Enhancing Healthcare Simulations and Beyond: Immersion Theory and Practice

Popular abstract: This paper synthesizes the different ways that players and theorists discuss immersion in role-playing games, establishing six major categories: immersion into activity, game, environment, narrative, character, and community. For the purposes of understanding typical modes of engagement, immersion concepts are considered alongside player motivation theories. Furthermore, this article applies these categories, which are drawn largely from game studies, to the field of health care simulation, categorizing specific practices within the simulation classroom according to types of immersion. The goal of this research is to enhance the understanding and design of simulation by appealing to multiple modes of immersion, which may assist in engaging a greater number of students. Diversifying the types of experiences within health care simulations in order to appeal to multiple modalities of immersion holds the potential to create more rich and layered experiential learning situations..

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1. INTRODUCTION

One of the more complex and mysterious concepts in the field of role-playing studies is immersion. Most participants report having experienced the phenomenon of immersion during play, using phrases such as "losing myself in the game" and "the character took over." However, the definition of the term itself is hotly debated in discourse communities, as participants soon realize that they are describing different sorts of experiences from one another (White, Harviainen, and Boss 2012). Some theorists suggest abandoning the term entirely; debates about the nature of immersion often become unproductive when players feel the need to defend their preferred experiential modes or establish them as superior to those of others (Holter 2007; Torner and White 2012). Ultimately, the term immersion persists despite these attempts to redefine and – in many ways – rebrand it.

Rather than challenging the term, this paper synthesizes the different ways that players and theorists discuss immersion in role-playing games, establishing six major categories: immersion into activity, game, environment, narrative, character, and community. For the purposes of understanding typical modes of engagement, immersion concepts are considered alongside player motivation theories (Bartle 1996; Kim 1998; Pohjola 1999; Edwards 2001; Bøckman, 2003; Harviainen 2003; Yee 2006; McDiarmid 2011; Bowman 2013). Although the two concepts are not identical, we considered them as related and connected phenomena.[1] These categories are similar to the types established by Gordon Calleja (2011) in his work on video game immersion with some minor distinctions, as explained below.

Furthermore, our work applies these categories, which are drawn largely from game studies, to the field of health care simulation, categorizing specific practices within the simulation classroom according to types of immersion. This research follows our previous articles on educational role-playing (edu-larp), which streamline role-playing games with other forms of experiential learning such as simulation (Bowman 2014; Standiford 2014; Bowman and Standiford 2015). The goal of this research is to enhance the understanding and design of simulation by appealing to multiple modes of immersion, which may assist in engaging a greater number of students. This theory adheres to the notion that individuals often differ phenomenologically with regard to the modes in which they most easily or commonly immerse. However, participants can and do engage in multiple modes of immersion at once. Diversifying the types of experiences within health care simulations in order to appeal to multiple modalities of immersion holds the potential to create more rich and layered experiential learning situations.

2. IMMERSION INTO ACTIVITY

Some forms of immersion focus upon the repetitive execution of a particular task or activity involving a certain degree of agency (Ernest Adams 2004; Holopainen and Björk 2004; Ermi and Mäyrä 2005), or *kinesthetic involvement*, as Calleja (2011) terms it. *Immersion into activity* most closely aligns with the concept of *flow*. In flow states, players engage in an activity with clear goals, progressions, and immediate feedback that require a balance between challenge and skill (Csíkszentmihályi 1975). Entering into flow states requires a certain freedom from

[1] This theoretical synthesis is explored in greater detail in Sarah Lynne Bowman, "Immersion and Shared Imagination," in *Role-playing Game Studies: Trandmedia Foundations*, edited by Jose Zagal and Sebastian Deterding. In review for 2017 publication.

distractions, both internal – such as fear or anxiety – and external. Flow states can often draw participant's attention from other physical or environmental needs and are often positively correlated with positive affect; in others words, regular, enjoyable immersive experiences can make people feel happier, providing a sense of achievement, lowering anxiety, and improving self-esteem.

