Digital User-Generated Content and Emerging Digital Literacy

Elizabeth Fanning
The University of Virginia
Charlottesville, VA, USA
tsadi@aol.com

Abstract: Video mashing, game modding, Youtube, wikis, blogs, and the communities that rise up around them are becoming yet another facet of the communication landscape. But how effective are these expressions in communicating meaning? What is their potential role in learning? This research examined if the intent of a message in user-generated content is conveyed or lost in its interpretation by other users or readers, and if gender similarities or differences between a content creator and content interpreter have an effect on the agreement between message intent and interpretation. Examples of digital user-generated content, specifically digital stories and movies, were used to examine the types of information that appear to convey effectively. Participants were asked to either create or review user-generated content. Both groups were asked to respond to questions about facts, feelings, and projections conveyed through the content. Questions pertained to facts, feelings, and projections conveyed in the content. Content creator responses were compared with participant responses. Data analysis indicated that while digital user-generated content may be an effective form of articulation and communication, the identity of the creator is indeterminable.

Introduction

The law of unforeseen or unintended consequences (Merton, 1936) describes how one action can lead to effects that are unanticipated or unintended. History is rich with such examples of resulting missteps in some cases, and innovative adaptation in others, such as the effect of aspirin in preventing heart attacks (Fusco, 2005) or the use of the clothes iron to make grilled cheese sandwiches (Berman & McNeil, 1993). Recently, in the past decade or so, computer users have become unanticipated innovators, using software tools and existing digital content to create personal and fictional stories – and reach out to connect with other users by sharing their stories (Bughin, 2007; Levy & Stone, 2006; Marathe, 2002). Such digital testimony has emerged through “mashing” – that is, users taking audio or visual content, for instance, and re-editing it into a new musical arrangement, or remixing a movie to tell a completely different story (Holt, 2004). Users then upload these personal creations to community websites, be it Youtube.com or a social networking software like Facebook (Bughin, 2007; Deuze, 2006; Marathe, 2002).

Particularly with the rise of Web 2.0, this phenomenon continues to grow and is used in a variety of venues, from social networking sites, to game-based sites, to online marketing
presences (Bughin, 2007; Ceune, 2005), positioning itself as a fifth estate commentary on politics, the media, and commerce. In order to qualify the role of user-generated content as a tool for learning, this small study attempted to pursue insight into the following: Is the intent of a creator’s message in user-generated content conveyed or lost in its interpretation by other users or readers? Do gender similarities or differences between a content creator and content interpreter have an effect on agreement between intent and interpretation of the content? Additionally and more specifically, which of the following types of information digital user-generated content conveyed most effectively: facts, feelings, and projections?

![Fig. 1 - A movie created using tools in *The Sims 2*, uploaded to www.youtube.com](image)

**Exploration**

The researchers conducted a study in which people were asked to use tools in the computer game *The Sims 2* to create characters and storylines for others to read and evaluate. *The Sims 2* is a commercial off the shelf game that provides pre-packaged characters and settings in which users can interact and even record their gameplay sessions using screenshot and video capturing tools provided. The playing experience in *The Sims 2* is driven by a narrative framework that builds a story based on user interaction (Miklauic, 2003). Within this process, *The Sims 2* provides users with tools to customize and create their own characters and settings, with the only parameters confining their creativity being the framework provided by Maslow’s hierarchy of needs. These needs govern the characters agenda of needs and basic affectations. The user can also use *The Sims 2* tools build the physical environment.
Fig 2 - Screenshot from *The Sims2* of the dialog box users use to create in detail the physical characteristics of their characters.

Fig. 3 - Screenshot from *The Sims2* of the dialog box users use to set the personality traits for their *Sims* characters.
Background

User-Generated Content: Rogues, Innovators, and then Collaborators

The roots of repurposing digital content into a medium for social expression may lie in the phenomenon of game modding, which emerged with purpose in the 1990’s, when users began to reshape the graphics, then the character affectations, and then even storylines of commercial off the shelf games into content that simply used the “host” game as a framework (Cuene, 2005; Holt, 2004; Squire, 2002). The life worlds created by games such as The Sims serve as a “cognitive reference system” that allows users to interact and connect with each other (Marathe, 2002; Scissons, 2003), and the game design itself becomes a collaboration between players and designers (Ibid; Ibid).

