

Liquid Narrative

Cognition and Learning in Games

R. Michael Young
Associate Professor, Computer Science
Co-Director, Digital Games Research Center



the role of narrative

Narrative is seen as playing a central role in

- **Education and training** (Gee, 2003; Gick & Holyoak, 1983)
- **Communication of scientific Ideas** (Herman, 1998; Hoffman, 2005)
- **Characterization of business practices** (Thomas, 1999)
- **Communicating cultural heritage** (Collins et al, 2003)



the role of narrative

- Narrative is read approximately twice as fast as informational text but remembered twice as well (Graesser, Olde, & Klettke, 2002)



Narrative is one of the fundamental modes of creative expression. Creativity plays a central role in the effective design of film, novels, oral stories, computer games and most other narrative media. Beyond the creation of narratives intended to entertain, narrative is used as a powerful mode of communication in a range of other contexts. Narrative and its creative design plays a role in education and training (Gee, 2003; Gick & Holyoak, 1983), the communication of scientific ideas (Herman, 1998; Hoffman, 2005), characterizations of business practices (Thomas, 1999), communicating cultural heritage (Collins et al, 2003) and other contexts. Psychological studies have revealed that narrative is read approximately twice as fast as informational text but remembered twice as well (Graesser, Olde, & Klettke, 2002) so clearly it has a special status in the cognitive system. There is growing awareness of the foundational role of narrative in our understanding of not only fictional worlds (Branigan, 1992; Gerrig, 1993; Graesser, Kessler, Kruez, & McLain-Allen, 1998) but also the real world around us (Bruner 1986; Bruner 1991; Graesser, Singer, & Trabasso, 1994).

Virtual environments like massively multiplayer online games have come to blur the distinction between fictional worlds and everyday life as millions of people extend their daily social, leisure and professional identities into these online contexts. To a great extent, these interactive systems rely for their effectiveness on the explicit role that narrative plays in the design of their users' interactions. Training systems (Issenberg et al, 1999; Gordon, 2004; Zyda et al., 2003; Swartout and van Lent, 2003), educational simulation (Dede et al., 1994; Burk 1998; Squire, 2003; Steinkuehler, to appear) and computer games (Crawford, 2004; Salen and Zimmerman, 2003; Jenkins, 2004) all exploit narrative conventions to engage, explain and entertain.

the role of narrative

- Narrative is central to our understanding of both
 - **fictional worlds** (Branigan, 1992; Gerrig, 1993; Graesser, Kessler, Kruez, & McLain-Allen, 1998)
 - **the world around us** (Bruner 1986; Bruner 1991; Graesser, Singer, & Trabasso, 1994).



narrative as a central research focus

- The games perspective
- The cognitive perspective
- The learning perspective
- All combine to focus work on narrative cognition and learning in games



computational models of narrative

- Procedural content generation
- Generating quests, challenges, levels, cinematics
 - based on narrative concepts
 - tailored to specific context



linking narrative to game worlds

- Exploit
 - formal models of actions within a game world
 - explicit models of comprehension for a user
- Generate action sequences that can readily be understood as narrative



How might this be relevant to learning?

- Example: expectation violation
 - Violation of expectation increases recall
 - Manipulating expectations, then violating them, can prompt greater recall



Liquid Narrative

Cognition and Learning in Games

R. Michael Young
Associate Professor, Computer Science
Co-Director, Digital Games Research Center

