



Researching and Evaluating Digital Storytelling as a Deep Learning Tool

Helen C. Barrett
The REFLECT Initiative
United States
helen.barrett@comcast.net

Abstract

This roundtable will discuss Digital Storytelling as a tool for deep learning, and provide a framework for researching and evaluating the process. An emerging theory of storytelling as learning and reflection on practice will be discussed, as well as the role of digital storytelling in teacher education. This roundtable will focus on a proposed research design to collect data about digital storytelling in education; several digital storytelling rubrics used to assess completed projects; and a Literature Review on Digital Storytelling.

Digital Storytelling: Convergence

This figure graphically demonstrates that Digital Storytelling facilitates the convergence of four student-centered learning strategies: student engagement, reflection for deep learning, project-based learning, and the effective integration of technology into instruction.

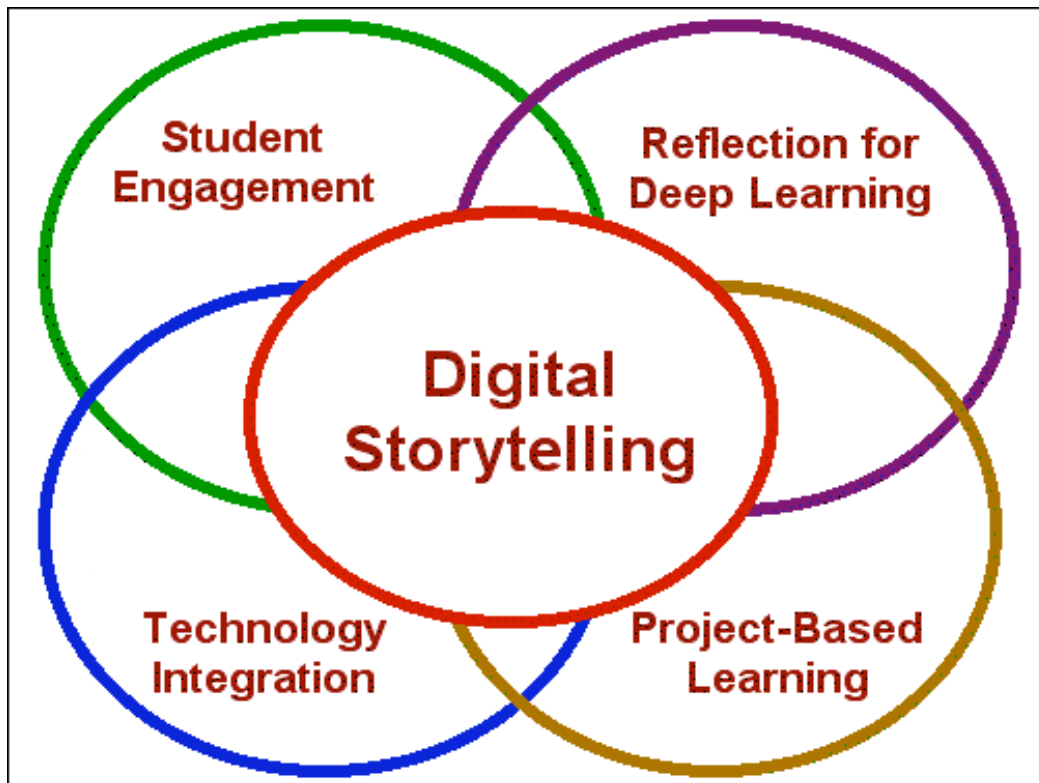


Figure 1. Convergence of Student-Centered Learning Strategies

Digital Storytelling Research Design

Digital Storytelling Research Design

Developed for the Kean University Digital Storytelling Conference
June 2005

If Digital Storytelling is to become accepted in today's schools, it will be important to collect data to be able to draw conclusions about the impact that the process has on student learning, motivation and engagement and how teaching practices and strategies change with technology integration through digital storytelling.

This document outlines a potential study of the issues related to learning and reflection through digital storytelling. The data collected will provide research-based evidence on the effect digital storytelling has on student learning, motivation, and engagement. To that end we will seek to identify what conditions facilitate and encourage students to care about their work and be proud of it. Can we identify the conditions necessary to motivate students to reflect on their learning as a record of their growth over time and as a story of their learning? Some of the key research questions that will guide the study include:

- How do digital stories provide evidence of deep learning?
- Under what conditions can digital stories be successfully used to support assessment for learning?
- Under what conditions do students take ownership of their digital stories?
- What are the benefits of developing digital stories as perceived by students, teachers, administrators, and/or parents?
- What are perceived obstacles to implementing digital storytelling with P-12 students and how can they be overcome?
- How does the quality of paper-based reflection differ from digital stories?

