

# College Quest: A Game-based LMS and Academic Social Network

Francesco Crocco, Joe Bisz, CUNY Borough of Manhattan Community College  
fcrocco@bmcc.cuny.edu, jbisz@bmcc.cuny.edu

**Abstract:** College Quest (CQ) is a new web-based application that combines a robust learning management system (LMS) with a modern social network and popular game mechanics. Developed by faculty at the Borough of Manhattan Community College (BMCC) in conjunction with Neuronic Games and with support from a Federal Title V grant, CQ is designed to improve retention and success in online, hybrid, and web-enhanced courses by enhancing student engagement, organization, feedback, and collaboration. Research suggests games and social media can help institutions of higher education achieve these goals. A pilot study of CQ was conducted in the spring of 2013 at BMCC, and the results will be disseminated in subsequent papers and presentations.

Gamification and social media are becoming ubiquitous in online technology. Gartner estimates that 70% of Global 2000 businesses will manage at least one gamified application or system by 2014 (Burke, 2011) and Facebook, the top social media site, now reports 1 billion active monthly users (Facebook, 2013). Yet, major online educational platforms for higher education, such as Blackboard and Moodle, have been slow to incorporate these technologies. In the absence of alternatives, faculty at BMCC received funding from a Federal Title V grant to work with Neuronic Games to develop College Quest (CQ), a web-based learning management system (LMS) that integrates a social network and game mechanics in order to enhance student retention and performance in online, hybrid, and web-enhanced courses.

CQ provides user-friendly tools to create graphics-rich online courses with discussion forums, file storage, student to-do lists and notifications, outcomes-based real-time assessment, and a grade book. As a state-of-the-art social network, it offers students and faculty the ability to create public profiles (see Figure 1), message and friend users, create organizations, and identify possible peer mentors and collaborators. Finally, CQ incorporates game mechanics from commercial RPGs, such as customizable avatars, a point and level system for course work, skill-based badges, and a leader board.

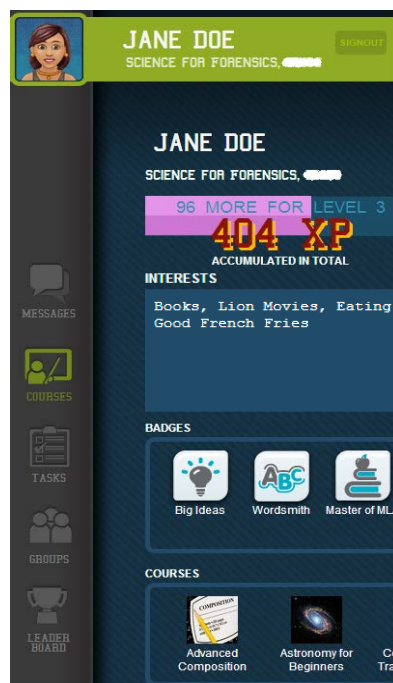


Figure 1: Student

CQ addresses four areas of need in higher education: (1) engagement; (2) organization; (3) instant feedback; and (4) collaboration. Game-based learning and social media can meet these needs. Today's millennial students are "digital natives" who perform better in the multi-modal, feedback and reward-laden environments provided by video games (Prensky, 2001). Additionally, studies show social media appeals to specific learning needs of Millennials (Papp, 2010).

Games are adept at enhancing engagement and organization. For instance, Massively Multiplayer Online Role-playing Games (MMORPGs) promote intrinsic motivation with built-in achievement systems (Kenny & Gunter, 2008; Dickey, 2007) and enhance player identification through the use of avatars (Waggoner, 2009; Murphy, 2011). The quest-based systems built into MMORPGs and game-based schools like Quest to Learn also help to support organizational skills and well-ordered problem solving. Yet, the virtual learning environments currently available either are not designed for higher education (e.g., Second Life, World of Warcraft, and Quest Atlantis) or lack essential LMS components, such as discussion forums (e.g., 3D GameLab). CQ specifically targets engagement with game-based features like customizable avatars, a point-and-level system for course work, and outcomes-based badges; it also organizes student work with an assignment-based to-do list and notification system.

