

**Table 1**  
**New Media Literacies**

New Media Literacy	Description
Play	Capacity to experiment with one's surroundings as a form of problem-solving.
Performance	Ability to adopt alternative identities for improvisation and discovery.
Simulation	Ability to interpret and construct dynamic models of real-world processes.
Appropriation	Ability to meaningfully sample and remix media content.
Multitasking	Ability to scan one's environment and shift focus as needed to salient details.
Distributed cognition	Ability to interact meaningfully with tools that expand mental capacities.
Collective intelligence	Ability to pool knowledge and compare notes with others toward a common goal.
Judgment	Ability to evaluate the reliability and credibility of different information sources.
Transmedia navigation	Ability to follow the flow of stories and information across multiple modalities.
Networking	Ability to search for, synthesize, and disseminate information.
Negotiation	Ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternative norms.

**Play:**

- The idea of playing to learn is not a new concept. Sociologists and anthropologists have tended to treat play as a human activity in which they analyze the principal characteristics observed in the age of the player (Caillois, 1961). This stems from Groos's (1898) theory of preexercise, which led him to affirm that people do not

play because they are young, but people have a youth because they must play to practice.

- Play systematically confronts the child with a learning situation that could only be located within his or her area of close development. That is, it would involve a task located slightly above the acquired skills (Vygotsky, 1967).
- Childhood is a time for constructing the relationship between the world through play.
- Learning to play is learning to master situations marked metacommunication (Bateson, 1972).
- If early childhood already witnesses the use of play for educational purposes, it is also the time for building this structure. Older children and adults will continue to use this structure to entertain themselves and to learn.
- Individuals must relearn to pretend—learn that things are not as they seem but within the context of a controlled and negotiated action between players.

### **Researchers:**

- Rieber, Smith, and Noah (1998) argued that digital games engage players in productive play, which gives reason for renewed optimism for using games to support learning in leveraging the increasing power of the computer to immerse the player in interactive simulated worlds.

- Clegg (1991) argued that the instructional context that envelops gaming is a more important predictor of learning than the game itself.

## **Why Gaming?**

- By representing the simulations through gaming conventions, educators can potentially increase engagement while fostering deeper learning, as learners engage in critical and recursive game play whereby they generate hypotheses about the game, develop plans and strategies, observe their results, and readjust their hypotheses (Gee, 2003b).
- Designing human-centered educational games that have rich storylines is not a magic bullet, nor is it an easy undertaking. The implications for designing educational games include blended motivation and self-regulated learning (Rieber et al., 1998). Today's gamers learn differently within the context of virtual worlds. How they learn and what they learn is often mutually exclusive.
- Games provide learners the opportunity to learn by doing, experience situations first-hand, and role-play. This establishes the proliferation of gaming in today's learners (Rickard & Oblinger, 2003). Virtual learning environments allow for development of higher levels of learning and collaboration skills (Gibbs, 1999), and improved practical reasoning skills (Wood & Stewart, 1987).

- The video games in education conversation can be couched in developmental psychology (play), learning theory (constructivist), and 21<sup>st</sup> century skills. The power of these teaching and learning tools is not readily apparent in the literature.
- The first use of video games is as a platform for distance learning. The second application is as an instrument for teaching and learning course material.
- Because of their rich storylines, video games easily lend themselves to established instructional practices such as problem-based learning.
- A driving force of the pervasiveness of the Internet is the convergence of voice, data, and video networks and the deployment of converged services (Lazar, 2004). Katz (2005) argued that convergence is less a technical exercise than a social one. It promises technology-mediated collaboration and community.
- Annetta and Holmes (2006) reported that using avatars, digital representations of oneself, increased social presence and built a stronger community of practice. Students who had a choice of which avatar they would like to be reported greater course satisfaction and felt closer to their classmates and instructor than students who only could choose a male or a female avatar (Figure 2).

## **Conclusion:**

- **Haptics:** Using the five senses behaviorally impacts working memory. Video games generally incorporate only sight and sound. However, with such hardware devices as the Novint Falcon<sup>TM</sup>,<sup>4</sup> the ability to integrate force feedback into virtual environments is not only becoming more possible, but also more cost-effective. Research done on haptic (embracing the sense of touch) feedback can serve as a framework for work on how touch enables memory from a video game narrative.
- **Textbook Replacement:** For various reasons, such as cost and student health, in the form of documented back problems from carrying large quantities of books, school systems are moving away from using textbooks. Textbooks are being replaced by photocopies and in some cases, Podcasts, wikis, blogs, Web sites, and audio books. Text in video games is what often drives the narrative within the game. If expository text, graphics, and video could be embedded within an environment of virtual missions, then students and teachers would have a virtual one-stop shop.
- **Distance Education:** Although Wolf Den shed light on the potential of using video game environments for distance learning, the research thus far is just the tip of the iceberg. Although massively multiplayer online (MMO) games are the most played computer games, large lecture classes lend themselves to be replaced by these

worlds and delivered from a distance. As large courses are often just lecture, virtual environments can place hundreds of students and an instructor in a virtual environment where classes can be taught in a synchronous learning environment. Also, rather than giving students an avatar from which to choose, creating one's own avatar might allow for more individuality and great social presence.

- Home School/Virtual School: The home school and virtual school market is growing exponentially in the United States. As parents and virtual school administrators look for strategies to help students learn, video games in the form of a distance learning platform and mission-based content can be the vehicle that engages and creates a social atmosphere.
- Game Components: What is it about these games that excites and engages students? Although most agree that games can be both engaging and instructive, there is little consensus regarding the essential characteristics of instructional games.
- What is an instructional game?
  - the key features of games that are of interest from an instructional perspective;

- the game cycle of user judgments, behavior, and feedback that is a hallmark of engagement in game play; and
  - the types of learning outcomes that can be achieved.
- As video games in education are gaining attention, it becomes more and more critical that empirical research be done on why and how games can impact students. There is much to be learned and it is crucial that anyone interested in making games for educational purposes band together to answer these questions.