Many simulations involve immersion into activity, particularly those inviting health care professionals to practice certain key skills that require physical competency. Indeed, newer undergraduate students may prefer this type of immersion, as these simulations offer them hands-on training for common skills in their profession. For example, in *task-trainer* simulations, students practice inserting IVs into the arms of dummy patients, changing their wound dressings, and checking their blood pressure (Alexandrou et al. 2012). These activities measure competency in clear terms, e.g. how many catheters or IVs the student successfully inserted. Such learning also can take place virtually, as with virtual IV training, which offers haptic feedback such as a video game controller and interface (Wilfong et al. 2011). The degree to which students in virtual settings are training the actual sensorimotor skills needed for the job depends upon the interface, but such simulations can help improve skill performance, learner satisfaction, critical thinking, perceived competency, and role confidence in a low-risk practice environment (Laschinger et al. 2008).

3. IMMERSION INTO GAME

Another mode is immersion into game, in which players adopt what Bernard Suits calls a *lusory attitude*, meaning that they become "willing to strive toward the game's goal using only the methods prescribed by its rules" (qtd. in White, Harviainen, and Boss and 2012, 73). *Immersion into game* involves solving problems through cognition, including strategic thinking, abstract reasoning, and tactics (Adams 2004; Ermi and Mäyrä 2005; Bowman 2010; Björk 2011). In Calleja's (2011) model, this type is called *ludic involvement*. In order to be game-like, these challenges often include a tension between risk and reward, which creates a sort of productive intersection between what Nicole Lazzaro (2004) calls *frustration* and *fiero*, or triumph. This type of immersion is called *gamism* in role-playing communities such as the Forge (Edwards 2001; Bowman 2013), although the term is controversial. In gamism, players focus upon achievements and "winning" when possible.

Many simulations require students to solve problems in order to complete the exercise successfully. For example, some simulations require students to interact with standardized patients in order to diagnose their medical conditions or identify medications that are having an adverse effect (McCabe 2013). These simulations range from easy to difficult and have clear win conditions that require some degree of problem solving (Jumah and Ruland 2015). Like immersion into activities, game-like simulations offer students a feeling of accomplishment by providing clear rubrics for success and failure by which students can measure their decision-making abilities and psychomotor skills (Ashcraft et al. 2013).

4. IMMERSION INTO ENVIRONMENT

One of the most significant elements of role-playing games is that they establish new environments in which meanings shift from the mundane to the extraordinary. *Immersion into environment* involves exploring the different aspects of an alternate game world, whether physical, mental, or virtual. Calleja (2011) refers to this type as *spatial involvement*, although he mainly discusses this experience as immersion into a virtual space rather than a physical space, as in a larp or simulation.

This concept is informed by the theory of *presence*, which communication studies refers to as the "illusion that a mediated experience is not mediated" (Lombard and Ditton 1997). In *telepresence*, an individual can project their consciousness through the use of technology to another, real location, such as a video conference call (Minsky 1980). In some cases, the individual can manipulate objects in the other location, e.g. remote surgeries in the field of medicine. A tabletop role-playing game that takes place over online video conferencing software is an example of the use of telepresence in gaming. Alternatively, with *virtual presence*, participants inhabit an imaginary, virtual world such as *World of Warcraft* or *Second Life.*

Proponents of presence theory often argue that the more realistic the setting becomes, the more immersion players will experience. Realism in this sense can mean realistic representational mechanics, such as a tabletop game's combat mechanics that closely resemble the physics in the mundane world. Alternatively, realism can involve attempting to render a visual space as accurately as possible: e.g., high-fidelity simulations in medical training (Standiford 2014); historical reenactment societies (Stark 2012); online worlds with 3D virtual reality technology and advanced graphics; and larps designed with the *360 degree immersion aesthetic*, in which all props and settings represent real places and objects in the fictional world (Koljonen 2014).

Forge theory refers to this creative agenda as *simulationism* (Edwards 2001) and players with this motivation often feel jarred by details in the fictional world that do not match up to their conceptualization of accuracy according to the game canon (Bowman 2013, 14).

While realism in the execution of game worlds can increase the potential for immersion in many players, some theorists find problematic the assumption that increased production values or mimesis will lead necessarily to heightened engagement. With regard to digital games, Salen and Zimmerman (2004) refer to this assumption as the *immersive fallacy* (451). Johanna Koljonen (2014) describes similar problems with this mentality with regard to the 360 degree immersion aesthetic in larp, stating that "a complete environment alone does not generate better role-playing" (89). Overall, while a realistic world is not always sufficient to generate a sense of immersion in players, it can help ease the transition from the mundane frame of reality to the frame of play.