Initially, game distributors endeavored to block game modders’ efforts through programming, but in the spirit of computer gaming, this barrier simply represented yet another enticing challenge to the modders (Holt, 2004; Squire, 2002;). Eventually, game companies relented to their user base by packaging games with editors to facilitate modding – and inviting users to provide them with content that they could include in upcoming game releases (Sawyer, 2007). With the emergence of social network sites like as Flickr, Youtube, and Facebook, which facilitate the sharing of video, images, links, and message-building, user-generated content gained both fluency and traction among computer users, and user expectations quickly shifted concerning the extent to which digital content was static or available for customization (Bughin, 2007; Cuene, 2005; Levey & Stone, 2006).

Fig. 4 - A screenshot from a story created for this study using The Sims2 and uploaded to The Sims2 community website.
Sharing on the Worldwide Web: Motivating Factors and Identify

While the extent of the reach of user-generated content, exchange, and social networking may have been unanticipated, it does reflect a human need as old as the crackling campfire: the need to share and refashion stories (Schank, 1995). To point, those who mash existing videos or create movies and upload them for others to view, comment on, rate, and share or tag in their social bookmark manager, do not do so for financial reward, nor for professional credentials, but rather for efficacy and recognition: to give form to their voice and a conduit to connect with others they may never see or hear back from (Bughin, 2007; Kollak, 1999; Tara, 2005). Often, these content creators are as anonymous as those who left handprints on cave walls thousands of years ago as testimony to their existence, and perhaps are equally unconcerned about fame in posterity (Marathe, 2002).

This emerging form of adapted digital expression is emblematic of social psychologist Kenneth Gergen’s theory of the “multiphrenic self” (Gergen, 1991). Gergen asserts that for each of the many technological innovations available to most of us, from the phone to social networking software, we create discrete identities. This results in “multiple expressions of self within one moment” (Ibid). Some of these expressions of self include imaginative email addresses, or less subtly, characters in digital stories, videos, and other forms of user-generated content, which the creator upload to the internet, for validation by someone else who might review, rate, or tag that content to their own personal online space (Marathe, 2002).

Adaptation for Meaning, Market, and Learning

Phillips described the computer as a “cognitive prosthetic” (Phillips, 2007), maintaining that the computer serves to improve intelligence by providing a means for distributing knowledge through communication and collaboration. With the expanding utility in communication and collaboration provided by Web 2.0 tools and even “moddable” commercial off the shelf games, the implementation of the digital user-generated content as a learning tool is inevitable (Bedard-Voorhees, 2007; Levy, 1998). Brazen early adopters are already prospecting for meaningful application of user-generated content, particularly in media and marketing (Bughin, 2007; Cuene, 2005; Marathe, 2002). These sectors have already determined, based on indications from user traffic, that user-generated content may be more valuable for advertising than the content created by the advertisers themselves (Ceune, 2005). As a result, some advertising sites are sharing a percentage of advertising revenues with “top contributors” of user-generated content to their advertising sites (Bughin, 2007).

The researcher attempted to begin to clarify more specifically the value and effectiveness of user-generated content in order to contextualize it appropriately in a learning setting. Perhaps we can better prepare for its adaptation and inception in education by better understanding the types of information we are able to share effectively. Specifically, when we create digital content, what are we communicating effectively? How well does
our intention convey through our story or narrative? What do we reveal about ourselves as creators and receivers of this information?

Factors for Communication

Most theories of communication include the following common elements: content, intention, media, comprehension, shared background of understanding, and mutual monitoring of interaction (Scissons, 2004). The meaning generated from communication is the result of an interpretive process vested in the context of the communication and the mental models of the participants (Holstein & Gubrium, 2000). It was hoped that the data from this study would indicate the extent to which communication via user-generated content transcends context to communicate facts, feelings, and connection between creator and reviewer.

Methodology

The purpose of the study was to begin to examine how well we understand each other through digital personal expression. How successfully does user-generated content convey its intended message? What types of information currently appear to be better understood? For instance, how well are facts, intent, and probabilities exchanged? How well do we perceive and then empathize with storylines in user-generated content? What do we know about the content creator? Do factors such as gender affect how well the content carries its message? By answering these questions, we may have a better understanding of how to contextualize the use of user-generated content in a learning environment or even a therapeutic setting, in which narrative is often used as a tool for probing and connecting with understanding.

The study involved asking participants either to create characters and stories about themselves using the tools in *The Sims 2* or to review the stories created by others. Participants created six digital stories with user-created images and narrative. Six stories created as movies were also used in this study. Content creators and content reviewers completed questions about the facts and feelings indicated in the stories, as well as projections of how the stories might continue.

