content piece they had created for SOX as a demo piece (#3), which they continued to work on long after it had left SOX’s land. It did appear that the volunteers were generally more willing to invest time in simpler projects for SOX, such as the outfitting of the first building.
Content Creation: Procedural Rules in Aid of Changed Objectives

This could be described as a situation of more procedural rules being applied or instituted, along with more resources being acquired by SOX to meet the new tasks desired by internal means. In the second and third years, various regions of SOX began to initiate more internal projects, and while few volunteer projects were proposed for the primary SOXa region. The latter tended to be discrete objects that could be done by one individual (many of these are not listed in the table). In some cases, the individual would have made the content in another sim, and might have been allowed to exhibit it in SOX. This makes the play less organic and more transactional.

Despite content being one of primary reasons for the community, at least from the meeting transcripts (where proposed projects were usually mooted in the meeting’s agendas), content projects appeared to be fewer and fewer in-between, especially from the second year onwards. There were also storage constraints on content, which was making it difficult to accommodate new content.

Banter or Light Word Play

The banter continued for Simlab’s existence, except for periods of tension, such as when there was uncertainty in year 3 over the fate of the program, and when in year 3, there was a change in program managers; also, at the occasional times when individuals (mostly volunteers) would become concerned and would voice displeasure with the management of the community or bureaucracy of SOX.

Events: Playful vs. Serious

One lead volunteer noted to us that one of the favorite activities of volunteers was events. There were at least three categories of events. Just a few months after the island’s initiation, the first SOX event (and arguably the largest “live event” of the five-year life of the community) was initiated by SOX, to coincide with a real world celebratory event (#5). This brought a core group of volunteers (including a few SOX employees) together to work (mostly by themselves) on creating the content in the region. This was to span a few of the associated regions as well, which were cooperating in lending “space” for the event. This was linked up with the real-world event as a mixed-reality event, and was eventually deemed to be a huge success. Much creative energy went into this event, as attested to by the substantial archival images, including the planning, building and installing of the virtual event space, of a list of “live” virtual events such as music, and the galleries of space imagery and art. While the real-world event itself was managed by SOX, they left the VW event in the hands of volunteers (with a SOX representative being on the content creation group).

In year two, a second run of the same playful event was run. In general, because this event was basically a big party, the music and other creative exhibits were in synch with the event’s popularity.

Some more serious space conferences (at least three of them in years one and two) were hosted at SOX and did not involve SimLab much, but other, serious conferences were also run by SOX for engaging the volunteers with real world events and their audiences. The challenges of doing a real world to virtual world event became more apparent when the
real-world event was a serious one, and there was a non-selective group on the virtual world end. In the case of one such event in the second year, the cognitive dissonance between “creative” and “serious” became at odds: 

*we can deal with clearly unruly walk ins, but the rocket [an organizer] referred to was lit on multiple occasions [by a Simlab VW staff], who had no idea it was distracting in the context of a time-short intensive mixed-reality communication stream.*

(archival report)

Thus, for a serious mixed-reality conference, it appears that the aesthetics of the regions needed to be as close to the real-world event’s aesthetics.2 Another report on the series of mixed-reality events suggested that learning was occurring across events.

The third and last type of event was the scientific lecture, usually about space topics (often run regularly on SOXC, as that region focused on education and outreach). Most of these were mixed reality events in that there was an actual conference going on and it was video-fed into the SimLab (usually SOXA), or there was a real scientist lecturing to the audience in a SimLab-affiliated region (usually SOXC).

Interestingly, in many internal situations, SOX was seen to be very focused on applications of virtual worlds, but without any of the playfulness.3 It became apparent that any applications to participatory innovation were not going to be tied into the lighter sorts of “fun” that the weekly meetings in SimLab experienced. It would appear that engineers in the organization treated their jobs as either mission-critical, or professional, and did not see how games could benefit them. This was confirmed in several places whenever discussing how engineers viewed VWs (two interviews of our own, and at least three examples from meetings: once, when the SOXB lead referred to his having to close his office door; once when volunteers talked about how they had to worry about engineers being “on-boarded” (i.e., brought into, including being given an avatar) to SimWorld so that they did not see the more playful (and less relevant to their work) aspects of the world; and a third when a virtual worlds pioneer addressing the community talked about how the engineers would view SimWorld in concrete performance terms.)