This category is particularly pertinent when discussing health care simulations, which often attempt to create a realistic environment for students to inhabit (Rossetti et al. 2014). Examples include simulation labs that feature fully functional emergency rooms, doctor's clinics, actors portraying standardized patients, and realistic "sim man" dolls that exhibit symptoms and can receive treatment (Ignacio et al. 2015). While these elements contribute to the realism of the scenario, adding additional elements from the other categories may help enhance the immersive potential of these environments.

5. IMMERSION INTO NARRATIVE

Some researchers focus on the importance of a fictional narrative in producing an immersive, participatory experience (Murray 1997; Harviainen 2003; Ermi and Mäyrä 2005; Jenkins 2008; Cover 2010; Björk 2011). Stories engage people by creating an identification between the audience and the narrative events undergone by the characters. Calleja (2011) terms this type of immersion *narrative* involvement. *Transportation* theory emphasizes the importance of narrative as a vehicle for immersion, as it transports the mind to another time and place (Gerrig 1993). This transportation effect is particularly potent in terms of persuasion, as identification with narratives may prove more compelling for audiences than messages lacking stories (Green and Brock 2000).

While all forms of narrative are potentially transportative, the act of role-playing is particularly immersive due to the *first-person audience* (Montola and Holopainen 2012; Stenros 2013). In role-playing games, players both enact the narrative and observe it without an external audience. The emphasis on story as the primary motivator for immersion into a game world is called *narrativism* in Forge theory (Edwards 2001).

Some health care simulations include narrative enactment or storytelling. For example, a simulated patient may relay a story during a diagnostic session that features both critical and non-critical information (Keltner, Grant, and McLernon 2011; Nestel and Bearman 2014). Alternatively, the simulation itself may feature a narrative structure in which certain "plot points" will unfold at certain times, often based upon actions taken by students (Oudshoorn and Sinclair 2015). Overall, the addition of narrative elements to simulations may aid student immersion by producing the transportation effect.

6. IMMERSION INTO CHARACTER

One of the most common uses of the term immersion refers to the experience of enacting a character (Harviainen 2003; Björk and Holopainen 2004; Ermi and Mäyrä 2005; Yee 2006; Cover 2010; McDiarmid 2011). This type is the major point of divergence from Calleja's (2011) model. Calleja speaks of *affective involvement* in terms of becoming emotionally engaged, but does not directly address character enactment. In the Nordic larp community, one philosophy of play called the Turku School posited by Mike Pohjola emphasizes *immersionism* as the primary goal of role-playing (2003; Bøckman 2003). Expanding upon the notion of suspension of disbelief, Pohjola suggests that in order to become immersed, players must actively *pretend to believe* that the events of the game world are real and respond faithfully as their characters (2004). Additionally, some role-play scholars emphasize gaming as conducive to identity exploration through enactment of alternate personalities or avatars (Bowman 2010; Banks 2015).

While role-playing, players experience what is known in drama therapy as *aesthetic doubling* (Østern and Heikkinen 2001), sometimes called *double consciousness* (Saler 2012), in which they experience the game world both as themselves in an observational role and as their character (Lukka 2011; Montola and Holopainen 2012; Stenros 2013; Bowman 2015). The degree to which a character is experienced as distinct from the player differs from person to person, as does the degree to which the player "loses" themselves in the character (Harviainen 2006; Bowman 2015). Regardless of the type of narrative and degree of character immersion, this identification can produce a temporary loss of self-awareness (Balzer 2011, 25),

feelings of greater empathy with people from other viewpoints (Kaufman and Libby 2012), as well as increased self-awareness about a player's own perspective upon reflection after the game (Meriläinen 2012). Additionally, deep character immersion can produce feelings of *catharsis*; players often report enjoyment as the result of crying in character or having extreme emotional experiences that they might find unappealing in mundane life, which get processed as positive experiences after the game (Montola and Holopainen 2012).

This concept of character immersion holds great potential with regard to simulation design. Creating more complex characters for students with specific diegetic motivations aside from simple problem solving might enhance the experience for students, particularly with regard to empathy and self-awareness (Anderson and Nelson 2014). For example, nursing students could portray characters with added levels of common emotional and interpersonal complications, such as lack of sleep, problems with difficult coworkers, or issues in their romantic lives. Additionally, simulations specifically designed to produce empathy in students can aid in their social skills. For example, in the Hearing Voices scenario, students play patients with schizophrenia, who are hearing hallucinated voices over earphones while attempting to communicate with doctors. This exercise has no clear win condition and is meant to produce in students greater empathy and understanding for patientswith this psychiatric condition (Hamilton Wilson et. al. 2009).