Participants were divided into three groups:

- Six story creators, three males and three females, who used *The Sims 2* tools to create characters and put together a narrative with screen snapshots and written narrative
- Six male and six female reviewers of the created stories
- Eight male and eight female reviewers of one of four videos created using *The Sims 2* tools and uploaded to *The Sims 2* community website
In the first group, three male and three female participants were taught how to use the tools in *The Sims 2* to create characters and then use them to create a story about a household. The household could be a simulation of their own household or a fictional creation. The story creators were asked to use *The Sims 2* tools to create a Family Album, a *The Sims 2* -based document with pictures and narrative that tells a story about the household they created. The creators then uploaded their Family Albums to a site created by Electronic Arts for people to post, share, and review such stories. Finally, the creators were asked to answer a series of questions about their stories. These questions dealt with facts, feelings, and projections. Specifically, participants were asked how many characters they included in their stories, how the creator or main characters in the stories felt about their household and living situation, and if the characters would continue to live in the same place a year from now. Participants were also asked to indicate their age and gender, but no other identifying information.

Fig. 5 - The Sims 2 Exchange, a site at which players can upload narratives they create using *The Sims 2*. Readers of these narratives can rate the stories.

Fig. 6 - Screenshots of three different households or families created by participants in this study.
The second group of participants was asked to review the stories created by the first group. Each story was assigned two female and two male reviewers. Reviewers were asked to answer the same questions as the story creators; however, the questions pertained to the reviewers’ perception of how many characters were in the story, how the story creators or the main character in the story felt in the story or household, and participant reviewers were asked to project if the characters in the story would be in that same household in a year. Reviewers were also asked to indicate the age and gender of the creator of the story they reviewed.
Fig 7 – Participants in the Study
Responses from the reviewers in the second group were compared with the story creators. Identified differences and commonalities were examined between types of information intended by the story creator and story perceiver, and if gender affected these findings (see Appendix B).

A third group of participants in this study was asked to review one of four videos created by The Sims 2 players and uploaded to The Sims 2 site. While it cannot be determined with certainty the gender of the creators of each videos, this study endeavored to find videos that were more likely created by a male or female. Each video was reviewed by two males and two females, who then answered the same questions as those who reviewed the stories created for this study.

Findings

Using an ANOVA with a probability of <0.05, data from the questionnaires were analyzed to compare responses of the content creators to the content reviewers. Data were further analyzed for the effect of the gender of the content creator with the content reviewers. Unexpectedly, no gender-based relationships were indicated. Reviewers generally agreed with storytellers in terms of the intent of the story, understanding where the story took place, how many people were involved in the story, and even how people in the story felt about their role in the story and expectations of how it might continue. However, the data did indicate that regardless of gender, story reviewers were not able to discern the gender or age of the storyteller.

Some participants did provide unsolicited feedback indicating that they believed that English may not have been the first language of the creators, which was in fact, true; however, the data did not indicate that language faculty had an effect on the intended or perceived meaning of the content. Consequently, this initial study appears to suggest that while user-generated content is indeed effective in delivering meaning, even when communicating in a second language, the identity of the creator remains anonymous unless other kinds of identifying information are provided. Hence, this digital storytelling aspect of the “multiphrenic self” Gergen discussed appear indeed separate from other expressions of the self. Further study with a larger, more segmented sample is needed to confirm this, however, with a wider range of means for generating user-generated content.

Discussion

This study examined how well different types of information were communicated effectively through user-generated digital content, in hopes of gaining insight into the application of user-generated content in a learning context. Data from this study indicated that the content creator’s intended meaning is in agreement with the meaning perceived by the content reviewers, regardless of gender or language background. An unexpected
outcome from the data revealed how identifying elements of the content creator in terms of age and gender were not determinable by the reviewers.

**A Learning Tool**

How does telling a story using digital tools support learning? In instructional settings, student-generated content is used to observe learning outcomes and meaning-making in constructivist, experiential learning environments (Jonassen, 1992). Forward-thinking instructors are already integrating user-generated digital content into their learning environments to meet the following learning goals (Bedard-Voorhees, 2007):

- To defend a viewpoint and choice of source material
- To interact with an audience
- To achieve digital literacy – to write or create content with 21st century tools

In this small study, the effectiveness indicated of digital user-generated content in sharing meaning suggests that user-generated content can serve a role in instruction, particularly instruction with online or technology-based components, as:

- A communication tool
- A medium for testament, community and trust-building
- A tool for cultivating literacy

**Communication**

Based on Holstein and Gubrium’s (2002) definition of communication as an interpretive process vested in the context of the communication and the mental models of the participants, this study supports that user-generated content is indeed a tool for facilitating communication. Age, gender, and language differences do not appear to have an effect on conveying meaning in terms of facts, feelings, or projection.

