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Visitors Welcome

Narrative Structure, Myth, and Cognition for Instructional Design

Brad Hokanson
Robert Fraher

This article discusses the use of narrative and myth to increase the effectiveness and efficiency of instructional design. The central aim is to better connect instructional experiences with cognition. Explicitly stated, this writing proposes a structure for the interaction between the new technologies of contemporary education and the culturally ancient systems of the brain.

Introduction

"Long long ago, when wishing still could lead to something, there lived a king whose daughters all were beautiful, but the youngest was so beautiful that the sun itself, who has seen so many things, simply marveled every time it shone on her face." (Grimms' Fairy Tales, No. 1, The Frog King)

From this brief snippet of a fairy tale and its title, we already know and understand much of the complete story through our own cultural and sociological experiences. Drawing upon our exposure to many similar stories, we can expect a number of things; the environment of the story will have supernatural characteristics; we anticipate a sense of need to initiate a transformation; and we look forward to meeting a frog who is really a handsome prince.

Clearly, the brain has a complex and mysterious set of biological limits and standards. It is also a multifaceted cultural and sociological phenomenon. We argue that the means to improve the connection between computers and humans is to be found in an understanding and application of narrative form, a social, cultural, and cognitive artifact.

Brad Hokanson is Associate Professor in the College of Design at the University of Minnesota (e-mail: brad@umn. edu). **Robert Fraher** is an MFA graduate student in Interactive Design at the University (e-mail: frah0005@umn.edu).

Humans employ narrative as a means for understanding the events of their lives; our history becomes our stories as we use narrative to structure our own thinking. Nevertheless, in the field of instructional design a comparable structure for our information—following a known story line—is seldom used. The main goal of this article is to show that the field of instructional design could benefit by understanding and applying a narrative approach, an approach which is culturally based, yet universally applicable.

Our learners expect a narrative structure in their entertainment, their lives, and in most didactic aspects of learning. Plowman (1996, p. 92) says that the book, television, and film based narrative skills "...we have acquired from exposure to these conventional media are not directly transferable" because the digital media have not adapted traditional story narrative structures, and/or have not adopted a new structure that everyone knows; thus, "...our narrative expectations can be confused and thwarted."

The first section of this article examines the common use of narrative and storytelling throughout history and culture. The second section introduces the culturally ubiquitous *monomyth*, a universal narrative structure most commonly known as the "Hero Myth." The final section will examine the inherent characters and progression of this shared understanding (the monomyth) as touchstones for instructional design and development.

Narrative Across History and Culture

Throughout history, one of the most powerful methods of learning has been the story, whether told as parable, fairytale, or legend. These stories, from the Bible to Aesop through and beyond Andersen and the Brothers Grimm, also share a common structure. The parables of the Bible are renowned stories which have, at their heart, a moral message delivered through a narrative structure. Likewise, the stories of Andersen and the Brothers Grimm were meant to acculturate and socialize youngsters, carrying lessons about loyalty, hard work, obedience, and other essentials for societal expectations (Madej, 2003). The Grimms wanted "...to have the German people united in one nation through laws and customs of their own making" (Zipes, 2000).

Today's entertainment industry also employs many of the same thematic and structural elements as these stories, as we will see later, and as do many of our communications genres: "...storytelling and narrative lie at the heart of all successful communication" (Whitby, 1993). Business schools, for example, are beginning to include storytelling as part of their curriculum and teaching [see for example, Telling Tails (2004), by Stephen Denning in the *Harvard Business Review*].

The Value of Narrative in Learning

Narrative provides or helps develop a schematic structure of understanding: "...narrative is a scheme by means of which human beings give meaning to their experience of temporality and personal actions" (Polkinghorne, 1988, p. 13). These connective webs, or schemata, are developed as an important part of the learning process. Schemata educational theory holds that learners develop, build, and make meaningful their experiences and information through structured mental networks. Encouraging the development of cognitive structures is helpful to the learning process. Logically, narrative can be of value to education, and should be a resource for instructional design.

Research has recognized the value of narrative in learning and understanding. We use narrative to help ourselves understand, remember, and explain: "Narrative isn't just a shaping device: it helps us think, remember, communicate, and make sense of ourselves and the world... The role of narrative is not therefore simply aesthetic, it is central to our cognition from earliest childhood" (Plowman, 1996, p. 93).

