

The Net Generation and Audience Response System Technology

The Net Generation

The Millennial or Net Generation (Net Gen) is the generation of college-age students that were born between 1982 and 1997 (Howe & Strauss, 2000). They are confident in what they attempt in life; they are smart, but impatient, have a short attention span, and have high expectations of immediate feedback (Carlson, 2005). Another common characteristic of the Net Gen is that they are consumed with achievement. Making excellent grades in school is a prime goal for them, even if they do not earn the high grade. One method for the Net Gen to be successful in school is to transform their learning environment into an atmosphere of engaging activities.

Related to the short attention span of the Net Gen, Carlson suggested beginning a lesson with a brief lecture for 10-15 minutes and then creating discussion groups to further engage students in the material. Planning group work and classroom discussion was reiterated by Tapscott (2008). Incorporating group work into the lesson plan was also proposed by Atkinson (2004). Promoting critical thinking and cooperative learning environments among the Net Gen learners was an idea promoted by Wilson (2006). Peer interaction, discussions and game-based learning were Milne's (2007) suggestions to engage the Net Gen. Prensky (2005) advised against just the development of new lesson plans in favor of creating engaging and creative components to education.

Carlson (2005) recommend state-of-the art technology infrastructure to acknowledge the technological needs of the Net Gen. State-of-the art technological applications were again proposed by Milne (2007) as many current applications for the classroom form barriers to free-

form engagement. Incorporating the use of the Internet and Internet-based assignments in the classroom is a way to implement educational technology in the classroom (Leung, 2003).

Tapscott (2008) recommended incorporating principles of student-centered learning, by integrating educational technology in the classroom. These methods would encourage student-teacher interactions and help students discover lessons for themselves, rather than hearing information in the form of a lecture (Tapscott, 2008).

When faculty members created challenging academic environments students reported that they were engaged in their own cognitive development (Umbach & Wawrzynski, 2005). Student engagement in their own learning was studied and the findings were a moderate to strong correlation between faculty driven instructional design and student autonomy in the classroom, $r = .66-.85$ ($p < .01$). These relationships further support the role of faculty members in student engagement (Reeve, Jang, Carrell, Jeon, & Barch, 2004).

Audience Response System Technology

An excellent way to engage students in their own learning is to use audience response system technology in the classroom. What are audience response systems (ARS) and how can they be incorporated into the curriculum? Common components of an ARS classroom are a wireless hand-held transmitter for each student (a.k.a. “clicker”), a receiver to collect the student generated responses, a LCD projector, a classroom computer with Internet connection, and the appropriately loaded software (Conoley, Moore, Croom, & Flowers, 2006; Peterson, 2008). The faculty member generates an ARS question and projects it onto the classroom screen; students anonymously respond to the question using their hand-held device; the students’ responses are compiled by the computer and, with most programs, a histogram of the students’ responses is

generated on the screen. The faculty member can then view the collective responses and modify the classroom presentation to correct any student misconceptions.

The ideal types of ARS questions require the students to critically think about the topic and demonstrate an understanding of essential concepts (Beatty, Gerace, Leonard, & Dufresne, 2006; Caldwell, 2007; DeBourgh, 2008). Faculty were encouraged to present meaningful ARS questions that encouraged a deeper level thinking and class discussion (Beatty, et al., 2006). Beatty suggested questions should have purpose by relating directly to the content and stimulate metacognitive processing. DeBourgh (2008) implemented ARS in the classroom and noted high level questioning promoted advanced reasoning skills.

Students relayed a positive and active educational atmosphere that they believed enhanced their engagement in the classroom (Caldwell, 2007). Students also indicated they perceived that they learned more when ARS technology was implemented in the classroom (Crossgrove & Curran, 2008; Nelson & Hauck, 2008; Preszler, Dawe, Shuster, & Shuster, 2007). Another factor identified in the literature related to an improved student learning experience was the level and immediacy of feedback received when ARS technology was employed in the classroom (Judson, 2002; Trees & Jackson, 2007). Both studies indicated, with immediate feedback student misperceptions were clarified. This, in turn, led to both enhanced discussion and improved student engagement.

From the student's view, classroom discussion with ARS was more meaningful as deeper processing of information was facilitated (Sharma, Khachan, Chan, & O'Byrne, 2005). ARS technology triggered discussion that would not have previously taken place in the classroom environment (Boyle & Nicol, 2003). The results from the students' responses stimulated

classroom discussion, active learning and overall classroom communication during lecture sessions (Dufresne & et al., 1996). One study isolated student anonymity as the driving factor in student willingness to participate in classroom discussion (Freeman, Blayney, & Ginns, 2006). ARS technology was noted as a promising tool to facilitate sincere classroom discussion (Judson, 2002).

LiveClassTech

LiveClassTech (LTC) is the next generation of ARS technology. The primary features of questioning with student anonymity are maintained, however additional features allow for increased student interaction in class. From first-hand experience, students embrace the anonymity of self-generated questions. This real-time questioning adds to the depth of classroom presentation and discussion. The student input of stop/go allows the faculty to self-adjust the pace of the presentation. LiveClassTech is more than a “clicker,” it is an interactive classroom management system that engages the students in their own learning. LiveClassTech meets the needs of the Net Gen and faculty alike. It is the only audience response system that offers this level of student-faculty classroom interaction.

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