### 3.3. Tensions between Organizational Objectives and Individual Play (Choice)

We have highlighted the tension (that increased as time progressed) between the organizational objectives of SOX and the need for freedom of choice by the volunteers interested in content creation and experimentation. As SOX became more instrumental, rules were applied or shaped in favor of those objectives.

**Playing Alone for Imaginative Play and Invention in VOL Regions**

As a result of the volunteers’ desire to exercise freedom of choice, and to create content, that they had to play separately on their own regions, and not within SOX. This brings up the

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2 In another conference held at SOXB’s real world facility, one of the volunteers was invited to give a talk to the real world conference using his avatar form, and it was not only not jarring, but well organized and demonstrative of the point (that there was value in virtual worlds for conferencing, etc.).

3 For instance, for three of the events, including the above one at SOXB and two earlier ones in SOXA in year one and before (year zero), the discussion of virtual worlds was very serious, and
last remaining issue – that of the boundary. In the SimLab community, because of the physical nature of the content, the boundary was both geographical and socio-organizational. The volunteers needed to create different regions in order to separate themselves in order to enact certain forms of play effectively, often with like-minded community members. Vol-F set up her own region to promote her and others’ experimentations and learnings. The schedule for that region shows that a number of classes had been scheduled to “learn” from more expert builders. VOL-Society was set up by a group from SimLab with an interest to pursue their ideas jointly, and after moving their planetary habitat from SOXA to VOL-Society, they started having other ideas, such as the idea to perform some role-playing. Of course, without an audience, or some idea of how the play was to conclude, it would have been hard to sustain the idea. A third example occurred in the second year. Vol-T, together with a team, created his own exhibit based on a historically important topic, and located it in another sim. These experiments involved the past and future, and blended content with other, different, play forms. They showed a willingness and ability to invent, experiment, and learn.

To some degree, the building play that took place in SOX was of the “curated museum content” variety, and some of the volunteers actually espoused a different one, which we term the “ceaseless building” mentality. This was critical to understanding their behavior, as they tended to view content as being part of one big experimental setting, and they would often propose unusual content variety.

3.4. Tensions Between Serious Work vs. Inventive Play in SOX Regions

A second, major, tension at the nexus of work and play was that between the choice to make content that was realistic, serious and mission-critical (e.g., representative of history), versus the choice to make content that was playful, architecturally improbable, and even ill-fitted (to either the space theme, or SOX’s mission). This tension was seen in the proposals for content designs for SimLab, and was resolved in different fashions, depending on the governance form (and whether organizational objectives were overriding individual goals), and on whether the community was involved in that governance.

In one example in year one, content such as the first building (containing meeting spaces), involved futuristic architecture but was still allowed (being based on a vision of the future). Another facility was even more improbable, and resembled a solar system object. Most of these buildings took place under SOXA’s leadership and were made by various volunteers, including experts called in to build the first building.

This tension was later resolved in a different direction under SOXB’s lead’s program leadership of SimLab. In the first year, under his leadership, his own region (SOXB) in effect became a “museum” of artifacts associated with SOXB’s past and present. Some volunteers also took on building work for SOX under much stricter controls, such as the building of content for SOX on one of its regions. He noted in an interview that he had specified the content, and that he left volunteers with limited choice in matters, in part because he was guided by particular interests (and possible, aesthetics). SOXB’s lead’s vision of a play space was to duplicate much of SOX’s content, much as one would in a museum. He was keenly aware of the need to impress his superiors and show them that the VW was not simply “a
game”. As part of this, in year three, he reported having successfully demonstrated internally that there was value in Simworld more generally, when his internal (to SOXB) project illustrated how prototyping (i.e., mock-up) real-world facilities in 3D in Simworld could help avoid costly design errors when the actual design was implemented. This project was only announced when he had completed it, so there was no community participation.

Another incident that indicated the nature of this tension was the dissonance exhibited in a mixed-reality conference, where a serious brainstorm in the real world had to interact with the SimWorld participants onscreen, but found them to have “unprofessional attire...It was distracting to see people (in unusual clothes and avatars) dancing around.” (archival report). It was admitted later in the report that rules would have to be imposed on future like events, if they were to be successfully made.