Data could be generated through surveys, on-site observations, online discussions, and journals, as well as the aggregation of student performance-based assessment data.

The research should draw upon the established literature and theoretical constructs with validated research instruments and data collection protocols. A more comprehensive literature review is included at the end of this document. These resources could include:

- **Reflection:** Jennifer Moon, Donald Schön, John Dewey
- **Storytelling as Learning:** Maxine Alterio & Janice McDrury
- **Motivation:** Self-Determination Theory, Intrinsic Motivation (Deci & Ryan): <http://www.psych.rochester.edu/SDT/>
- **Student Engagement and Qualities of Engaging Schoolwork** (Schlechty Center): <http://schlechtycenter.org>
- **Technology Competency:** ISTE NETS-T and NETS-S plus Essential Conditions
- **Portfolio Development:** Teachers (Lyons, Shulman), K-12 Students (Hebert, Davies), Post-Secondary (Yancey, Cambridge, Tosh)
- **Assessment FOR Learning:** Stiggins, Davies, QCA: <http://www.qca.org.uk/afl/>
- **Project-Based Learning:** Buck Institute for Education (<http://www.bie.org/pbl/index.php>) and (<http://www.bie.org/research/pbl/index.php>) and George Lucas Educational Foundation (<http://www.edutopia.org/php/keyword.php?id=037>)

Digital Storytelling Research Design

DESIRED OUTCOMES (HYPOTHESES)	RESEARCH QUESTIONS	RESEARCH METHOD	DATA COLLECTION INSTRUMENTS/ RESOURCES
Digital Storytelling enhances student learning.	How do digital stories provide evidence of deep learning? Deep learning: <ul style="list-style-type: none"> - involves reflection - is developmental, - is integrative, - is self-directive, and - is lifelong 	Teachers assess students level of reflection Student reflections in digital stories Student attitude toward self-directed learning	Rubric on Reflection (based on Moon) Random review of student stories Deci & Ryan??
	Under what conditions can digital stories be successfully used to demonstrate assessment for learning?	Teacher Reflections on implementation process Observations in schools Conversations with teachers and administrators Optional: student test data	Postings in online course or teacher blog Onsite observation checklist C-BAM Instrument Optional: site-delivered student test scores
Digital Storytelling enhances student motivation.	Under what conditions do students take ownership of their digital stories?	Questionnaire about Motivation and Learning (students)	Self-Determination Theory questionnaires (Deci & Ryan)
Digital Storytelling enhances student engagement.		Questionnaire about Level of Student Engagement and 10 qualities of engaging schoolwork Student Focus Groups	Schlechty Center Theory of Engagement and WOW instruments? Questions to be developed (based on Tosh)
Digital Storytelling is more effective than paper-based reflection.	What are the benefits of developing digital stories as perceived by students, teachers, administrators, and/or parents?	Teacher Reflections & Interviews Student Questionnaire Parent Questionnaire Administrator Questionnaire	Postings in online course or teacher blog
	What are perceived obstacles to implementing digital storytelling with students and how can they be overcome?	Teacher Reflections and Interviews Student Questionnaire or Focus Groups	Postings in online course or teacher blog To be developed
	How does the quality of paper-based reflection differ from digital stories?	Teacher Reflections & Interviews Digital Storytelling Rubric	Postings in online course or teacher blog
Developing digital stories builds technology skills.	What are the skills necessary to effectively implement digital stories?	Technology Skills Assessment -- Teachers - Students	ISTE NETS-T ISTE NETS-S
		Storytelling/Reflection Facilitation Skills – Teachers	To be developed
Digital Storytelling benefits all learners and all schools	What are the characteristics of the study participants?	Demographic Questionnaire – teachers & students	To be developed
	What are characteristics of school sites?	NETS Essential Conditions plus local school site information	Self-assessment plus onsite observation/ interviews

Digital Storytelling Research Design

Digital Storytelling Rubric (Based on several rubrics posted online at: <http://rubistar.4teachers.org>)