**Testament, Community and Trust-Building**

Schank, an expert in the use of narrative for learning, maintains that human memory is story based: we have a need to tell stories in order to create memories (Schank, 1995). Hence, if we do not take the time to recount experience, real or fabricated, we won’t process or remember its meaning and significance (Ibid). While student-generated content is not a new concept (Taylor, 2007), the computer-based innovations are. Many intended learners are already actively recounting stories through user-generated content, be it through a Youtube movie, a threaded posting to Facebook, or a book review and rating on Amazon.com (Cuene, 2005; Marathe, 2002). Understanding this, those of us involved in instruction and the design of instruction need to prepare for the relevance of digital user-generated content in the communication context of our intended users and its potential utility in learning activities (Bedard-Voorhees, 2007).
Literacy

Additionally, the easily apparent value of user-generated content is in supporting learners in developing skills to communicate and interpret ideas, yet its facilitation of digital literacy (Bedard-Voorhees, 2007; Kahn, 2005) may be perhaps at least as important. Literacy was traditionally used to describe one’s ability to read and write, but as our means to communicate and connect has expanded, so too has the scope of our literacy (Bedard-Voorhees, 2007). Lemke (1998), one of the principle developers of social semiotics, which examines the role of culture and community in the role of texts and the creation of meaning, contends that we now face a range of literacies, each consisting of a set of interdependent social practices (Ibid). Each of these literacies are a means by which people use media and strategies for meaning-making to connect with each other and further meaning and understanding (Ibid). This definition fits in nicely with the emerging role of digital user-generated content and its potential as student-generated content. Not only is meaning-making central to learning, but the literacy required to create it becomes a relevant learning goal as well.

Conclusion

The participants in this small study indicate that user-generated content is effective in sharing meaning; however, additional study with a larger sample and a variety of web 2.0 tools will be necessary to confirm these determinations. In addition, while this study indicates that meaning is conveyed effectively through user-generated content, to substantiate the effect of this content on learning, further study will need to examine more specifically its effects on the attitudes and behaviors of both the creator and reviewer.

Acknowledgements

• Dr. Catherine Brighton, Assistant Professor, Curry School of Education, The University of Virginia, USA
• Dr. Nancy E. Kechner, Research Computing Support Coordinator, Office of Information Technology and Communication, The University of Virginia, USA
References


Appendices
Appendix A – Key Terms

Machinima – Created from the words machine and cinema, machinima is a movement generated by aspiring filmmakers and innovative and creative computer users who use the tools, characters, and settings in existing video games to create original stories and narratives, usually provided through an uploaded animation or video file (Shupp, 2005).

Modding - Commercial-off-the-shelf (COTS) games increasingly provide tools – right on the CD – that allow players, at no cost, to change the look, feel, characters and action of the games to suit their needs, even to the point of creating entirely new games in the process (Prensky, 2003).

Mashing - In a thousand bedrooms like Wilson's, amateur bootleggers are cutting and splicing movies, TV clips and music videos to create an underground art form that's fast winning a mainstream audience. To join them, all you need is a computer, some easily pirated editing software, and a decent sense of rhythm (Rowan, 2004).

Social networking software - An application in which people have personalized spaces to send and receive messages or share media with other people who may or may not be using the same application (Ferster, 2007).

User-generated content – In a learning setting, students may create web-based content that includes films, websites, logs, graphics, and web-based projects, exhibits with tools like Flickr (a site for posting and sharing photos), My Space, Facebook, Second Life, World of Warcraft, podcasts, and social bookmarks like Del.icio.us. Digital content is being created and hosted for students in both face-to-face and online courses (Bedard-Voorhees, 2007).
Appendix B – Example of a full story created by a participant in this study using tools in *The Sims 2*.

Like the other participants in this study, this participant was trained on how to use the tools and created the story at their convenience. After completing the story, the participant answered a questionnaire about their story and uploaded it to *The Sims 2* community site for others in the study to review. Those who read this story were asked to complete a similar questionnaire, and their answers were compared with those of the creator. The data from this story is provided below.

**The Pootwallah Family**

- **Created**: 05.09.2006  **Updated**: 05.09.2006
  That zany Pootwallah clan... always fooling around.

- **Created**: 05.09.2006  **Updated**: 05.09.2006
  Pindaree is an old-fashioned nagging mother-in-law, never satisfied with Kanrdachee's housekeeping.

- **Created**: 05.09.2006  **Updated**: 05.09.2006
  But good-natured Abagwan just ignores the squabbling, intent on passing his Microsoft Networking Certificate.

- **Created**: 05.09.2006  **Updated**: 05.09.2006
  And Kanrdachee gives as good as she gets on the domestic diplomatic battlefield.