Narrative as the Basis for Instructional Design

Because of the pervasiveness of a common narrative form across the world's cultures, we unconsciously expect this structure when reading, listening to, or watching a story unfold. Using the expected structure can lead to a more successful script, movie, or learning experience. Any learning through computers, for example, exists in a cultural context with many other cultural artifacts, such as books, movies, or even cathedrals, which is a narrative context that helps us to understand and use embodied knowledge.

> The products of narrative schemes are ubiquitous in our lives, they fill our cultural and social environment. We create narrative descriptions for ourselves and for others about our own past actions, and we develop storied accounts that give sense to the behavior of others. (Polkinghorne, 1988, p. 14)

We use these forms of cultural expression to understand and manage ideas and change of all kinds, even technological change. For example, the novels of the 19th century helped the populace adapt to the results of the Industrial Revolution: "The Victorians had writers like Dickens to ease them through the technological revolution of the industrial age, writers who built novelistic maps of threatening new territory and the social relations it produced" (Johnson, 1999, p. 19).

Given our background in experiencing narrative, learners often expect educational experiences to follow

a standard narrative structure. When this structure is not present, learners must spend more time and mental bandwidth understanding the structure and less understanding the learning content, just as unexpected interface structures divert cognitive resources from learning.

Plowman (1996, p. 93), for example, found that children exhibited an expectation when trying to learn from new digital media: "...children appeared to have difficulty figuring things out in new digital media as it lacked traditional narrative structure and had not evolved its own digital narrative structure." Her research indicated that "Children appeared to be unable to make sense of the programmes without considerable teacher intervention, either personally or in the form of supplementary materials such as worksheets."

The value of narrative is not just one of structuring content or information. It also serves as a means to engage the learner. But as with the engaging and interactive aspects of other forms of communication, excessive interactivity and engagement can distract. A balance must be developed between narrative and purpose, or between narrative and content; or between story and message.

The "story line" must co-exist with the content and learning goals: "...narrative may assist meaning, reduce the impact of interactive interference, and provide the necessary framework to promote learning among diverse groups of learners" (Sims, 1999, p. 705).

Enter the Monomyth

Joseph Campbell claimed that the most ubiquitous narrative form in human history is the monomyth, also widely known as the "hero myth." Campbell (1949), along with others, such as McAndrews (1979) and Raglan (1956), held that the monomyth is a narrative form present in all cultures, from all times. "...McAndrews (1979) argued the universal plot serves as a metapattern or 'template' which organizes human experience" (Polkinghorne, 1988, p. 77). While there are variations and contextual differences, the essence and the structure remains consistent.

Campbell determined the structure and the archetypes through extensive study of folklore and myth. He and Jung (e.g., 1964) contended that these archetypes were based on the psychological challenges of the human condition. "On one hand, the use of archetypes and the monomyth are driven by historical context; on the other hand, they have a basis in well researched psychological explorations. The monomyth is built on the deeper cognitive structure of the brain. Where better to base our learning, but on the 'essential archetypology of our spiritual life' " (Campbell & Moyers, 1991, p. 120)?

The cross-cultural adaptability of the monomyth is based on this concept of archetype, the concept that certain ideas have a common form shared by all humans, with some cultural variability. "The themes are timeless, but the inflection is to the culture" (Campbell & Moyers, 1991, p. 13).

Inherent in the myth's structure, therefore, is also a capability for cultural variation; some cultures have happy endings; others are more ambiguous; and other stories end less successfully, but they all end. Vogler contends the structure is variable; some elements are included in every story, while others aren't. Campbell says that this reflects our cultural differences, but, at the same time, our common biological and psychological backgrounds.

Logically, our methods for structuring understanding and ideas spring from comparable life struggles and issues. All humans are born, mature, age, and die, with common narrative threads arising from the larger life cycle. Campbell has described the commonality of these myths; Vogler (1998, n.d.) has evaluated that structuring in modern story telling, finding the same narrative structure in Star Wars, Shrek, and Ishtar (Adamson & Jenson, 2001; Lucas, 1977; May & Moore, 1987).

Some contend there is no uniform, single generalizable myth pattern or structure that is biologically determined, but the widespread common elements of the monomyth still make it useful for design purposes. Cultural migration and dissemination may have had the same effect by disseminating common story structures (Polkinghorne, 1988).

In successful stories, the audience identifies personally with the character of the hero. We are engaged as we share the experience of the hero's quest. In a learning environment, the learner becomes the hero, is the protagonist, engaging in challenges and returning to this world changed.

