Chapter 15
Technology Shaping a Democratic Classroom: The Livingstone Case Study

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ABSTRACT
This chapter presents a case study of how the educational potential of interactive whiteboards spread from one teacher to her staff, the district and subsequently to other teachers in a province in Canada. This initiative is unique because of the “bottom up” nature of teachers coming together and sharing their expertise and experience with interactive whiteboards, which in turn inspired other teachers. Over a number of years, Livingstone staff have observed, discussed and documented multiple ways in which IWBs support teaching and learning. These findings have been adopted and improved as the staff collaborate and change their authoritarian style to a more student-directed classroom. This case outlines the power and potential of this type of collaborative, bottom up approach among teachers and university educators rather than the more common “top down” approach typically identified with administrators requiring teachers to use interactive whiteboards.

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INTRODUCTION
Over the past fifty years, teaching practice and principles have shifted from an emphasis on reproducing knowledge by rote learning to transforming knowledge via meaningful experiences (Cairncross & Mannion, 2001). Of the many forms of technology that are available for use by teachers with their students in the classroom, interactive whiteboards have demonstrated considerable potential in helping to meet the needs of students with diverse learning styles and to engage students during the learning process (Beeland, 2002; Glover, Miller, Averis & Door, 2005; Smith, Higgins, Wall & Miller, 2005). Allowing for collective viewing, interactive whiteboards have permitted teachers and students to interact with technology in a manner that has not been previously possible (Glover et al., 2005). The technology has permitted a multimodal approach that allows participants to move beyond language
barriers or abstract content by presenting a variety of means including color, image, sound, spatial and kinaesthetic modalities for students to make meaning (Jewitt, Moss & Cardini, 2007). Integrating elements of text, graphics, sound, video, and the capability of the user to physically interact with the objects on the screen, the IWB has offered an innovative approach to teaching and learning interactively.

Designed for whole-group interactive teaching (Glover & Miller, 2001), the IWB generates a level of excitement, attraction, and interest in learning (Glover, Miller, Averis & Door, 2007) for a generation of techno-savvy learners. The ability of the user to actively engage with moving objects on the screen and to use dedicated software harnesses a power of technology and provides access to a variety of presentational techniques that is unlike the traditional method of presenting information by simply standing at the board (Glover et al., 2005). Moreover, unlike traditional board work, a record of the notes, annotations, and student comments can be saved and retrieved for future reference.

CASE STUDY RATIONALE

Teachers at David Livingstone Elementary School in East Vancouver, Canada, have gradually been adding SMART Boards (SBs), one type of interactive whiteboard, to each classroom as staff have identified the potential of these IWBs to enhance lessons and their educational community. This chapter is a case study of the Livingstone School community and outlines how the educational potential of IWBs spread from one teacher to her staff, the district and subsequently to other teachers in our province.

Educators are familiar with the pattern of the introduction of a new initiative and then the subsequent mandatory implementation often required by our school boards. Although many new initiatives are educationally sound and will benefit students, teachers may feel pressure of an increased workload as they are required to change existing practices to accommodate the initiative. Unlike previous case studies done in the United Kingdom (Glover et al., 2005; Smith, Higgins, Wall & Miller, 2005; Cogill, 2002) where a technology mandate for its schools and an influx of financial support from the government enabled the implementation of IWBs, the Livingstone case is unique in that it was through professional and personal interests that Livingstone teachers came together and shared a common excitement and vision in order to attain IWBs for all of the classrooms in the school. Through an inquiry process involving teachers from Livingstone and from other district schools, several educators from the University of British Columbia and a researcher from the British Columbia Teacher’s Federation, the teachers came to understand the significant potential of IWBs to enhance lessons within their immediate educational environment and subsequently worked with teachers from other districts throughout the province. We believe it is through the “bottom up” nature of this initiative that an exciting and collaborative teaching and learning environment has been created for teachers and students. This process compares favorably with other initiatives that are typically mandated by school or district administrators using a “top down” approach.

CONTEXT AND TECHNOLOGY INFRASTRUCTURE

For over five years, teachers at David Livingstone Elementary School have expressed a keen interest in the innovative technology of IWBs and have been using them in their classrooms. The introduction of IWBs began in 2002 when a teacher at the school received an email about a grant programme for obtaining free IWBs and subsequently applied to the SMARTer Kids Foundation. The proposal was accepted and consequently the school received...