Category: Paper

Towards a Theory of Immersive Fluency

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Abstract:

The challenge of working fluently across a combination of literacies is a major hurdle in implementing immersive education. Even when students, particularly digital natives, embrace the complexities of the medium, faculty often struggle to develop the technical skills required to create immersive experiences. The theory and practice of immersion applied in the Master of Arts in Learning and Emerging Technologies (MALET) at SUNY Empire State College provides graduate students with immersion in virtual worlds learning as they acquire fluency across literacies. Learners co-create in collaborative virtual environments as designers of teaching and learning experiences. They participate in peer review in preparation for an open, juried showcase presented in virtual worlds, and design a complete learning environment for the Advanced Design Seminar. The fluency they acquire requires moving beyond literacies as they work in

environments which foster a host of experiences leading to visual, digital, media, cultural, and critical fluencies.

One Sentence Summary: Students in an immersive graduate program acquire fluency beyond literacies as they create immersive learning experiences.

Main Text:

Introduction

The challenge of working fluently across a combination of literacies is a major hurdle in implementing immersive education. The act of immersion in itself includes the integration of a complex set of skills such as habituation to being within an avatar embodiment, able navigation, handling headsets, communication etiquette, and orienting oneself to the environment. In immersive learning situations, students are also asked to interact with, and create, a variety of digital media in interdisciplinary contexts. In collaborative settings, they must also coordinate the complex logistics of teamwork and content creation as they master the new environments.

Even when students, particularly digital natives, embrace the complexities of the medium, faculty often struggle to develop the technical skills required to create immersive experiences. According to the *NMC Horizon Report: 2013 Higher Education Edition,* "Faculty training still does not acknowledge the fact that digital media literacy continues its rise in importance as a key skill in every discipline and profession**.** Despite the widespread agreement on the importance of digital media literacy, training in the supporting skills and techniques is rare in teacher education and non-existent in the preparation of faculty." [1-3]

I propose that an immersive approach to education helps overcome these challenges. Just as immersive language learning provides students and faculty with opportunities to become fluent within a condensed time period, learning in immersive environments contributes to a fluid acquisition across literacies. Regardless of entry literacy level, students and teachers in immersive environments learn to integrate skills and literacies while applying them to emergent experiences.

Scope of work

This is an exploration of the concept of information fluency applied to immersion. I propose that immersive fluency should be the overarching goal for students and faculty engaged in immersive education. As in mastery of language, reading, and other skills essential to the learning enterprise, basic literacy is barely enough to assure an adequate functioning level in the medium. Immersive education requires participants to push beyond basic literacies.

Mackey and Jacobson provide an excellent discussion of current developments in the following literacies: information literacy, media literacy, digital literacy, visual literacy, cyberliteracy. [4] They also include an overview of the theory of information fluency, which was the focus of a 1999 report sponsored by the Committee on Information Technology Literacy, National Research Council. According to the report, "this requirement of a deeper understanding than is implied by the rudimentary term "computer literacy" motivated the committee to adopt "fluency" as a term connoting a higher level of competency. People fluent with information technology are able to express themselves creatively, to reformulate knowledge, and to synthesize new information. Fluency with information technology entails a process of lifelong learning in which

individuals continually apply what they know to adapt to change and acquire more knowledge to be more effective at applying information technology to their work and personal lives. Fluency with information technology requires three kinds of knowledge: contemporary skills, foundational concepts, and intellectual capabilities." [4-5]

In a later report on information fluency, Gibson stated that "Fluency conveys a dynamism in the learning process well-suited to highly mobile students who expect constant technological change… This construct of IT fluency introduced the notion of fluency itself, suggesting a dynamic, maturational aspect to acquiring technology skills." [6] Though immersive technologies were not the focus of fluency at the time, this framework transfers well to the mastery of competencies, skills and knowledge required within an immersive learning environment. Deeper levels of understanding and higher levels of fluency are required for immersive fluency in a similar manner to those required for information fluency. In addition, learning within an immersive environment encourages the student to draw from, and develop, different literacy types.

Results

This immersive approach is applied in the Master of Arts in Learning and Emerging Technologies (MALET) at SUNY Empire State College. The theory and practice of immersion provides graduate students with immersion in virtual worlds and experimental environments as they acquire fluency across literacies. Learners co-create in collaborative virtual settings as designers of teaching and learning experiences. They participate in peer review in preparation for an open, juried showcase presented in virtual worlds, and design a complete learning environment for the Advanced Design Seminar. The fluency they acquire requires moving beyond literacies as they work in environments which foster a host of experiences leading to visual, digital, media, cultural, and critical fluencies.

