

# **Inquiry on Storytelling for the Web-Based Environmental Learning Environment**

Heeok Heo  
Sunchon National University  
South Korea

## **Abstract**

*The purpose of this study is to investigate story telling-retelling as a learning strategy to facilitate meaningful learning on environmental education in web-based learning environments. Because story telling is a way of making meaning of the individual and social life, it can build a richer context so that learners can enhance environmental ethics through indirect experience. For the purpose this study develops a learning environment via computer networks, which enables learners to understand the natural world and to build environmental awareness with storytelling at the elementary level. It was designed for facilitating narrative inquiry with individual and collaborative learning through online activities. From the theoretical and practical review, this study suggests design strategies for building a cyber learning environment with story telling.*

## **Introduction**

There are some aspects of human experience that cannot be revealed with traditional scientific thinking, so-called logical exposition. Narrative inquiry has been considered as an alternative mode of thinking and learning. Narrative inquiry is a way of understanding, organizing and communicating experience as stories, lived and told. Within the inquiry field, we live out stories, tell stories of those experiences, and modify them by retelling and reliving them. Because stories form the intellectual and practical nourishment of oral cultures, and to the extent that our modern literate culture retains oral practices, narrative continues to play a vital role in teaching and learning (McEwan, and Egan, 1995). It is not just a manner of speaking but foundational to learning as a whole. Through storytelling individuals can learn to express themselves and make sense of the external world.

Narrative inquiry, as a way of making sense of a human's life and world, has been studied in various approaches. For example, Clandinin and Connelly (2000) refer to narrative inquiry as a research method to understand teachers' knowledge and to enhance teaching abilities. They believe that experience happens narratively, so educational experience should be studied narratively. McEwan and Egan (1995) consider some implications of narrative in the practice of teaching and learning. Teachers can use narrative as fundamental to represent contents and to communicate with students. Students can use narrative as critical to express their thinking and learning, and to explore the connection between the self and the world. Storytelling as a particular form of narrative inquiry will bring to the fore special features of individuals' thinking that have tended to be somewhat neglected in more traditional studies.

Storytelling has been considered as a mode of experience in a variety of academic areas, such as, arts, literature, and even science. When science attempts to understand the story of the universe, storytelling is one important way to recognize, interpret, and construct interaction between human and nature, especially for building environmental ethics.

Nowadays many nations institutionalize regulations related to environmental conditions for the preservation of the natural environment. Some other efforts have also been made to enlighten people on environmental awareness and ethics. Historically environmental education spent an inordinate amount of time teaching facts and principles to memorize. This kind of learning is important for learners to understand environmental conditions, but if the learning is limited to only the fact learning, they can do little with science (Ellis, 2002). Beyond this, learners need to know how nature functions, and how it is related to human life. Storytelling can be a positive way to achieve this kind of learning.

Based upon current educational trends, this study developed a cyber learning environment via the Internet and the world wide web, that enables learners to understand natural conditions, to articulate concepts and theories, and then to build environmental awareness with storytelling methods at the elementary level.

In this study, the learning environment was designed for individual and collaborative learning through on-line activities. Teachers can be on-line tutors to support learning processes, and learners can be story-tellers to foster deeper understanding about the environment.

## **Storytelling as a way of experiencing the world**

Narrative is a mode of knowing and understanding that captures the richness and variety of meaning in humanity as well as a way of communicating who we are, what we do, how we feel, and why we ought to follow some course of action. A narrative involves facts, ideas, theories, and dreams from the perspectives and in the context of someone's life. Individuals think, perceive, interpret, imagine, interact, and make some decisions according to the narrative elements and structures.

The story or storytelling, as a form of narrative inquiry, has received a lot of attention by educational theorists and practitioners for a long time. One influential version of this inquiry is represented in educational theory of John Dewey, who devoted his life to the study of human experience. According to Dewey, educative experience is liberating and uniting, in the sense that it opens the continuous path of reconstructing and recreating the habituated meanings of the world as well as the enduring attitudes of the self. A genuinely educative experience must build up an individual's continuous reconstruction, moving from past and present to future experience, and involve the tensional transaction between internal conditions of the individual and his social world (Dewey, 1938). Each learner must reconstruct the periods, phases, or levels of the growth of human mentality. Based upon Dewey's thought, storytelling, as a fundamental attempt by human beings to experience the world, has temporal context, spatial context, and context of other people. According to Bruner, story must construct two landscapes simultaneously - the outer landscape of action and the inner one of thought and intention (Bruner, 1991). Narrative is a fundamental aspect of meaning construction, which is a negotiated activity that starts in early childhood and characterizes the whole of human life (Fusai et al., 2003). Human life is filled with narrative fragments, enacted in and reflected upon storied moments of time and space. Narrative thinking is a key form of experience, and a key way of acting upon the reality. Storytelling gives individuals chances to understand others' narrative in a social context, and to clarify their own thinking.