With regards to the miscellaneous content that was ill-fitted to the theme, it also became clear that SOX or the community was not going to tolerate unusual content (#11). One creator who had created unusual space content in the sandbox was the subject of discussion by the community. His content was deemed inappropriate on a moral front, as it did not follow from “peaceful uses of space”.

In conclusion, we argue that this set of tensions revolves around different individual, social and organizational imaginations coming together, but that they involve blurring the boundaries between the worlds these visions are derived from. They are resolved in strong-armed, that is, by applying rules, and possibly by means of negotiation. Thus, the boundaries and choice (of what to make) are at issue, and rules offer one means of mediation.

4. The Play Construct and its Dimensions

We have summarized some of the main effects of the five dimensions on the rows in table 4, along with how they apply to certain aspects of the fifth dimension – the form of play - in the last column. We will highlight some of the major incidents in the data that have more specific ramifications on each of the dimensions next.

[INSERT TABLE 4]

We predicate our analysis of the “play space” on the following set of elements of play, which loosely correspond to Mainemelis and Ronson’s (2006) dimensions: a sense of the boundaries that demarcate the play space, the rules, objective (of the play), goals (of the player), and choice. This construct was iteratively developed by considering the data in relation to not only the literature on play and management literature on play (e.g. Mainemelis and Ronson, 2006), but also the games literature (e.g. Salen and Zimmerman 2003). Through iteration, the set of elements was fitted to the task of defining play with work settings.

Rules
What we can see from the data is that from early on, on Simlab’s own sim, all along, “procedural” rules were being created to facilitate a more orderly content creation process.
(column 1). In particular, procedures were used to facilitate proposals for content, and rules were applied to deciding on what contents were fitted (SOXA in particular). In a broader sense, such rules could be defined to be enabling, rather than constraining in nature. However, later, the same rules could have been exercised more stringently had more specific “SOX needs” been the criteria, as was the case in year three onwards. Other procedures and rules were also put in place by the program manager and coordinators (including volunteers) to “have a procedure” and sometimes “to have a procedure to deal with chaos”, e.g. cleaning rules to clean content in space or in the sandbox area that was a public area for creating content (and rules to temporarily ban a wayward content creator).

Some rules were imposed by the organization’s existing rules, e.g. use of the organization’s logos by volunteers was forbidden, which fractured the sense of community. These rules made clear the organizational boundaries that could not be crossed by volunteer members (who would have liked to have been affiliated with the organization for status purposes). Rules then, were used to construct an organizational boundary that was negative towards role-playing.

In our context, rules were shown to be important so far as structuring the work and play, as well as to act as selection mechanisms for the organization (in choosing which content to allow). In the more open-ended form of play engaged in by Simlab, we observed rules imposed by the VW relating to content (e.g. ownership rights, and who is “allowed to create what”), as well as more mundane procedural rules that organizers use to coordinate, or that volunteers use for self-coordination.4

**Boundaries**

Boundaries are perhaps the most significant aspect of play (e.g., as reified in the concept of the ‘magic circle’). In conventional games, the boundary extends around the “board” or space of play, in order to seal off the field of play, in effect creating the “threshold experience” described by Mainemelis and Ronson (2006). In virtual worlds that admit various individuals and intentions (which we term “goals”), that do not have well-defined rules of play, institutions and individuals with a work logic could criss-cross across these play zones, and as a result, the boundaries get diffuse. Also, individuals’ play would be shaped by other goals outside of the play zone. In our data, the boundary is denoted by the geographic space of play, such as the “sim”, and the organizational entity which “owns” the geographic space and sponsors the play and any “work” to take place. Thus, the classic candidates are the original Simlab sim, other SOX regions such as SOXB and SOXC (themed after exploration and education respectively), and non-SOX ones that spun off from Simlab: Vol-F’s region VOL-Frontier, and the VOL-Society region – both funded by NGOs. As our data showed, the private regions were the ones supporting play less restrained by topics. Thus, three kinds of boundaries exist: spatial (geographic) ones that separate the play areas (typically belonging to each organization), organizational (which in this case was differentiated between the

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4 Rules were also used to “clamp down” in topics that were deemed “not appropriate”, but they were more often used procedurally (e.g. as part of the proposal vetting process) as opposed to the banning action discussed against the one wayward creator in year one.
formal (SOX) and the informal), and the theme (where the spatial boundaries are associated with organizational and thematic [e.g. what is to be allowed under the theme]).