In the following section, we will examine how the monomyth can be applied to instructional design. "The field of instructional design and education has a long history of mining techniques and strategies from the design of various entertainment media such as film, television, and comics, and employing those techniques in the design of educational materials" (Dickey, 2005, pp. 67–68).

Applying the Monomyth Narrative

Within Campbell's description of the monomyth, there are two aspects which can easily be applied to instructional design; the archetypal characters that are common in each myth; and the overall process and structure of the narrative, i.e., the steps of the journey. The archetypal characters will be examined first, as they will populate the steps of the journey. Narrative, of course, need not be based on plot, but may also be character driven (Sikora, 2002).

Within any narrative, we seek to identify the expected characters in our attempts to assimilate the structure or plot. Campbell views these characters as forms instantiated throughout human existence. Their specific forms vary with each narrative, and within each culture. Some roles are commonly combined in some narratives as polymorphous beings, and not every archetype is present in every narrative.

In the most elemental way, appropriateness of the monomyth for use in instructional design is based on similarities between the novice learner and our first archetype, the hero at the beginning of the narrative. The hero in a myth is usually someone who senses a lack or insufficiency in everyday interactions. The hero begins the quest to attain a new understanding or prize carrying the promise of fulfillment. Similarly, learners must (intrinsically or extrinsically) understand the value of learning and anticipate the rewards of education. The learner is to be involved in an adventure of learning, a quest for knowledge.

In these quests, we, as learners, gravitate toward qualified direction. This is not unlike the hero's path to encounter an Obiwan Kenobi or a Dumbledore. This is our second archetype, the mentor. This is probably an archetype well understood today as someone who offers guidance, acceptance, or empowerment. Within myth, however, it may also be spiritual, magical, or extraordinary and it may exist in forms such as a babbling brook, sacred object, or burning bush.

Playing opposite the hero, we often find another common archetype, the threshold guardian. It is this character who poses the first challenge to the hero. Inherent in education, the significance will be clear within the context of the phases of the monomyth. The characters, like the structure are universal:

> The repeating characters of the hero myth, such as the young hero, the wise old man, the shape-shifting woman, and the shadowy nemesis, are identical with the archetypes of the human mind, as shown in dreams. That's why myths and stories constructed on the mythological model are always psychologically true. (Vogler, 1998, p. 22)

Within educational design, we can provide the same archetypes for our learners, in the form of mentor, avatar, or guidance systems, challenges, and rewards. Dickey (2005) recognizes that narrative in interactive games/instructional design may be character-based, as suggested by the archetypes, or it may utilize a plot-based narrative, a more linear structure for organizing instruction.

Phases of the Myth

A hero ventures from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man. (Campbell, 1949, p. 35)

Campbell distilled the narrative arc of the monomyth into three phases: Separation, Initiation, and Return. While each has various intermediate parts, here we only examine each briefly as it can apply to instructional design.

The first phase, the first great stage, Separation, begins with the "call to adventure" and signifies the awakening of the self (Underhill, 1911). This is a summons to action and engagement of the protagonist. Within learning as well, the participants must become engaged; Gagné's *Conditions of Learning* (1970) begins with a similar call to action, a gaining of the learner's attention.

In this phase, Separation, protagonists experience a transition out of their environment. This transition removes the hero from an accustomed environment to a "zone unknown" (Campbell, 1949, p. 58). In the case of the learner, the same is true. There exists the dominant world or reality, based on the laws of physics, wrought with short-term distractions and shallow pleasures. Meanwhile we, as instructional designers, "call" this attempting to engage the learner, a stage more involved than mere attention.

There is metaphorical consistency with the monomyth. Part of our understanding of education, as instructional designers, is a recognition of the shortcomings of the learner prior to the educational experience, and a broader view of the value of the educational quest. Extrapolation of this idea finds the members of the profession serving as mentors, the outside source of assistance available to the protagonist.

Effective learning can change a learner as much as any adventure within any myth. To be effective, the learning must challenge the learner. This brings us to the second phase of the hero myth, Initiation. In this phase, the hero, the protagonist, the learner engages in a series of increasingly difficult challenges.

Within the Initiation phase are a series of challenges, each leading to a single ultimate challenge, what Campbell calls "the belly of the whale, the inner most cave." It is the most dangerous and challenging aspect of the journey. It also must be, by definition, the most fulfilling. All the learning processes so far must lead to this point, in preparation for the challenge.