Successful video games also feature instant feedback loops (Gee, 2007) in which players receive a constant flow of information about specific skills in the context of play and interpret it to improve performance. Studies find that embedded assessment and constant feedback can significantly improve learning (Gijbels et al, 2005). CQ is designed to provide students with outcomes-based assessment on each assignment, thereby situating the meanings of assessment more clearly so that students can self-evaluate more effectively. Studies of formative feedback in education support the educational potential of this design by showing that feedback is most beneficial when “highly related to clearly identified learning goals” so that feedback is “not only based on monitoring progress toward the specific goals but also promotes students to develop effective learning strategies” (Gikandi et al, 2007). Game-based embedded feedback may have much to offer online and blended learning classes in particular, where “meaningful interaction” is sometimes difficult (Gikandi et al, 2007; Akyol et al, 2009).

Games and social media also enhance collaboration. Social media facilitates peer review (Bassford & Ivins, 2010) and, when integrated with games, encourages collaborative learning (de Freitas & Griffiths, 2007; Choi et al, 2007). The importance of integrating a social network within an LMS is demonstrated by a survey performed at BMCC in which 37.8% of students stated that a “major reason” they would use an educational game is if it were part of a college social network (BMCC, 2011). Accordingly, CQ provides a messaging system that enables users to communicate, identify mentors and collaborators, and create online spaces to form affinity groups.

CQ underwent a pilot study in spring of 2013 at BMCC to evaluate how well it meets the four high priority needs of engagement, organization, feedback, and collaboration. The results of this study will be released in subsequent papers and reports. If successful, the software's innovative blend of LMS, game design, and social media will help to advance online learning technologies for higher education.

## References

- Akyol, Z., Garrison, D. R., & Ozden, Y. (2009). Online and blended communities of inquiry: Exploring the developmental and perceptual differences. *International Review of Research in Open and Distance Learning*, 10(6), 65–83.
- Bassford, M., & Ivins, J. (2010). Encouraging formative peer review via social networking sites. *British Journal of Educational Technology*, 41(5), E67-E69.
- Borough of Manhattan Community College. (2011). BMCC Games Survey. Unpublished.
- Burke, B. (2011, December 20). Innovation insight: Gamification adds fun and innovation to inspire engagement. Gartner, n.p.
- Choi, B., Lee, I., Choi, D., & Kim, J. (2007). Collaborate and share: An experimental study of the effects of task and reward interdependencies in online games. *Cyberpsychology and Behavior*, 10(4), 591-595.
- De Freitas, S., & Griffiths, M. (2007). Online gaming as an educational tool in learning and training. *British Journal of Educational Technology*, 38(3), 535-537.
- Dickey, M. D. (2007). Game design and learning: A conjectural analysis of how massively multiple online role-playing games (MMORPGs) foster intrinsic motivation. *Educational Technology Research & Development*, 55(3), 253-273.
- Facebook. (2013). Key facts. Retrieved from <http://newsroom.fb.com/Key-Facts>.
- Gee, J.P. (2007). What video games have to teach us about learning and literacy. Rev. ed. New York, NY: Palgrave Macmillan.

- Gijbels, D., Dochy, F., Bossche, P. V., & Segers, M. (2005). Effects of problem-based learning: A meta-analysis from the angle of assessment. *Review of Educational Research*, 75(1), 27–61.
- Gikandi, J.W., Morrow, D., Davis, N.E. (2011). Online formative assessment in higher education: A review of the literature. *Computers & Education*, 57, 2333–2351.
- Kenny, R. F., & Gunter, G. A. (2007). Endogenous fantasy-based serious games: Intrinsic motivation and learning. *Digital Media*, 2(1), 8-13.
- Murphy, S. (2011). Your avatar, your guide. *Scientific American Mind*, 22(1), 58-63.
- Papp, R. (2010). Virtual worlds and social networking: Reaching the millennials. *Journal of Technology Research*, 2, 1-15.
- Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 113-118.
- Waggoner, Z. (2009). *My avatar, my self: Identity in video role-playing games*. Jefferson, NC: McFarland.