The strongest effect comes from the organizational boundary, since if SOX had allowed wider forms of play, they could have had more interesting outcomes. However, because of the number of potentially ridiculous topics that could have been allowed, in this public sort of space, unwanted attention could have come in the media, and the organization could have come under criticism. This was already in the minds of SOXB’s lead, as he alluded to his worry that a boss might “wander by” and think that he was playing a game. Because of all this conflation at the organizational level, spatial-organizational boundaries, and possibly, more discrete boundaries on the play, would have been necessary for the community to be at ease playing. Given the presence of a real-world organization, it is really quite a different situation, unlike those of communities of play in game-like virtual worlds.

Objectives and Goals
We differentiate objectives from goals, since objectives are the objectives of the area of play, while goals relate to the personal goals of the player (in engaging with VWs, Simlab and the type of play at hand). While Ronson and Mainemelis (2006) refer to means and ends, and positive affect, these presumably being the goals of play, there is a wide variation of this. We found that in admitting real world organizations with their own purposes (objectives), there are already organizational-level effects that can interact with or affect personal goals of play. In addition, many individuals are seeking to learn as part of their “play”, so the interaction between personal and organizational levels, and the potential for them to be at cross-purposes, are further compounded. In part, this was caused by the organization being uncertain about what they wanted of the volunteers (or their capability), and what the volunteers being uncertain of what they wanted of the organization (due to the early stage).

Objectives of building on Simlab’s sim were directly dictated by SOX’s needs, or perceived needs. Foremost amongst these were (the instigating organization SOXA’s) stated need to explore the technology’s potential for participation, but these were often perceived to require the impressing of the leadership and engaging of engineers, on the potential of VW. Because these organizational objectives being imposed on Simlab’s play-work space, they imbalanced the work-space balance. For instance, SOXA’s notion of exploration was to make direct extensions of existing technological work and functions (e.g. seeing how SimWorld could be used to help engineers and scientists communicate, instead of videoconferencing). Further, they treated volunteer content as “for show”, and not because they prided sheer creative invention. This caused a fracture with the volunteers, given that the latter’s personal goals were very different from these organizational objectives.

Choice
Choice may have been an assumption in forms of play, since it is presumed that players may get to decide whether to “join a game”. Further, once within the boundary, the player’s

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5. Which in this case, was space (as in space flight or space exploration), so generally, non-scientifically based topics were not admitted, unless it was simply for personal adornment, e.g. the avatar’s clothes.)
choice in games might be amongst prescribed ones, e.g. what character the player wanted to play (most games being about the decision-making during play).\(^6\)

In Simworld, more open ended forms of play were allowed, such as content creation, and the more creative of these required players to have their choice of topics (types of content to build). Choice was fundamental to determining whether the volunteers played with the organization, as in building-type play in the early years, volunteers preferred to work on their own projects, rather than on SOX’s. In other SOX regions, regions were created for SOX’s private use (and were only made available after the content projects were completed). Thus, a lack of choice was also caused by SimLab’s organizational imperative, and “project selection” rules. As noted, this led to volunteers building elsewhere in private.

Choice also has the potential to engender conflict amongst individuals, when the content is not merely content, but interacts in the field of play with other players’ content. For instance, Vol-F had a proposal for an astronomical “event”, which Vol-A was concerned would damage if not destroy her main structure – a building that she was purposing for SimLab as a “useful” building (and that represented her real-world interests). (This also involves rules, as rules are then useful for mediating or solving conflicts).

The desire for choice relates to the player’s personal goals, as a number of volunteers were expressing an interest in learning about the technology and its possibilities. In Simlab, the volunteers who “left” or produced their most innovative content elsewhere did so because the separate, private, play zones allowed this or encouraged it (as opposed to Simlab, where content was typically only sanctioned when it was “SOX- or current space-related”). Thus, choice also relates to boundaries, and deeper forms of play: that is, this creative, experimental building type of play is taking place in separate zones that “protect” the sanctity of the player’s choices (e.g. what to make).\(^7\) The closest concept referred to in Mainemelis and Ronson (2006) that this refers to is the uncertainty-freedom-constraint aspect of play, but it does not cover our case of an organization trying to enforce its particular conceptions of play over the more overtly creative play of individuals.