Wankel and Blessinger propose the following application benefits to learner-centered immersive environments:
1) Intragroup and intergroup dialogue and collaboration in a multiplicity of complex situations and contexts
2) Immediacy, a sense of belonging, and group cohesiveness, which fosters shared identity and culture
3) Mediation to facilitate learning tasks, thereby making learning more enjoyable and interesting
4) The development of multiple perspectives and multiple modes of inquiry though role play and personal reflection and through the development of ethical reasoning skills, and
5) Individualized learning that is more personally meaningful to each student and more authentic and conducive to how today's students experience learning in their real life-worlds. [7]

The fully online graduate program MALET program provides multiple, cross-course opportunities for students to experience the benefits described above. In addition, open house events, receptions, festivals, graduate meetings and showcase events hosted within virtual worlds further enhance the student and faculty immersive experience. The learning and emerging

technologies program has the following goals, which align with the benefits proposed by Wankel and Blessinger:

1. Consider the social, ethical and legal impacts of new technologies on our lives, individually and collectively.
2. Explore the multiple, unfolding political and economic impacts of digital media as a transformative agent in the global civic and market arenas.
3. Develop an understanding of how people learn in technology-mediated environments.
4. Examine and evaluate learning that occurs in technology mediated environments, and the impact of digital tools, resources and pedagogical methods in these settings.
5. Acquire the skills and capacity to identify, employ and evaluate technologically supported tools and methodologies.
6. Conduct original research projects both individually and in collaborative faculty-student teams in order to expand knowledge in the field. [8]

Many of these goals are met as the student and faculty convene in immersive learning environments to communicated and collaborate as they design learning experiences.

Term 1	Term 2	Term 3
Learning with Emerging Technologies: Theory and Practice	Design of Online Learning Environments	Evaluating Learning In Participatory Learning Environments
New Media and New Literacies	Social and Ethical Issues in the Digital Era	Advanced Design Seminar: Portfolio Project

Table 1: YEAR 1 Core Courses

Term 1	Term 2	Term 3
Elective	Elective	Pro-Seminar
Elective	Elective	Research or Capstone Project

Table 2: YEAR 2 Electives and Research Seminars

Program Courses	Other Courses	Practicum
Game Based Learning	Individualized Studies	Research
Identities and Communities in Immersive Environments	Selections from other graduate programs: MBA, MA in Social Policy, MLA (liberal studies), MAT (teaching), MAAL (adult learning)	Design
Advanced Program Planning/Systems Thinking	Selections from certificate programs	Teaching
Advanced Evaluation and Analytics		
Computers, Ethics and Society		

Table 3: Elective Types

Students start their immersive experience with low stakes requirements. They must attend an in-world open house and orientation, which will allow them to familiarize themselves with

navigating the virtual space while learning about program expectations. At this point in the program, they only need to create an avatar account, log into the world, teleport to the College campus, and find their way to a seat. During this initial meeting, they learn to communicate using chat, instant messaging, group functions, profile management, and voice functions of the platform.

Figure 1. Initial Immersion. Immersion begins with the MALET Opening Reception. Students receive an orientation to the program, and virtual environment

As students begin their studies, each of the courses introduces them to aspects of virtual and immersive literacy that will assist them in acquiring competency in immersive education. They learn the theory and practice of learning with emerging technologies, and are introduced to new media and new literacies. In the second term, the students attend a second orientation. This time, they are the senior group welcoming a newer cohort, and assisting their incoming peers in mastering the basic entry skills in the immersive environment. They learn to design online learning environments, and address social and ethical issues in the digital era.

Figure 2. Learning Integration. The first sessions require a conversion of digital media, technology, and communication skills as students begin to integrate their learning and prepare for complex tasks.

The third term sequence moves the students from literacy to fluency. Students evaluate learning in participatory environments as they create within immersive virtual environments during the culminating first year course: Advanced Design Seminar. The advanced seminar includes multiple immersion experiences, including project creation, presentation, and peer review.

Interpretations

In this final core course of the MALET Program, students continue to deepen their knowledge of theories and practices pertaining to instructional design and emerging technologies. They create a body of work that reflects the ability to integrate theory and skills of design and development, learning principles, and assessment methods. This knowledge and skill is demonstrated in the creation of a comprehensive multimedia project for their ePortfolio or their professional work environment. This project should demonstrate the student's growth as a specialist in emerging technologies as well as incorporate their own past skills, knowledge, and/or interests on their chosen topic. Personal reflection is used to self-evaluate their own evidence of learning and to make deeper connections between the concepts learned in the other courses.

Students incorporate knowledge of instructional methods, learning theories and evaluation techniques with principles of instructional design and multimedia development to create a web-based or instructional design project. Students might choose to explore topics such as: how to apply learning theories to instructional design and assessment models; how to experiment with new technology tools to address a context-specific problem; how to implement, manage and evaluate a design project; how to analyze the effectiveness of a project designed using a particular model but used in different educational settings. Program participants take part in a two-day immersive juried Design Showcase, where they present their design portfolios, and join in peer review and feedback discussions. [9]

Figure 3: Creative Collaboration. Students co-create at a distance in collaborative virtual environments as part of their learning.

