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THE NEED FOR INTERACTIVE NARRATIVE IN EDUCATIONAL MANAGEMENT SIMULATIONS

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Abstract

The authors believe that well designed stories are one of the crucial factors in the engagement of the learner. This belief also applies to the design of interactive computer simulations, which historically have been thin on rich narrative. This paper explores the need for interactive narrative in educational management simulations and the role it plays in providing realistic settings for learning in management education. It will explain what is meant by interactive narrative and discuss the design features of an experimental interactive narrative simulation, an EdSim.

Keywords

Simulation, narrative, storytelling, immersion, interactivity, management.

‘The art of story is the dominant cultural force in the world...’ (McKee 1999)

The Problem

Computer simulations aim to provide a more complex learning environment to help bridge the gap between theory and practice (Standen Herrington 1997). They provide an opportunity for the learner to experience the application of new concepts and principles hopefully in a more realistic setting than is possible from lectures and text books. Educational Simulations (EdSims) are now forming a major component of this multi-billion dollar world-wide industry due to the significant growth in recent years of the use of simulations in management education programs (eg MBAs). One study in the USA by the Association to Advance Collegiate Schools of Business showed that 97.5 percent of member schools used simulations (Faria 1998). Research demonstrates that learning through simulations delivers learning outcomes (eg Gopinath Sawyer 1999) and when compared to the use of case studies or action learning in management education, simulations deliver superior results (eg Jennings 2002).

Authentic real world educational management simulations are typically set in a workplace environment. By placing the simulated workplace in a social setting, not simply a physical environment where interplays between hard systems are presented, we can emotionally engage the learner within at least a slightly more realistic setting. However, the number crunching management simulations, which gained popularity late last century, are limited in their ability to immerse the learner within a believable world where the learner connects emotionally with the characters, the culture, the history and the ongoing story of the organisation. By including social systems within the narrative presentation, and making the social systems central to the simulation, a greater sense of reality and learner immersion and motivation is reached.

Whilst simulations take on many forms, they predominantly are made up of a series of events where an input is provided by the learner as a result of analysing a given situation. Once an input is made, the simulated system changes as appropriate outputs are introduced and expressed. These then require intervention from the learner, and so this cycle is repeated. This paper argues that in order to make the learning experience more effective and authentic, EdSims need to include the element of a good story with characters, interaction and a storyline.

Essentially the learner in interactive narrative-based simulations needs to be able to influence either the characters within the virtual storyline, or the storyline itself. Rather than the learner observing the plot through traditional narrative delivery (although this can be a highly active internal reflective process), in an online simulation the learner needs to be able to alter the ongoing events within the limits of the narrative genre itself (Cavazza Charles Mead 2001).

In simplistic terms, it is being suggested that EdSims need to create a fictional, metaphorical world that aim to be as realistic as possible for the learner as he or she completes a set of tasks or learning objectives related to learning outcomes or competencies. This metaphorical world will entail some form of narrative, or narrative journey for the learner.

Stories, Management and Learning

Boje (1995) is one of a chorus of modern management writers who argue that we make meaning of our world through stories - through narrative. As adults, stories, both personal and universal, help us to come to terms with change, with growth and with trauma. Stories have been used by humankind for many centuries to inform, acculturate and educate. Stories are a vital part of human culture and allow us to make meaning of our world and how to live our lives (Glassner 2001). A classic example of this are the Dreaming stories of the many Aboriginal language groups in Australia. These stories instructed on lore, laws and accepted behaviours, as well as (in many instances) literally providing a map of the local terrain by indicating sacred and significant sites. Take a trip along the Coorong, down the Murray and as far as Victor Harbor and you travel the journey of Ngarranderi as he chased his two wives. Today we are bombarded by narrative through TV, film and radio, and are becoming increasingly more sophisticated as users and consumers of story. It is no surprise that the use of narrative-centred learning objects has grown enormously over the past few decades.

This is based on the wisdom held by the ancient story-tellers in their caves, and modern-day narrative theory from academics such as Joseph Campbell (1949) onwards - that the listener, the participant, the audience member in the dark will all want to be taken on a narrative journey, will all inherently want to believe that it is really *themselves* in this story, fulfilling the epic quest, overcoming the odds and winning the valuable prize in the end. When we watch a movie or read a book, we are completely in the hands of the story-teller, adding our own imagination and willingness to participate. When we participate in an EdSim, the idea of empathy for the 'hero' is taken one step further because we *become* the hero.

The power of narrative lies in its ability to immerse the learner into a narrative world is what Green (2002) terms 'transportation theory'. The learner is transported into an alternative world where their beliefs, attitudes and opinions are influenced when our cognitive resources, emotions and mental imagery faculties are engaged (Green 2002). The aim of narrative in simulations is beyond the learner acquiring knowledge. Simulations change the way we view our world through cognitive and behavioural change.