**Summary**

From this summary, we can see that the six dimensions (including the form of play) can transcribe most of the major incidents and changes as the organization moved towards instrumentality, and as the play fragmented. Some implications are also suggested for maintaining the most critical forms of play (those for inventive purposes). One is to maintain a sense of community. One dimension which we removed, which may have helped, was that of the volunteer member’s “role”. While community roles were assigned by SOX to volunteers, had increased role responsibilities been given to volunteers over time, the sense

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\(^6\) Many games now worry not only about giving the player a single path to an objective, and more about one’s choice of path to achieving the objective. For instance, some players may choose a path with more combat, while others choose one that involves less. In virtual worlds, choice has even more meaning. The notion of choice is also becoming an important issue in game, and has deeper meaning.

\(^7\) Creative play such as building (to express experimental interests) required players to have the choice of what to build. Such players were typically experimenting for their own sake – to learn skills about VW technology and its applicability (e.g. its content creation tools). There were multiple instances early on indicated that volunteers already had other projects in mind or that they wished to work on, and one volunteer and an organization set up their own regions in order to do just that (Vol-F’s VOL-Frontier, and VOL-Society).
of cohesion and participation, and even a mitigating influence on SOX’s instrumentality, might have resulted. But this assumes that SOX would have been willing to adapt and to co-invent the place space.

5. Conclusions

In conclusion, we have shown how the six dimensions help us to better understand the outcomes of play and work interactions, especially as organizational objectives start to deviate from individual goals within the community. In particular, to play inventively requires facilitating and not inhibiting rules, freedom of choice, and boundaries to protect the inventor’s play. That is, rules need to facilitate experimentation. Eventually, the volunteers segregated themselves to conduct their own explorative play, and when SimLab continued to explore in its own way (which involved mimicking what it did in the real world as virtual world content, or extending the virtual world as a straightforward application of its organizational functions).

These different dimensions occur in an associated, tangled way in Simworld, in part because of how the organization chose to “play” – loosely at first, then instrumentally with its own, and not the broader community’s own, objectives in mind. This was understandable, of course, given the challenges the organization faced in demonstrating the value of the technology to skeptical line employees (e.g. engineers).

We also show that different types of boundaries are created (new regional, organizational and thematic boundaries), especially whenever play needs to take place outside of the immediate (Simlab) community and its rules. This is especially important if individuals have more ambitious personal goals, like learning and experimenting to learn. We show that as work becomes instrumental, choice tends to be removed, rules are put in place, and certain forms of play, or work, are enacted (e.g. less contentious types of events). Finally, we show that choice is important for creative play, but these can result in edgy outcomes that are too risky for an organization to undertake. Furthermore, there are disjunctions that occur, whenever serious events from the real world are brought into a mixed reality setting with players playing in a different “world” of content, so to speak. Rules then are needed to ensure that the events are carried out successfully.

We have shown that the various dimensions of play can be operationalized, and even used to give meaning to the types of outcome seen in a joint work-play setting. Our plan is to explore how these dimensions can better comprise a theory.

References


Table 1. Key Activities in the SOX Region for Year One (bold ‘events’ denote actual content projects)