Stories have two functions for learning in the epistemological and transformative view. In the epistemological view, stories include a certain kind of knowledge that learners should possess to understand their experiences and to fully participate in their social community. In the transformative view, stories are designed to provide moral messages taken to heart and to transform a person's way of life. For the former view, stories can be used as exemplars of concepts, principles, or theories, and as cases to represent a real situation or a problematic situation needing to be solved (Jonassen and Hernandez-Serrano, 2002). For the latter view, stories should provide learners with an opportunity to rethink the given stories and retell them in terms of their interpretation. Through retelling or rewriting or creating a story, individuals can enlarge their experience and be involved in mutual interdependence and growth (Crick, 2003). To compose their own stories of experience is central of narrative inquiry, and a way of enhancing an individual's experience and social interaction.

There have been several attempts to apply storytelling in a learning situation. Some have focused on using technology to support teachers and learners for storytelling, such as using a word processor to write a story, and employing communication tools to share a story among learners (e.g. Fusai et al, 2003). However, there are few opportunities to utilize storytelling for the enhancement of learning processes in cyberspace facilitated through the internet and the world wide web. Some developments have presented stories as an electronic form using texts, graphics, and sounds on a screen for providing learners a certain kind of knowledge. However, some other applications should be discussed in terms of instructional design rather than just putting stories in an electronic form in that storytelling can be assumed to have more possibilities for learning and teaching.

Cyberspace, as an alternative living and learning environment for individuals, has been discussed regarding its possibilities to expand learning opportunities. However, people sometimes encounter harmful and useless information rather than the well-qualified, and work in a sequential thinking process without genuine reflection. To counter the undesirable aspects of the learning environment in cyberspace, storytelling can be a good way to improve individuals' experiences in cyberspace in that storytelling gives opportunities to think and rethink about the self and the world. Moreover, the features of cyberspace may extend the potential of storytelling in that individuals can use computer tools to make their learning processes more efficient, and thus interact in both asynchronous and synchronous modes in cyberspace.

## **Design Issues to build web-based learning environment**

The following assumptions are considered to build a learning environment for narrative inquiry based upon the theoretical review. First, storytelling-retelling will provide learners the setting in which to understand reality in a social context, and to transform experience in a temporal context. Telling stories can assist individuals in the sharing of their human diversity, and mediate in the process of exploring and articulating their identity from a particular

perspective. Second, teachers can be facilitators to lead learners' transformative experience and co-learners to cooperate in the learning process. Teachers are pivotal in shaping the learner's educational experience. Teachers must have more diverse roles in learner-centered learning environments than in teacher-centered environments. When students experience someone's stories teachers must pay attention to their understanding. When students engage in their own storytelling teachers must lead their students in the right direction for enhancing future experience. Third, cognitive and moral development in environmental education can be enhanced in the process of telling and retelling individuals' experiences. The ultimate value of environmental education goes beyond the inculcation of facts or information to environmental ethics including aesthetic appreciation (Carr, 2004). Story telling-retelling can be an alternative strategy connecting learners to nature, and promoting their moral and aesthetic experience.

### **Learning activities**

Based upon the assumptions, two kinds of main learning activities are selected: listening and watching a story, and telling and retelling a story.

#### **Listening and watching a story**

A story, as a form of someone's narrative, can provide a richer example of how an individual interacts with the world in a holistic approach. When learners indirectly experience stories told to them their knowledge and skills would be extended at both cognitive and moral levels (Hernandez-Serrano and Jonassen, 2003).

In the activity of listening and watching a story, one or more stories are presented in an animation style, and students articulate what concepts and principles the story tells them. Each story consists of a problematic situation related to environmental conditions, characters concerning the situation, and a plot configuring to beginning, middle and end phases. Stories were constructed by experts of environmental education, modified into the prescribed learning modes by instructional designers, and developed by computer programmers in terms of a team approach. Concepts and principles related to environmental awareness are embedded in each story. This activity offers learners contexts in which to experience external environments.

#### **Telling and retelling a story**

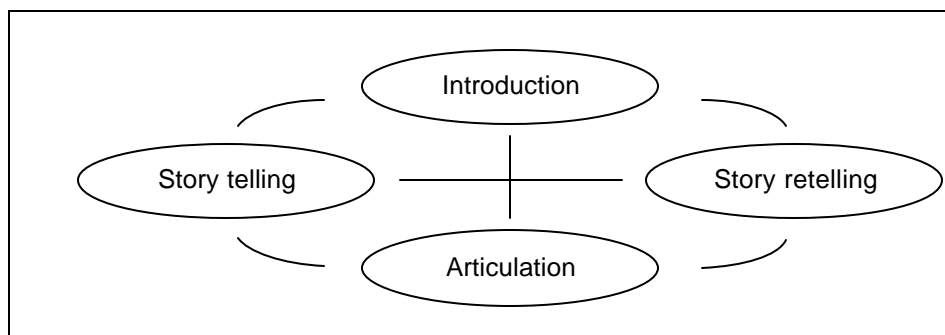
When individuals retell or rewrite their own stories beyond listening and watching a story told, many opportunities are provided for the enhancement of reflective experience and in mutual interdependence and growth (Crick, 2003). To compose their own stories of experience empowers learners to transform individual experience and social interaction (Clandinin, and Connelly, 2000; Fusai et al., 2003).