CATEGORY	Excellent	Good	Satisfactory	Needs Improvement
Point of View - Purpose	Establishes a purpose early on and maintains a clear focus throughout.	Establishes a purpose early on and maintains focus for most of the presentation.	There are a few lapses in focus, but the purpose is fairly clear.	It is difficult to figure out the purpose of the presentation.
Point of View - Awareness of Audience	Strong awareness of audience in the design. Students can clearly explain why they felt the vocabulary, audio and graphics chosen fit the target audience.	Some awareness of audience in the design. Students can partially explain why they felt the vocabulary, audio and graphics chosen fit the target audience.	Some awareness of audience in the design. Students find it difficult to explain how the vocabulary, audio and graphics chosen fit the target audience.	Limited awareness of the needs and interests of the target audience.
Dramatic Question	Realization is dramatically different from expectation.	Realization differs noticeably from expectation.	Realization barely differs from the expectation.	Realization and expectation do not differ.
Voice - Consistency	Voice quality is clear and consistently audible throughout the presentation.	Voice quality is clear and consistently audible throughout the majority (85-95%) of the presentation.	Voice quality is clear and consistently audible through some (70-84%) of the presentation.	Voice quality needs more attention.
Voice - Conversational Style	Uses a conversational style throughout.	Uses a conversational style the majority (85-95%) of the time	Uses a conversational style most (70-84%) of the time.	Presentation style is primarily monologue.
Voice - Pacing	The pace (rhythm and voice punctuation) fits the story line and helps the audience really "get into" the story.	Occasionally speaks too fast or too slowly for the story line. The pacing (rhythm and voice punctuation) is relatively engaging for the audience.	Tries to use pacing (rhythm and voice punctuation), but it is often noticeable that the pacing does not fit the story line. Audience is not consistently engaged.	No attempt to match the pace of the storytelling to the story line or the audience.
Soundtrack - Originality	All of the music is original.	Most (over half) of the music is original.	Some of the music is original.	None of the music is original.
Soundtrack - Emotion	Music stirs a rich emotional response that matches the story line well.	Music stirs a rich emotional response that somewhat matches the story line.	Music is ok, and not distracting, but it does not add much to the story.	Music is distracting, inappropriate, OR was not used.
Images	Images create a distinct atmosphere or tone that matches different parts of the story. The images may communicate symbolism and/or metaphors.	Images create an atmosphere or tone that matches some parts of the story. The images may communicate symbolism and/or metaphors.	An attempt was made to use images to create an atmosphere/tone but it needed more work. Image choice is logical.	Little or no attempt to use images to create an appropriate atmosphere/tone.
Economy	The story is told with exactly the right amount of detail throughout. It does not seem too short nor does it seem too long.	The story composition is typically good, though it seems to drag somewhat OR need slightly more detail in one or two sections.	The story seems to need more editing. It is noticeably too long or too short in more than one section.	The story needs extensive editing. It is too long or too short to be interesting.
Duration of Presentation	Length of presentation was 4 minutes.	Length of presentation was 3 minutes.	Length of presentation was 2 minutes.	Presentation was less than 2 minutes long OR more than 4 minutes.

Based on Scott County Schools (Kentucky) Digital Storytelling Rubric

Digital Storytelling Research Design

Scott County Digital Storytelling Rubric

CATEGORY	4 Excellent	3 Good	2 OK	1 Needs Improvement
Point of View	Establishes a purpose and maintains a clear focus; strong awareness of audience.	Focuses on a purpose; communicates with an audience.	Some evidence of communicating with an audience for a specific purpose; some lapse in focus.	Limited awareness of audience and/or purpose.
Dramatic Question	Realization is dramatically different from expectation.	Realization differs from expectation.	Realization from expectation is subtle.	Realization and expectation do not differ.
Emotional Content	Audience is deeply and emotionally engaged.	Audience is emotionally engaged.	Audience lapses in emotional engagement.	Audience has little to no emotional engagement.
The Gift of Your Voice	Consistency in presentation; speaking slowly in a conversational style.	Consistency in presentation; speaking in conversational style.	Some consistency in presentation; lapses in conversational style to monologue.	Breaking consistency; monologue style of presentation.
The Power of the Soundtrack - Emotion	Music stirs a rich emotional response.	Music stirs an emotional response.	Music is evident.	Inappropriate choice of music.
The Power of the Soundtrack- Originality	All of the music is original.	Over half of the music is original.	Some, but less than half, of the music is original.	None of the music is original.
Economy	Sequential composition; succinct; images create an atmosphere and/or tone, and may communicate symbolism and/or metaphors.	Sequential composition; succinct; images create an atmosphere and/or tone.	Sequential composition; succinct; images are controlled/logical	Sequential composition; images are acceptable.
Pacing	Engaging rhythm; use of punctuation; suggestions of emotions via sound effects; use of "white space"; enhanced vitality	Engaging rhythm; use of punctuation; some suggestions of emotions via sound effects; use of "white space"; evidence of vitality.	Some rhythm; some use of punctuation; limited suggestions of emotion via sound effects; lapses in vitality.	Mechanical rhythm; limited use of punctuation; limited vitality.