<table>
<thead>
<tr>
<th>Events</th>
<th>Instigators</th>
<th>Community response/Contributors</th>
<th>Final outcome</th>
<th>Volunteer-SOX Content Cooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>First part of year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Acquisition of space (region) to host SOX volunteer community</td>
<td>SOXA with lead volunteers’ help</td>
<td>-</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>2. Creation of committee, rules</td>
<td>SOXA/lead volunteers jointly</td>
<td>-</td>
<td>SOX management (SOXA lead)</td>
<td>Yes</td>
</tr>
<tr>
<td>3. Various projects (at least 3, e.g. earth, astronomical artifact, housing habitat)</td>
<td>Volunteers</td>
<td>Volunteers</td>
<td>Early projects hosted on SOXA region (one project later moved to VOL-Society region at SOX’s request)</td>
<td>Yes</td>
</tr>
<tr>
<td>4. Building for meetings</td>
<td>SOXA, volunteers</td>
<td>Volunteers (experts from outside of the community)</td>
<td>Removed by SOXB manager in year 3 (to chagrin of volunteers)</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Celebratory event</td>
<td>SOXA</td>
<td>Volunteers</td>
<td>Second of the same event series planned for second year</td>
<td>Yes</td>
</tr>
<tr>
<td>6. Assistance to other organizations entering</td>
<td>SOX/volunteers</td>
<td>Volunteers</td>
<td>Continues strongly in year 1, 2</td>
<td>Yes</td>
</tr>
<tr>
<td>Second part of year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. (SOX Demonstration content) astronomical artifact (using real data)</td>
<td>SOXA</td>
<td>SOX personnel</td>
<td>Located on SOXA region</td>
<td>No (minimal, internal to SOX)</td>
</tr>
<tr>
<td>8. (SOX Demonstration content) spacecraft artifact</td>
<td>SOXA</td>
<td>SOX personnel</td>
<td>Located on SOXB region</td>
<td>No (minimal, internal to SOX)</td>
</tr>
<tr>
<td>9. SOXB acquires region (SOXB)</td>
<td>SOXB</td>
<td></td>
<td>SOXB lead starts requesting content from volunteers willing to take specific orders</td>
<td>Some (only volunteers willing to take orders)</td>
</tr>
<tr>
<td>10. Volunteers acquiring own land for own play (VOL-Society and VOL-Frontier)</td>
<td>Volunteers</td>
<td>NGO funding</td>
<td>Continue to play more experimentally on land (including movement of first content project #7 to new VOL-Society)</td>
<td>No</td>
</tr>
<tr>
<td>11. Discussions over ‘free creation zone’ policy</td>
<td>Volunteers (policing the zone)</td>
<td>-</td>
<td>Sanction of “wayward” creator (for violating content norms)</td>
<td>Yes (only to sanction creator)</td>
</tr>
<tr>
<td>12. SOXA’s real-world conference on VW tech</td>
<td>SOXA (at its actual facilities)</td>
<td>Volunteers excluded</td>
<td>SOX series of conferences (year 0 to 2)</td>
<td>No</td>
</tr>
<tr>
<td>13. Conference link from SOX/community to real world conference</td>
<td>Real world non-profit</td>
<td>Volunteers contributing content</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>
Table 2. Key Activities in the SOX Region for Year Two