In the activity of telling and retelling a story, students construct their own story on the basis of concepts or principles extracted from the reviewed story. Then they can get teachers' advice and peer reviews, and also provide peers their own feedback through the sharing opportunities. It can give Individuals the opportunity to cooperate in the retelling of a story with their peers and teachers. This activity would provide learners transformative experience differentiated from that of the beginning state.

#### **Learning process**

The learning environment constitutes four phases for supporting the learning activities: telling a story, articulating what the story was, and retelling another story including sharing the story with others (see Figure 1).

Figure 1: The main steps of the learning process



- Introduction: the learning objective and learning contexts are explained before getting started.
- Story telling: the pre-designed animation as a story is presented in the interactive mode.
- Articulation: the concepts and principles included in the story are articulated and reviewed in text and graphic styles.
- Story retelling: it requires learners to retell or create their own story using writing tools and sharing it with others using communication tools.

The whole process provides steps set up in a recursive, non-linear way, which enables learners to go forwards or backwards within the learning process by their choice.

### Support system

The environment also provides resources and tools that participants can use throughout the learning process, such as glossary, experts' knowledge, and communication tools. Resources include facts, principles and theories in forms of glossary and information bank. Resources can support learners to articulate and to extend the prescribed knowledge. Two kinds of tools, a writing tool and communication tools are provided to assist in expressing learners' thought and emotion, and in enhancing mutual understanding. Tools enable learners to organize and to present their understanding in concrete ways, and to share their experience with others.

Teachers must have diverse roles to lead learners into genuinely educative experience. A teacher can be a tutor for supporting learners to understand what stories tell, a model writer for assisting learners to tell their own stories, and an evaluator for reviewing and promoting learners' experience. To be successful in this environment, teachers must be knowledgeable in environmental education, and sensitive about learners' progress and learning contexts.

### Conclusion

Learners can encounter mis-educative experiences such as decontextualized learning contents and disconnected activities with their interests in many classroom learning situations. Human experience in cyberspace is also subject to contamination with under-qualified sources, for example useless and harmful information, and a sequential thinking process without genuine reflection, even though cyberspace has the potential for positive effects on learning. Storytelling-retelling, as a way of narrative inquiry, would be considered to offer learners genuine learning experience and to transform the whole life in special and temporal contexts.

Some field trials with this environment in elementary environmental education have shown some interesting results in terms of formative evaluation. First, learners exhibited greater attentiveness to watching the given story but revealed some difficulty in retelling the story. This would indicate a need of for strategies to support learners benefiting from new experiences in writing. Second, teachers indicated the positive possibilities of the learning environments for better contexts of environmental education.

In the theoretical aspect, this study would inform how narrative can work in the cyber learning environment. In the practical aspect, this study would provide some strategies to design story-based learning environments.

## References

- Bruner, J. (1990). *Act of Meaning*. Cambridge: Harvard University Press.
- Carr, D. (2004). Moral value and the arts in environmental education: Towards an ethics of aesthetic appreciation. *Journal of Philosophy of Education*, 38(2), 221-239.
- Clandinin, J., & Connelly, F. M. (2000). *Narrative inquiry: experience and story in qualitative research*. San Francisco, CA: Jossey-Bass Inc.
- Crick, Nathan (2003). Composition as experience: John Dewey on creative expression and the origins of "mind". *College Composition and Communication*, 55(2), 254-275.
- Dewey, J. (1938). *Experience and education*. NY: Touchstone.
- Ellis, Brian (2002). *How I learned the importance of storytelling in environmental education*. [On-line]. Available: [\\_\\_\\_\\_\\_](#), retrieved on March 10, 2004.
- Fusai, C., Saudelli, B., Marti, P., Decortis, F., & Rizzo, A. (2003). Media composition and narrative performance at school. *Journal of Computer Assisted Learning*, 19, 177-185.
- Hernandez-Serrano, J., & Jonassen, D. H. (2003). The effects of case libraries on problem solving. *Journal of Computer Assisted Learning*, 19, 103-114.
- Jonassen, D. H., & Hernandez-Serrano, J. (2002). Case-based reasoning and instructional design: Using stories to support problem-solving. *Educational Technology Research & Development*, 50(2), 65- 77.
- Kvernbekk, T. (2003). On identifying narratives. *Studies in Philosophy and Education*, 22, 267-279.
- McEwan, H., & Egan, K. (1995). *Narrative in teaching, learning and research*. NY: Teachers College Press.