Students are evaluated on their ability to create an effective multimedia project that meets the criteria established by the student within the stated course goals. The project is expected to be completed at a graduate, professional level, peer-reviewed, framed with the appropriate theory, assessed, and evaluated. Specifically, their work is assessed using the following criteria:

1. Alignment with stated Program Goals (G) and Specific Learning Objectives (SLOs) for this course. Students must identify which goals and SOs align with each section of their project and specify how they are met. [See S1]

2. Alignment with NETS student standards
http://www.iste.org/standards/nets-for-students/nets-student-standards-2007.aspx
Students must identify which NETS Student standards align with each section of their project and specify how they are met.

3. Alignment with NETS teacher standards
http://www.iste.org/standards/nets-for-teachers.aspx
Students must identify which NETS Teacher standards align with each section of their project and specify how they are met.

4. Peer review and critique of projects
They are assigned as peer reviewer to 2-3 peer projects.

5. A substantive final reflective paper used to self-evaluate the student's evidence of learning and to make deeper connections between the concepts learned in the other courses. This is a synthesis of the project within a learning framework, and would include a discussion of each iteration of the project with a reflective introduction and conclusion.

6. Final integration of project into ePortfolio and participation in Immersive Design Showcase. [10]

Conclusion

This preliminary exploration a theory of immersive fluency attempts to demonstrate that a carefully designed program built to progressive move students from an introductory literacy level to fluency in immersive technologies (and related skills, knowledge and competencies). Whereas students entering the program may have little or no experience in the immersive environment, scaffolding, peer support, and total immersion in complex, collaborative virtual spaces provide them with the a gradual acquisition of immersive fluency.

References and Notes:

1. L. Johnson, S. B. Adams, M. Cummins, V. Estrada, A. Freeman, et al. *NMC Horizon Report: 2013 Higher Education Edition. (*The New Media Consortium, Austin, Texas, 2013)
2. "The term **'digital and media literacy'** is used to encompass the full range of cognitive, emotional and social competencies that includes the use of texts, tools and technologies; the skills of critical thinking and analysis; the practice of message composition and creativity; the ability to engage in reflection and ethical thinking; as well as active participation through teamwork and collaboration."
3. R. Hobbs. *Digital and Media Literacy: A Plan of Action. (*The Aspen Institute, Washington, DC, 2010)
4. T. Mackey, T. Jacobson. Reframing Information Literacy as a Metaliteracy. *College & Research Libraries* [serial online]. January 2011;72(1):62-78.
5. National Research Council (U.S.). *Being fluent with information technology*. (National Academy Press , Washington, DC, 1999)
6. Gibson C. Information Literacy and IT Fluency. *Reference & User Services Quarterly* [serial online]. Spring2007 2007;46(3):23-59
7. C. Wankel, P. Blessinger. *Increasing student engagement and retention using immersive interfaces: virtual worlds, gaming, and stimulation*. (Emerald, Bingley, UK, 2012)
8. Gal, D. et al. *Master of Arts in Learning and Emerging Technologies Full Program Proposal*. (SUNY Empire State College, Saratoga Springs, NY 2011)
9. *Advanced Design Seminar: Portfolio Project* Official Course Description (SUNY Empire State College, Saratoga Springs, NY 2012)
10. Allain, Nicola Marae. *Advanced Design Seminar: Portfolio Project* (Online course documents. SUNY Empire State College, Saratoga Springs, NY 2012).

Supplementary Materials

S1. Key Learning Outcomes [8]

REINF=Reinforced
SLO3: Apply an understanding of emerging technologies to the personally-valued education and social systems that they would like to develop or support from the knowledge, skills, and abilities gained within the MALET program.
SLO7: Identify and assess current uses of technology tools in learning environments relevant to one's own context.
SLO10: Create new practices, products, and performances.
SLO 11: Produce high quality, cohesive, clear and effective learning products – whether they are papers, reports, electronic multi-media or other ICT products.
SLO 14: Demonstrate the ability to produce projects in cooperative teams.
SLO 15: Demonstrate ability to communicate effectively in groups by supporting and/or generating consensus.
SLO 19: Design and conduct effective evaluations that capture how specific ICT tools impact learning.
SLO 22: Consider the ways that today's technology implementers improve one's own learning and understanding, by engaging in a range of activities (workshops, forums, and affinity groups.
M/A = Master/Assessed
SLO1: Understand how different learning theories inform the planning, creation, and facilitation of learning experiences with new technologies.
SLO2: Demonstrate the ability to use technology tools and skills beyond traditional modes of production (products as material artifacts and commodities) to consider them tools of mediation, collaboration, and design development.
SLO5: Create new content relevant to personal needs or professional contexts.
SLO 9: Demonstrate the ability to use inquiry to critique/evaluate existing technology and digital tool use.
SLO 12: Exhibit willingness to participate with, listen to, and support effectively and responsibly the participants in a learning community.
SLO 17: Develop and evaluate technology tools that are effective for other learners.
SLO 18: Demonstrate the ability to design, disseminate and study the usability of technology tools that will be used by learners in one's own work environment.
SLO 21: Document a critically reflective ability to learn new technology tools in an independent and self-directed way.
SLO 23: Articulate a personal and original perspective on the uses and applications of emerging technologies, going beyond the ideas shared by instructors, reading, and resources.