Source: <http://rubistar.4teachers.org>

Digital Storytelling Research Design

Literature Review - Digital Storytelling

- Abrahamson, C.E. (1998). Storytelling as a pedagogical tool in higher education. *Education, 118*(3), 440-451.
- Ackerman, R., & Maslin-Ostrowski, P. (1995). *Developing case stories: An analysis of the case method of instruction and storytelling in teaching educational administration*. Paper presented at the American Educational Research Association, San Francisco, CA.
- Banaszewski, T. (2002). Digital storytelling finds its place in the classroom. *Information Today*.
<http://www.infotoday.com/MMSchools/jan02/banaszewski.htm>
- Burk, N. M. (1997). *Using personal narratives as a pedagogical tool: Empowering students through stories*. Paper presented at the Annual Meeting of the National Communication Association, Chicago, IL.
- Brinkley, E.; Leneway, R.; Webb, A. & Harbaugh, C. (2002) Preparing for Digital Story Telling.
<http://t3.preservice.org/wmu/Preparing%20for%20Digital%20Story%20Telling.htm>
- Center for Digital Storytelling. <http://www.storycenter.org>
- Clandinin, D. J., & Connelly, F. M. (1999). *Narrative Inquiry: Experience and story in qualitative research*. San Francisco: Jossey-Bass.
- Connelly, F. M., & Clandinin, D. J. (1990). Stories of experience and narrative inquiry. *Educational Researcher, 19*(4), 2-14.
- Denning, S. (2001). *The Springboard: How Storytelling Ignites Action in Knowledge-Era Organizations*. Boston: Butterworth Heinemann
- DeSalvo, L. (1999). *Writing as a Way of Healing: how telling our stories transforms our lives*. Boston: Beacon Press.
- Fulford, R. (1999). *The Triumph of Narrative: Storytelling in the Age of Mass Culture*. New York: Broadway Books
- Howell, D. D. & Howell, D. K. (2003) *Digital Storytelling: Creating an eStory*. Worthington, OH: Linworth Publishing.
- Jonassen, D. H. (2003). Designing research-based instruction for story problems. *Educational Psychology Review, 15*(3), 267-296.
- Jonassen, D.H. & Hernandez-Serrano, J. (2002). Case-based reasoning and instructional design using stories to support problem solving. *Educational Technology Research and Development, 50*(2), 65-77.
- Kreber, C. (2001). Learning Experientially through case studies? A conceptual analysis. *Teaching in Higher Education, 6*(2), 217-228.
- Kreps, G. L. (1998). *The power of story to personalize, enrich, and humanize communication education: My own story about having fun spinning tales, and illustrating key points in the classroom*. Paper presented at the Annual Meeting of the National Communication Association, New York, NY.
- Lambert, J. (2002) *Digital Storytelling: Capturing Lives, Creating Community*. Berkeley, CA: Digital Diner Press.
- Lauritzen, C. & Jaeger, M. *Integrating Learning Through Story: The Narrative Curriculum*. Albany, NY: Delmar Publishers
- Lathem, S.A. (2005) Learning Communities and Digital Storytelling: New Media for Ancient Tradition. *Society for Information Technology and Teacher Education International Conference 2005*
- Lathem, S.A., Morris, J.L, Vandersall, K. (2004) PT3 FEAT To Portfolio Connection. *Society for Information Technology and Teacher Education International Conference 2004*(1), 3434-3439. [Online]. Available: <http://dl.aace.org/14941>
- Levin, B. B. (2003). Case studies of teacher development: An in-depth look at how thinking about pedagogy develops over time.
- Liedtka, J. The promise and peril of video cases: Reflection on their creation and use. *Journal of Management Education, 25*(4), 409-424.