<table>
<thead>
<tr>
<th>Events</th>
<th>Instigators</th>
<th>Community response /Contributors</th>
<th>Final outcome</th>
<th>Volunteer-SOX Content Cooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>New content proposals, e.g. Vol-F proposing</td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Discussion of failures to bring engineers into Simlab</td>
<td>Various SOXA and VOL members</td>
<td>Volunteers offer help to SOX</td>
<td>Proposal for easier onboarding process; certain obstacles unavoidable</td>
<td>No</td>
</tr>
<tr>
<td>Vol-F reporting content (various) on her region</td>
<td>Vol-F</td>
<td></td>
<td>Vol-F region activity (report)</td>
<td>No</td>
</tr>
<tr>
<td>Volunteer proposals (various)</td>
<td></td>
<td>No take up reported in meetings (some appeared on Simlab)</td>
<td>No action</td>
<td></td>
</tr>
<tr>
<td>Vol-P request for help for role-play with content</td>
<td>Volunteers unclear</td>
<td>To occur on VOL-Society region</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Advertising by SOX, vols of Simworld to real world (multiple)</td>
<td></td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Events planned, hosted (multiple)</td>
<td>Various SOX</td>
<td>Various SOX regions (SOXC for lectures and videos), some hosted elsewhere</td>
<td>No (volunteers merely attend lectures, some social interaction)</td>
<td></td>
</tr>
<tr>
<td>SOX organizes welcoming group for volunteer participation</td>
<td>SOXA</td>
<td>Volunteers help</td>
<td>N/A (no content involved)</td>
<td></td>
</tr>
<tr>
<td>Brainstorming together with real world event (mixed-reality experiment)</td>
<td>SOX</td>
<td>SOXA RW facility and SOXA, involving volunteers and general public</td>
<td>Selected comments by both Simworld and RW participants (indicate annoyance, need for rules)</td>
<td>Yes (not as successful)</td>
</tr>
<tr>
<td>Event (repeat of first year’s significant event)</td>
<td>SOX</td>
<td>SOXA</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 3. Key Activities in the SOX Region for Year Three
<table>
<thead>
<tr>
<th>Events</th>
<th>Initiative</th>
<th>Community response /Contributors</th>
<th>Final outcome</th>
<th>Volunteer-SOX Content Cooperation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovative <strong>volunteer content</strong> reported by Vol-T</td>
<td>Vol-T</td>
<td>Developed by volunteer team</td>
<td>hosted on volunteer region (unknown)</td>
<td>No</td>
</tr>
<tr>
<td>Region is on hold, SOXA team departs, leadership transition to SOXB lead (SOXC intermediate)</td>
<td>SOXB</td>
<td>N/A</td>
<td>New program manager</td>
<td>N/A</td>
</tr>
<tr>
<td>More rationalized project structure introduced</td>
<td>SOXB lead</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Facility (building) designed to “house” SOX and space information (history, etc.)</td>
<td>SOXB with Vol-A</td>
<td>Developed by Vol-A (with aid) for SOXB lead</td>
<td>Final facility on SOXA (vols not using it - less about content, more informational)</td>
<td>Yes (only one participant, for own interest)</td>
</tr>
<tr>
<td>SOXB use of Simworld for internal use - <strong>prototyping of RW facility designs</strong></td>
<td>SOXB lead</td>
<td>N/A</td>
<td>Cost-savings in real world (millions of dollars)</td>
<td>No</td>
</tr>
<tr>
<td>Proposals by Vol-F: (1) <strong>astronomical anomaly event</strong>, (2) looking for home for spacecraft content</td>
<td>SOXB</td>
<td>Resistance by Vol-A to event (conflict)</td>
<td>Not undertaken; content apparently not hosted in SOXA</td>
<td>No</td>
</tr>
<tr>
<td>Advertising by SOX, vols of Simworld to real world (multiple)</td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Events planned, hosted (multiple)</td>
<td>Various SOX</td>
<td>Various SOX regions (SOXC for lectures and videos), some hosted elsewhere</td>
<td></td>
<td>No (volunteers merely attend lectures, some social interaction)</td>
</tr>
</tbody>
</table>

Table 4. Summary Table: Play Elements in General Use, As they relate to the Two Tensions, and to Critical Forms of Play
<table>
<thead>
<tr>
<th></th>
<th>General observations of element's use/prevalence</th>
<th>Tension between organization objective and individual goals (sec. 3.3)</th>
<th>Tension between serious work and imaginative play (sec. 3.4)</th>
<th>Relationship to form of play (most critical ones) (sec. 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rules</strong></td>
<td>Procedures instituted for regions to manage content production</td>
<td>Rules applied by organization to choose content by objective; banning logos deprives vols of role-playing org.</td>
<td>Rules needed</td>
<td>Conflicts in play styles (e.g. experimental vs. static museum; inappropriate choice of topics) requires rules</td>
</tr>
<tr>
<td><strong>Choice</strong></td>
<td>Choice is limited</td>
<td>Increasing organizational imperative may negate freedom of choice</td>
<td>Serious work may negate freedom of choice</td>
<td>Creative content creation, more experimental projects (e.g. role playing on content) involve need for choice</td>
</tr>
<tr>
<td><strong>Boundaries</strong></td>
<td>Boundaries automatically form as new regions start-up</td>
<td>Boundaries form as organizations internalize work or as volunteers organize selves</td>
<td>Blurred boundaries by different imaginations</td>
<td>Creative content creation and more experimental projects may require new boundaries</td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
<td>Organization’s objectives unclear at first, become concretized later</td>
<td>N/A</td>
<td>Based on function of the activity</td>
<td>Creative content creation and more experimental projects may hinder organizational objectives</td>
</tr>
<tr>
<td><strong>Goals</strong></td>
<td>Individuals’ goals barely accommodated by organization</td>
<td>N/A</td>
<td>Based on the community</td>
<td>Creative content creation, more experimental projects (relate to learning)</td>
</tr>
</tbody>
</table>