Narrative, in the context of its application to simulation design, can be defined as a story where a series of events are provided through characters in a defined setting. Interactive narrative is a specific kind of narrative where the learner can modify the course of events within the defined world. Essentially, the learner experiences an event and is required to decide what to do next. Within the simulation the learner may be provided with a mentor to assist them in making their decisions; a role with a goal they are required to achieve; resources to help them analyse the situation at hand; points of view from experts, including 'war stories'; and may include discussion forums where fellow learners reason collectively on an appropriate response to the task presented to them. All of this occurs through the learner interacting within a narrative framework.

Interactive Narrative Simulations

The type of simulations suggested in this paper are those structured around narrative storylines that are delivered electronically using multimedia and text to create a 'super real' world of narrative events and characters that can be influenced through decisions made by the learner. The learner interacts with the story in order to achieve the stated goals they are to achieve within the role they play in the simulated world. Simulations require of the learner to consider how their decisions may impact on future conditions within their cyberworkplace. They may be required to live with poor decisions made earlier in the simulation.

Within simulations the learner is required to make connections between the simulated representational world and their real world, making the role of reflection and debriefing crucial to achieving the learning objectives. Simulations provide authentic experiences that engage the learner emotionally through their participation in the narrative. Interactive narrative simulations provide branching narratives, presented through multi-media and textual formats, where the learner makes critical decisions on how to respond to complex, ambiguous problems. They experience the impact of their decisions through the presentation of new events and plots and celebrate, through reward and recognition, or suffer the consequences of their choices. The typical use of branching narratives and hypertext in simulations require for the learner to make decisions for the hero in the story at moments of maximum stress and conflict (Glassner 2001).

Murray (2001) explores the methodologies used in games to immerse the learner or game user in alternative cyberworlds. Murray states that digital narrative is a critical tool that game developers must use to allow deep immersion to occur. Immersion allows for the game user (or learner) to become 'caught up in a story'. It is the authors' aim to create simulations where the learner is moved to the same psychological state as being 'lost in a book' involving active engagement with the narrative - both the narrative that they cannot control which leads to immersive behaviour displayed in the learner; and narrative they can control which leads interactivity.

Simulations involve both immersing the learner into the narrative through three means:

1. Spatial: the reader develops a sense of place, a sense of being on the scene of the narrated events;
2. Temporal: the experience of a reader caught up in the narrative suspense, the burning desire to know what happens next; and
3. Emotional: the phenomenon of developing a personal attachment to the characters, of participating in their human experience (Ryan 2001).

Spatial, temporal and emotional engagement must be achieved by the narrative in partnership with the technology used to deliver the simulation for the learner to be immersed within the world. Immersion occurs when the learner suspends their disbelief that the world created in the virtual reality simulation is unreal and when the learner is involved within this world. They deeply care about what happens. Involvement in the world is further intensified when the learner can interact within the world and have some control over what happens. The learner may be able to control what specific characters do, what they say, including critical decisions they make in times of difficulty.

Why do designers of interactive narrative EdSims want the participant to completely become the hero or heroine in their educational narrative journey? Because when the participant is enmeshed in the metaphorical world they are engaged in the complexities of that world, and these complexities will mirror complexities they have to face in the real world. They will have to apply theory in a realistic setting, with urgencies and demands raising the stakes (and their heart-rate). They will have to live with the consequences of their decisions, which may mean achieving mini-victories, or may mean suffering set-backs. They will eventually come to the climax, where they can look back at the wisdom they have gained. Not theory, not educational points printed on an A4 piece of paper, but *wisdom*. They will have their own war-stories to tell, and will have a familiarity with every-day, real situations that they will have to face as pilots, business operators etc.

And if we're going to be the hero, then we're going to want to have some control over what happens to us. One of the key design factors in any interactive narrative based EdSim is the amount of control the

participant has over the narrative. It can vary tremendously from simulation to simulation. In fact, the creative and educational ‘tension’ between this control and the narrative journey has been the basis of academic study and debate over the past few years. Most designers of EdSims will agree with Mott et al (1999) who state:

‘... by enabling learners to be co-constructors of narratives, narrative-centred learning environments can promote the deep, connection-building, meaning-making activities that define constructivist learning’ (Mott 1999).

