Impact of Interactive Whiteboard Technology on Teaching and Learning

Technology has become a critical component in classrooms during the 21st century, with many Districts implementing interactive whiteboard (IWB) technology to improve teaching, facilitate learning, and increase engagement in the classroom. Because many of our customers have asked how interactive whiteboard technology impacts teaching and learning, CCS has compiled this brief summary of research.

Student engagement in the learning process has been shown to increase when an interactive whiteboard is used to deliver content. Students rated a higher level of concentration and enjoyment for learning when the interactive whiteboard was used for instruction. Engagement was higher during interactive whiteboard lessons in which students interacted with the IWB, and when text, graphics, video, and sound were used more frequently (Beeland, 2007). Morgan (2008) noticed significantly more at-task behaviors during observations when the IWB was used during instruction, particularly amongst male students. Morgan observed that all students involved in the study showed an increase in at-task behavior, including special needs students and those of varying ethnicities.

Use of the SMARTBoard interactive whiteboard to teach elementary social studies was shown to increase learning of content material, based upon pre and post-test scores (Amolo & Dees, 2007). Somekh, et al. (2007) found that students in classrooms with an interactive whiteboard showed improved academic progress, particularly in mathematics and science, and those with teachers more practiced at the technology having a greater positive impact. Swan (2008) also found statistically significant achievement gains for students whose teachers used interactive whiteboards, and small positive achievement gains were also seen in reading/language arts. Positive associations between interactive technology and higher achievement in National Tests for English and Mathematics were also found in the ImpaCT2 study (BECTA, 2002), which investigated the impact of information and communications technology (ICT) on educational attainment in the UK.

The positive impact of the interactive whiteboard does not end at the student level. Teachers found that instruction delivered using the interactive whiteboard was interesting, relevant, appealing and involving (Beeland, 2007). Students were focused on the lesson 84% of the time, contributed to classroom discussions 78% of the time, and enjoyed learning (by self-report) 100% of the time when the SMARTBoard was used (Amolo & Dees, 2007), causing less time spent on classroom management. Interactive whiteboards have shown a positive impact on the facilitation of classroom discussion in a whole group setting (Smith, Hardman & Higgins, 2006). Students with special educational needs were shown to have a marked impact in the engagement of their attention and behavior improvement when interactive whiteboards were in use in the classroom (Somekh, et al., 2007).

All research studies investigated found that interactive whiteboards had a positive impact on teaching and learning, though the degree to which this impact occurred has varied. No studies were discovered in which the interactive whiteboard negatively affected instruction. Some evidence suggests that teachers may be hesitant in changing pedagogy or embracing technology with the introduction of the interactive whiteboard (Glover, 2002), which is why CCS recommends a comprehensive professional development plan with the implementation of IWB technology.
All studies cited have been conducted independent of IWB manufacturers.