Digital Storytelling Research Design

- Lipman, D. (1995). *The Storytelling Coach: How to Listen, Praise, and Bring Out People's Best*. Little Rock: August House Publishers, Inc.
- Maguire, J. (1998). *The Power of Personal Storytelling: Spinning Tales to Connect with Others*. New York: Jeremy P. Tarcher/Putnam.
- McDrury, J., & Alterio, M. (2000). Achieving reflective learning using storytelling pathways. *Innovations in Education and Teaching International*, 38(1), 63-73.
- McDrury, J., Alterio, M. (2003) *Learning through Storytelling in Higher Education*. London: Kogan Page.
- Meade, E. (1995). *Tell It by Heart: women and the healing power of story*. Chicago: Open Court
- Meadows, D. (2003) Digital Storytelling: Research-Based Practice in New Media. *Visual Communication*. 2003; 2: 189-193.
- Mellon, C.A. (1999). Digital Storytelling: Effective learning through the internet. *Education Technology*, 39(2), 46-50.
- Mergendoller, J. & Thomas, J. (2004) *Managing Project-Based Learning: Principles from the Field*. Buck Institute for Education. <http://www.bie.org/research/pbl/index.php>
- Moon, J. (1999) *Reflection in Learning and Professional Development*. London: Kogan Page.
- Moon, J. A. (2004). *A Handbook of Reflective and Experiential Learning: Theory and Practice*. London: RoutledgeFalmer.
- Paull, C. (2002) Self-perceptions and social connections: Empowerment through digital storytelling in adult education. Dissertation published by *University of California, Berkeley*
- Porter, B. (2004) *DigiTales: The Art of Telling Digital Stories*. Sedalia, CO: DigiTales StoryKeepers. <http://www.digitales.us>
- Rossiter, M. (2002). *Narrative and stories in adult teaching and learning*.
- Rusche, D. H. (2004). *A comparative study of various digital storytelling programs*. <http://idt.emporia.edu/graduateprojects/rusche/index2.htm>
- Schank, R. (1991) *Tell Me a Story: A New Look at Real and Artificial Memory*. Atheneum
- Schank, R.C. (1990). *Tell me a story: Narrative and intelligence*. Evanston, IL: Northwestern University Press.
- Schön, D. (1991) *The Reflective Turn: Case Studies in and on Educational Practice*. New York: Teachers College Press.
- Simmons, A. (2001). *The Story Factor: inspiration, influence, and persuasion through the art of storytelling*. New York: Basic Books.
- Standley, M. (2003, June). Digital Storytelling: Using new technology and the power of stories to help our students learn--and teach. *Cable in the Classroom*, 16-18. http://www.ciconline.com/Enrichment/Teaching/learningwithtechnology/magarticles/mag_0603_digital_storytelling.htm
- Standley, M. & Ormiston, M. (2003) *Digital Storytelling with PowerPoint*. Eugene: Visions Technology in Education.
- Stepanek, M. (2000). Tell me a (digital) story. *Business Week* (3681).
- Stone, R. (2004). *The Healing Art of Storytelling - A Sacred Journey of Personal Discovery*. New York: Authors Choice Press.
- Stuckey, N. (1995). Performing oral history: Storytelling and pedagogy. *Communication Education*, 44, 1-14.
- Thomas, J. (2000). A Review of Research on Project-Based Learning. Prepared for the AutoDesk Foundations. <http://www.bie.org/research/pbl/index.php>
- Walker, M. (2001). Engineering identities. *British Journal of Sociology of Education*, 22(1), 75-89.
- Weigel, V. B. (2002). *Deep Learning for a Digital Age: Technology's Untapped Potential to Enrich Higher Education*. San Francisco: Jossey-Bass.
- Wood, D. R. (1992). Teaching narratives: A source for faculty development and evaluation. *Harvard Educational Review* (Vol. 62, pp. 535).

Digital Storytelling Research Design

- Wood, J. B. P., Iris A. (1996). Distance learning: Videoconferences as vehicles for faculty development in gerontology/geriatrics. *Educational Gerontology* (Vol. 22, pp. 105): Taylor & Francis Ltd.
- Zubizarreta, J. (2004). *The Learning Portfolio*. Bolton, MA: Anker Publishing.
- Zull, J. E. (2002). *The Art of Changing the Brain: Enriching the Practice of Teaching by Exploring the Biology of Learning*. Sterling, VA: Stylus Publishing.