Our Project

Over the past five years, the authors have been progressively linking narrative theory to learning objectives and outcomes in the design of interactive narrative based EdSims. In our design the participant is thrown into a virtual world (e.g., a workplace). They are told early on about the major goal, or task they are to achieve (be it a strategic plan, or a marketing plan). This is what Vogler (1999) would label the ‘call to adventure’, however in this instance the ‘hero’ has no right to refuse the call. They then follow a classic three act structure resembling many attributes of Propp’s (1968) classical narrative framework. Next the learner is required to perform the necessary preparation to begin the quest. They learn information about the organization, its environments, understanding the politics, the intrigues, the people interplays. They set their own direction for where they should go, and then begin the challenge of making that happen. The process of preparing for the challenge matches the pedagogical process of applying theory to the metaphorical organization to make the best decision.

In Act Two they may typically have to implement a plan or strategy, only to find that the internal or external environment has drastically changed. The company has been sold. The SARS virus has hit. How do they react to these new circumstances? How do they, as the hero, challenge their own modes of thinking and sets of values in order to become better leaders? Just as the hero in Act Two will encounter challenges and setback, will have to adapt, learn and grow, so too does the participant. The process of meeting challenges and thinking fast on your feet matches the pedagogical process of applying strategic implementation theory, leadership modality theory and organisational structure theory.

In Act Three the participant is stronger, has more power, and will see an end in sight. However it isn’t over yet. They will typically be faced with an ethical or leadership dilemma. They may have to weigh up economic imperatives against their stated desires as leaders. They will have to overcome the final hurdle before they can complete their journey. The process of finishing off the story and achieving success matches the pedagogical process of unifying all the theory, reflecting on the learning and integrating deep change in thinking and doing for the participant. These EdSims hold true to the principal that the ‘narrative should accommodate and unify both the fictional and pedagogical elements so that tasks are integral to the narrative’ (Vogler 1999).

Each of our EdSims are designed to be delivered in a blended environment, where face to face delivery and the sharing of ideas and tasks via on-line forums is mixed with the participant’s engagement with our EdSim. In this way, the amount of control the participant has over the narrative is limited.

As opposed to the Strategy Co-Pilot Simulation designed by Imparta at the London Business School where the participant can meander through or push through the narrative, making their own pathways along the way, our EdSims will push the story along by inserting moments or key plot points that the participant has to respond to. These narrative moments guide the journey, and allow the participant to choose between limited options, creating a limited set of branches for the simulation to go along. The complexity of these branches is kept low by ‘regenerating’ the simulation after each Act via the means of a lapse in time, where certain events have taken place putting each participant back onto an even footing.

The use of narrative in EdSims is but one part of a growing confluence between a variety of entertainment, educational and edutainment strands. Computer games inform the design of EdSims, narrative theory informs the creation of computer games, EdSims open new doors in the design of interactivity in multimedia. As we all grow older, the learner, the game buyer, the participant is

increasingly becoming a person who has only known multimedia, has been subjected to fast moving, rapidly growing sophisticated visual inputs, and demands that they be supplied with this sophistication in their media.

Simulations do not always need to provide learner's with a response to their solution. When dealing with complex organisational and environmental systems, problems are often highly ambiguous containing multiple variables, thereby making the created of branching decision making pathways highly complex. The learner may be provided with new events as a consequence of their decisions early in the simulation, but when the situation becomes overly complex, they may be required to present their colleagues with their approach to the problem at hand. A predefined outcome for the learner's solution does not always need to be provided through the simulation. The solution can be discussed with the learner's colleagues for further consideration where potential outcomes are explored.

Well designed simulations do not necessarily need to provide wrong or right answers to problems. Whilst some responses are less desirable, which may require for the learner to be mentored towards a more appropriate response, the remaining responses may demonstrate both strengths and weaknesses depending on the perspective in which they are viewed. Many simulations include a random function where unexpected events present themselves causing the effect of the same decision to vary between learners. Not even the teacher can predict the outcome in some cases.

In Summation

As amazing as the processing power of computers increases over the coming years, matched only by the shrinking of the chips, the opportunities for the merging of multimedia technologies will accelerate. However one thing will continue to hold true: Well told stories, or well designed content, are *still* the most crucial factors in the engagement and entertainment of that participant. The ancient wisdom of the storyteller will live with us for many centuries to come. Learning and storytelling will remain linked.

The role of interactive narrative in management simulations provides a valuable method for immersing the learner in workplace-based worlds. Learning effectiveness can be enhanced by the learner interacting within the narrative through making critical decisions and experiencing the outcomes of their decisions. Whilst online technologies become more and more sophisticated in the future we must continue to emphasise the value that narrative and interactive narrative provides to educational simulations. Interactive narrative in simulations provides a methodology for immersing and engaging learners in authentic learning environments.

Simulations in the future need to give greater consideration towards the way technology can engage and immerse the learner into believable narrative that provides high levels of realism. We must further question why and how we use technology in simulations and use feedback from users of simulations to drive their future development.

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