Videoconferencing for Schools in the Digital Age

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INTRODUCTION

Wallis and Steptoe (2006) tell of a "dark little joke" that is bandied about among certain educators. It recounts the tale of Rip Van Winkle, who on reawakening in 2006 after his hundred years' sleep, experiences utter bewilderment until at last he finds solace in the familiar environment of a classroom, where teaching is going on as it did back in 1906.

The story is amusing. The message is blunt. In the middle of the first decade of the 21st century, despite ongoing technology-driven societal transformation, schools are still functioning largely in the easily recognizable traditional model of the industrial era (Steinkuehler, 2006; Veletsianos, 2007). The rush to computerize the classroom has generally not brought about a corresponding change of mindset on the part of educators (Cuban, 2006; Spector, 2000; Shaffer, Squire, Halverson, & Gee, 2005; Thornburg, 2003). Schools are failing to address the needs of the Net generation of learners (Barnes, Marateo, & Ferris, 2007; van 't Hooft, 2007). These **digital learners** who have grown up in a technology-saturated world that has defined and shaped their way of learning find school irrelevant and boring (McCombs, 2000).

By drawing on the literature and on case studies from within the experience of the author and other educators in Northern Ireland (NI), this article seeks to demonstrate that **videoconferencing,** alone as well as alongside other technologies, and used with appropriate **pedagogy,** can help transform the traditional classroom and make it a place hospitable to the learning needs of the Net generation.

BACKGROUND

Higher education led the way in the use of **videoconferencing** in education by introducing it into distance learning courses (Anderson & Rourke, 2005; Hayden, 1999). Although the technology has been available to schools since at least the early 1990s (Cole, Ray, & Zanetis, 2004), it has generally remained underutilized and undervalued (Anderson & Rourke; 2005; Comber, Lawson, Gage, Cullum-Hanshaw, & Allen, 2004). In addition, there is a dearth of specific research on the use of videoconferencing in the K-12 classroom (Anderson & Rourke; 2005; Heath & Holznagel, 2002). However, much

of the literature on videoconferencing in higher education is relevant to teaching and learning in the pre-tertiary sector. Coventry (1995) writes that the effectiveness of videoconferencing for learning lies in exploiting its capacity to facilitate effective learning through enabling dialogue. She defines learning as "a social process involving the active construction of new knowledge and understanding through individual learning and group and peer interaction" (Part Two: 1). This resonates closely with how **digital learners** actually learn (Barnes et al., 2007).

Rowan (2000) identifies a significant barrier to the uptake of videoconference technology by classroom teachers, viz a lack of information concerning the ways in which it can operate within an educational program. She lists three crucial points for teachers wishing to use videoconferencing which, again, would help to engage digital learners: the need for **interaction** to keep students engaged; the need for videoconferencing to be part of a **multimode delivery**; and the need for teaching with videoconferencing to be integrated with new teaching methodologies and with appropriate professional development.

A recurring warning in both higher education and specific K-12 literature is that the acquisition of technology does not guarantee acceptance and effective use (Greenberg, 2004), nor does sophisticated technology necessarily equate with an effective learning experience (Coventry, 1995). Generally, research findings focus on the primacy of **pedagogy**, and highlight three main points: the need to set the learning goals first; the need to become familiar with the unique capabilities of videoconferencing, enabling real time interactive visual and verbal communication between two or more sites; and the need to be aware that **videoconferencing** challenges the traditional teaching and learning paradigm, requiring a **pedagogy** that will exploit its capabilities and achieve the learning goals. The key to this is **interaction** which must be designed into the distant lesson plan and fostered throughout the videoconference (Amirian, 2003; Anderson & Rourke, 2005; Comber et al., 2004; Greenberg, 2004).

Another recurrent theme is the potential of **videoconferencing**, particularly when used with other technologies, to address the needs of learners with different **learning styles** (Heath & Holznagel, 2002). Yet another theme is the need for teacher training, both technical and pedagogical, in the use of **videoconferencing** (Coventry 1995; Greenberg, 2004;

Rowan, 2000) and for **student scaffolding** (Amirian, 2003; Anderson & Rourke, 2005).