If the hero passes the trials of the Initiation phase, he or she is then directed back to the former world. "...the final stage of his adventure is supported by all the powers of his supernatural patron" (Campbell, 1949, p. 197). This begins the third and final Return phase. It is here that the hero's efforts are rewarded, and here that the hero benefits from "a realization of the true

relationship of the passing phenomena" (Campbell, 1949, p. 238).

The return and reintegration with society, which is indispensable to the continuous circulation of spiritual energy into the world, and which, from the standpoint of the community, is the justification of the long retreat.... (Campbell, 1949, p. 36)

We know, too, that learning in our educational system, and within instructional design, must be grounded, i.e., must have value in real life. The knowledge gained by learners changes their abilities in the world, and learning, therefore, must be useful in and applicable to their culture. The learner must also understand that knowledge is of value in their lives, for themselves and for others. What remains, however, is an ongoing responsibility of the mentor, continuing to assist the hero in the world; this also remains the responsibility of those in education, and perhaps within instructional design.

The learner must be recognized as different in the world as well. In our own living of the story, one way we address this is through graduation and other ceremonies of achievement. They are our rituals of initiation, with the academy treating them as seriously as the formalities of any native tribe.

If one views narrative as being tied solely to the generally linear aspects of storytelling, the application of the monomyth to instructional design may suffer. To the contrary, we hold that the monomyth is a structure that is both reliable and flexible. In this way, it is well suited for the non-linear activity within today's interactive learning environments. As Vogler wrote of the monomyth, "The thousands of variations on the paradigm, worked out over the centuries, offer endless branches form which infinite webs of story can be built" (1998, p. xx).

Narrative does not solely exist as a linear plot structure and can follow the diverse structures similar to involved interactive design; recall Michael Joyce's hypertext-based *Afternoon, A Story* (1993). There also remains a rich history of print-based non-linear narrative, including James Joyce's *Ulysses* (1922), the novel *House of Leaves* (Danielewsi, 2000), and the film *Memento* (Nolan, 2001).

Implications

Within this article, we've discussed the process of storytelling and its history. With that knowledge, we examined the application of the monomyth to the discipline of instructional design. This approach can be described as a progressive and flexibly linear process which is easily suited to integration with the events of learning.

Producers of films and television programmes construct understandable narratives, whether fictional or non-fictional, and they can both rely on, and contribute to, the audience's familiarity with the medium; designers of interactive media need to construct narrative more explicitly than hitherto because they cannot yet rely on this knowledge. (Plowman, 1996, p. 94)

Instructional design, with products such as presentations, tutorials, simulations, case studies, and games, can utilize narrative structures to organize and enliven each model. As discussed, it can minimize cognitive load of the learning experience for the novice learner. As a result, learners involved in a story-based learning experience inherently have an understanding of the structure and may implicitly understand their role in the story/instruction. Therefore, they don't need to struggle to comprehend the flow of the experience, but will be more focused on the aspects of the learning.

We've presented brief examples of how the structure of the monomyth can be used in instructional design. We hold that connection must be found between the content and the learner, and the most effective structure for that connection is through a narrative form. ☐

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Cognitive Load Theory and the Use of Educational Technology

John Sweller

Human cognitive architecture is a constant in a continually advancing educational technology environment. That architecture should be central in determining which technologies should be adopted and how they should be used. In this article, cognitive load theory is used to indicate aspects of human cognition relevant to instructional design, with several instructional procedures generated by the theory outlined.

Educational technology keeps advancing and can be expected to continue advancing indefinitely. Our knowledge of human cognitive architecture equally keeps advancing and also can be expected to continue doing so indefinitely. Nevertheless, there is a *constant*. Human cognitive architecture itself does not change except over long, evolutionary periods. The cognitive processes available to our ancestors communicating around a campfire or drawing on a cave wall are precisely the same processes available to us when engaging in e-learning.

New technology does not change our cognitive processes. It can make use of existing cognitive processes if it is developed with those cognitive processes in mind. It also can fail abysmally if our burgeoning knowledge of human cognitive architecture is ignored. In this article, I will describe some of the central principles of human cognitive architecture and indicate their consequences for instructional design. Cognitive load theory provides the governing theory linking human cognitive architecture to instructional design.

Human Cognitive Architecture

Human cognition can be characterized as an information processing system generated by another

John Sweller is Professor of Education, University of New South Wales, Australia (e-mail: j.sweller@unsw.edu.au).