- **Created**: 05.09.2006  **Updated**: 05.09.2006
  And Handay is well content with his pretty American girlfriend Nina Caliente... though she's a bit obsessive about counting blue cars that pass the house.

*Fig. 8 – A Digital Story created by a participant in this study, p. 1*
...and they certainly enjoy making fun of the village idiot who wanders about listless in front of the house, pretending to be a blue car.

Unfortunately, Pindaree has taken a dislike to Nina, who Pindaree thinks is a brazen bit of trailer trash with no culture or education.

Maybe it's not a good idea to whip Nina into such a frenzy, since she's just gotten out of the joint after doing two-to-five for malicious mischief and arson.

Pindaree is too busy with her indignant screed against slutty Nina to notice the sharp smell of petrol from the oven.

But one must admit, shared tasks like fighting kitchen fires are certainly a fine way to bring the family together.

Fig. 9 – A Digital Story created by a participant in this study, p. 2
The Pootwallah's are not so modern that they neglect to practice the old native dance rituals to protect the house from unfriendly spirits.

Created: 05.09.2006 Updated: 05.09.2006

Then, together, the Pootwallahs agree, fighting kitchen fires is heart- and hand-warming work.

Created: 05.09.2006 Updated: 05.09.2006

After this beautiful old-country ritual of family reverence and renewal, the Pootwallahs are all tired out, and ready for a little shut-eye.

Created: 05.09.2006 Updated: 05.09.2006

Before turning in, Abagwan gives hearty thanks at the family's heirloom household shrine, praising the elephant gods for watching over his beloved family.

Fig. 10 – A Digital Story created by a participant in this study, p. 3
Appendix C – Groupings of Questions Given to Content Creators and Content Reviewers

Participants were given the following survey to complete. Content creators answered questions worded in the second person (“How well do you like…”), while content reviewers answered the same questions about the content reviewers (“How well did the creator like their…”).

Questions are grouped into categories of information that would then be compared in data analysis. Categories were not identified and as specifically grouped in the original surveys.

**Feelings**

Mark the area of the scale to rate **how well you like** your [how well did the creator like their] living space, with 4 being the best.

1 2 3 4

Mark the area of the scale to rate the extent to which your living space **makes you happy** [make the creator of it happy], with 4 being the happiest.

1 2 3 4

Mark the area of the scale to rate the extent to which your living space is a **safe place** for you [the creator’s living space is a safe place for them], with 4 being the safest.

1 2 3 4

Mark the area of the scale to rate how **well you get along with your housemates** [how well the creator gets along with their housemates], with 4 being the best.

1 2 3 4

Did you [the content creator] enjoy this activity? *(circle one)*

No Not much For the most part Yes

**Facts**

**Who** do you [who does the creator] live with? *(circle one)*

Roommates Family No one

**How many people** do you [does the creator] live with? *(enter a number)*

_____________

What type of living **space** do you [does the creator] live in?

Apartment Dorm House
Projection

How do you [does the creator] like to spend your time in your living space? (circle one)
   Alone               With people

Which word best describes your [the creator’s] living situation? (circle one)
   Satisfactory       Uncomfortable       Fun       Busy       Quiet       Lonely       Crowded
   Happy               Sad                     Other (write in word) __________________

Would you [the creator] like to continue living in your [the creator’s] current living situation? (circle one)
   No          Unlikely       Most likely       Yes

Identity

What is your [the creator’s] gender? (circle one)
   Male       Female

Choose the age range that best describes you [the creator]: (circle one)
   18       19       20       21       22       23       24       25 or older
Appendix D – A Sample of Responses by Reviewers to a Story

<table>
<thead>
<tr>
<th>Question</th>
<th>Male 1</th>
<th>Female 1</th>
<th>Male 2</th>
<th>Female 2</th>
<th>Creator</th>
</tr>
</thead>
<tbody>
<tr>
<td>What did you find most interesting in The Sims?</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mark the area of the scale to rate how well this person likes their living space, with 4 being the best.</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Mark the area of the scale to rate the extent to which this person's living space makes them happy, with 4 being the happiest.</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Mark the area of the scale to rate the extent to which this living space is a safe place for the person who created it, with 4 being the safest.</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Mark the area of the scale to rate how well this person gets along with their housemates, with 4 being the best.</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Who does this person live with?</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>How many people does this person live with?</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>What type of living space does this person live in?</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>What do you think is the gender of the person who created this living space?</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Choose the age range of the person who created this living space</td>
<td>8</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>How does this person like to spend their time in their living space?</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Which word best describes this person’s living situation?</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 1: A sample of responses by reviewers and the creator of a story