7. IMMERSION INTO COMMUNITY

The last category emphasizes immersion as a social state: *immersion into community* (Bartle 1996; Björk and Holopainen 2004; Yee 2006; Bowman 2010; Cover 2010; McDiarmid 2011; Bienia 2012). For many players and theorists alike, the experience of role-playing immersion cannot be divorced from the social contexts – both in-game and out-of-game – within which they transpire (Stenros and Hakkarainen 2003). This concept correlates with Calleja's (2011) *shared involvement*, which includes competition, cooperation, and cohabitation with both human and non-human actors within virtual games. In this sense, role-playing is not an individual activity, but rather a form of *shared imagination*. This concept of social immersion focuses upon the ability to play with identity through what Todd Nicholas Fuist (2011) calls the *agentic imagination*. Fuist posits that role-players immerse on three levels of social practice and interaction: 1) their immediate gaming group; 2) the shared imagined space of the game world; and 3) the greater collective identity of the gaming community (114).

Even within the Turku School, Pohjola (2004) stresses the importance of *inter-immersion*, which describes the ability for players to draw one another into deeper states of immersion through portrayals of character. Similar is the notion of *group flow* (Walker 2010), an immersive state often experienced by players in sports or musical groups who "get into the groove" or are "in the pocket."

Many health care simulations require students to practice their interpersonal skills, including team work, bedside manner, empathy, and leadership. Simulations that add interactional elements can enhance their potential benefits by situating scenarios in the social contexts that students are likely to experience in actual practice (Dearmon et al. 2013). When considering Fuist's theory, health care students in simulations immerse a) into their classes or small groups, b) into their shared imagined space of the simulation environment, and c) into their larger, developing identities as a community of nurses and doctors.

8. CONCLUSION

Health care simulations can increase their potential effectiveness by engaging students through multiple modes of immersion. An example of a successful scenario that involves several types of immersion is the Cardiac Resuscitation Simulation at Texas State University. In this scenario, students work in teams to perform CPR, resuscitate the heart, and give medications to a "sim man" doll, while also attempting to deescalate panicked family members. This simulation features activities; game-like win conditions, as only 50% succeed, even when treatment is applied correctly; a realistic environment; an unfolding narrative; thin characters – e.g. ER nurses; and communal interaction with other nurses and the patient's family. While the scenario could be improved to add more complexity to the character descriptions, overall, this simulation engages all six modes of immersion. Similarly complex scenarios are used in psychiatric nursing to train students to assist patients with mental illnesses such as depression (Rick, Zolnierek, and Holmes 2014). Ultimately, these immersion categories could benefit simulation designers by helping them understand the elements that enhance student engagement. Consciously including these aspects in scenarios can broaden their potential learning impacts.

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BIOS

Sarah Lynne Bowman (Ph.D.) is a role-playing games scholar, designer, and organizer. She teaches as adjunct faculty in English, Communication, and Humanities for several institutions including Austin Community College. She received her B.S. from the University of Texas at Austin in Radio-TV-Film in 1998 and her M.A. from the same department in 2003. Bowman graduated with her Ph.D. in Arts and Humanities from the University of Texas at Dallas in 2008. McFarland Press published her dissertation in 2010 as *The Functions of Role-playing Games: How Participants Create Community, Solve Problems, and Explore Identity*. Bowman has served as an editor for *The Wyrd Con Companion Book* since 2012 and co-edited this special edition of the *International Journal of Role-playing*. She was the lead organizer for the Living Games Conference 2016 and helped coordinate the Role-playing and Simulation in Education Conference at Texas State University.

BIO

Anne Standiford (Ph.D., RN) is an Assistant Professor at Texas State University in Round Rock,Texas. She teaches Psychiatric and Mental Health Nursing, and studies ways to teach and evaluate cognitive, psychomotor, and affective skills through role-playing and simulation. Standiford recently designed and launched a study to measure the development ofclinical judgment in nursing students over the senior year. She also researches health in underserved populations, specifically ways to promote physicalactivity in adolescent girls. Her most recent article, "The Secret Struggle of the Active Girl: A Qualitative Synthesis of Interpersonal Factors that Influence Physical Activity in Adolescent Girls" was published in *Health Care for Women International*. In 2016, Standiford helped organize the Role-playing and Simulation in Education Conference at Texas State University.