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Technology Innovations for the Classroom

*Conversational Pedagogical Avatars*

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March 21, 2010

Innovations in education as a result of web 2.0 are occurring at an astounding rate in the 21<sup>st</sup> century. Blogs, wikis, YouTube, GoogleDocs, and Glogster are a few of the new technologies that have been diffused and adopted within the classroom. Yet, other innovations (like video podcasts) have not been widely diffused in schools and classrooms. Ajjan and Hartshorne (2008) report that though college students are quick to adopt web 2.0 tools into their personal life, even college level instructors are not sure that new technologies actually help students learn and, thus, are reluctant to use web 2.0 tools in the classroom. As educational technologies continue to advance, educators must begin to expand their minds to accept the technologies and use them in the classroom to make the learning experience more enjoyable and interactive for students.

One innovative technology that has not been fully accepted for its potential value in the classroom is the 'conversational pedagogical avatar'. Conversational pedagogical avatars (CPAs) differ from other avatars in that they are interactive, asking or answering a question and waiting for human response or interaction. They respond to scripted questions and are programmed to generate human-like responses to maintain conversational interactions. Perhaps the avatar's initial inclusion in computer and video games has hindered its acceptance, diffusion, and adoption as an educational tool. Educators may not view the talking avatar as an instructional tool but see it more as merely a character in a gaming environment. The use of CPAs in the classroom has the ability to bring fun to the learning experience or make skill-based assessments a little less intimidating for the learner. The critical eye of a CPA might be perceived as being less caustic when delivering the same performance news that the classroom teacher would deliver with a vocal tone or body language that could produce an uncomfortable social situation. If the avatar-learner interaction produces three successful sessions of skill mastery in a virtual environment, the human teacher will more than likely have the pleasure of delivering good news to the learner about their performance in the real world. Thus, the non-human interaction during the formative assessment process can prepare the learner for a positive human-human interaction and

potentially less stressful classroom atmosphere during the summative assessment. Reducing social conflict within the classroom will undoubtedly increase learning (Johnson & Johnson, 1979) and make learning a new skill more fun, whether the skill is learning to add numbers or practicing for hip replacement surgery.

Since web 3.0 is not yet available and cell phones in the classroom are facing psychological and political barriers that block use in the classroom, conversational pedagogical avatars may be the next innovation to be accepted by educators. Necessity will determine future uses and conventions of CPAs. Though providing a software program to create CPAs to non-technical end-users (such as teachers, doctors, etc.) that will make the CPA creation process less difficult is being addressed, there are Artificial Intelligence (AI) societies and organizations addressing these needs and concerns in hope of expanding the use of CPAs to all fields.

There are several reasons that CPAs should be accepted by educators and diffused as the next logical innovation for the classroom. Firstly, students have grown up playing video games and are comfortable interacting with avatars. As with any new innovation, students must be taught its value as a tool for learning, not a toy for entertainment. The possible uses of CPAs in a school and classroom are endless. The avatar could be a classroom greeter, personal tutor, or an instructional guide that provides the lesson structure for the day. CPAs can administer tests, play an educational game, or help students stay organized. Each time the student completes a classroom activity, successful submission will cause the issuance of the next assignment and provide the student with performance feedback or other important information. Lastly, there have been major advances within the field of CPAs known as 'chatterbots' that are making the communication interactions between humans and computers more intelligent and life-like. Advances in software engineering will serve this innovation by producing human-like avatars that are able to model, mimic, and interpret a student's gestures, facial expressions,

and body language to determine the student's level of frustration, emotions, and level of satisfaction with the learning experience. Ultimately, further research and innovative improvements will lead to improved avatar-learner interactions that will result in improved opportunities for students to learn in the 21<sup>st</sup> century.

## References

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