In terms of achievement, there is little research on quantifiable outcomes (Comber et al., 2004). Cavanaugh (2001) reports that videoconferencing yields better learning outcomes, when used as a supplement to other technologies and other approaches to enable more reality-based learning. An equally constant theme is the enhancement of "soft" skills or "portable" skills by good **videoconferencing**–mediated learning experiences. One study from the UK on a major *Videoconferencing in the Classroom* project (Comber et al., 2004) makes the significant point that these **"life skills"** are perceived by teachers as feeding into performance gains. Another study from Ireland has found that special needs students in particular gain enhanced self-esteem, motivation, and improved communication and social skills, as well as greater attention to task, from regular experience of **videoconferencing**, and that this is by far their preferred technology (Abbott, Austin, Mulkeen, & Metcalfe, 2004).

GOOD PRACTICE FROM NORTHERN IRELAND

Videoconferencing has remained in the **"early adopter"** phase for the last 15 years (Greenberg, 2004). The barrier identified by Rowan (2000) still exists and teachers remain unsure how to use videoconferencing effectively. There is, however, much isolated good practice in many parts of the world, but it is generally not widely disseminated. To encourage more fruitful and creative take-up, this good practice needs to be made more easily available. Teachers like to hear it from teachers. In this spirit, I offer a few—out of many (Martin, 2002, 2005)—case studies from Northern Ireland. They cover the period from the mid-1990s to the present day. They are selected to give an idea of how **videoconferencing** can be used in the classroom to meet the needs of 21st century learners. Taken together, they exemplify many of the good pedagogical strategies identified by the literature.

Global Awareness and Curriculum Enrichment through Collaboration at the Elementary Level

This case study involves a small rural school with partners in Denmark and Italy. Learning goals were set first by the teachers and the project was developed as an integral part of the schools' history and geography curricula. The schools met regularly by multipoint **videoconference** to allow the grade 4 students to socialize, and to engage in interactive learning events. The teachers used the **videoconference** as

a **virtual staffroom** where they met to plan the content of the next phase and to devise strategies for **interaction**, for variety of pace, and for different learning styles. They were enthusiastic about exploiting the capabilities of the technology to enrich and extend the learning experiences of their students. They also began to explore the implications for teachers of this new learner-centered approach, seeing the traditional "sage on the stage" role as being ill-suited to the new learning environment. The students were motivated by the "hard fun" aspect of preparing work for a real audience. They deepened their understanding of their history and geography syllabus, and developed cultural awareness, and communication and presentation skills. The principal of the NI school pointed out how greatly the videoconferencing learning environment had widened the horizons of his students, most of whom had never been out of Northern Ireland and were not likely to be in the near future.

Extending the Learning Environment through Collaboration between Students with Special Needs

A recent project, involving two schools for students with severe learning difficulties (SLD) in different parts of Northern Ireland, set out to explore the potential of **videoconferencing**, together with text conferencing for the more able, to support effective distant collaborative learning in the SLD environment. The project was on the theme of "My town." The aim was to give students, whose experience of the outside world was necessarily limited, a sense of their own and other places. The students communicated once a week by videoconferencing. The teachers used the technology as a **virtual staffroom** where they met regularly for discussion. Teacher enthusiasm for this technology, their willingness to change their **pedagogy** to exploit its potential, and their commitment to **student scaffolding** both before and during the virtual lessons were the key success factors.

The outcomes were very encouraging. Videoconferencing was experienced as being inclusive of all the children, including those with little or no oral skills who used body language to communicate, or who had their more articulate peers interpret for them. It increased their motivation and improved their concentration. Students with serious behavioral difficulties remained totally attentive and engaged throughout the 30-minute sessions. Both classes perceived videoconferencing as fun. It brought a new way of learning into the classroom. It awakened their curiosity about their distant peers and the distant town. Videoconferencing also whetted their appetite for a physical encounter with their virtual friends. This happened subsequently on two very happy occasions, with each school hosting the visit of the other.

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