WHITE PAPER

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Maximizing the Educational Impact of Video in the Digital Classroom

This white paper provides a review of the ways in which digital content is transforming the classroom, and how you can maximize its benefits through your choice of classroom display technology.

— Aaron Campbell, 01/28/16

INTRODUCTION

As evidence continues to demonstrate the considerable benefits of 1:1 student-to-device ratios, blended learning, and technology-fostered collaboration, instructors are increasingly turning to digital content to enhance their lessons. Ranging from virtual labs and games to digital textbooks and online curriculum, many of the diverse types of digital content rely on video. For decades, research has revealed the benefits of using video in the classroom, and with faster Internet connections and affordable technology the use of digital video content has skyrocketed.

THE RISE OF THE DIGITAL CLASSROOM – THE RISE OF DIGITAL CONTENT

In this time of rapid change a sense of urgency pervades the education landscape, as educators seek to transform learning environments to prepare students to compete and contribute in the global economy. Technology, of course, plays a crucial role, as districts scramble to create "the classroom of the future."

Project Tomorrow, a not-for-profit organization dedicated to ensuring that today's students are well prepared to be tomorrow's innovators, leaders and engaged citizens of the world, released some of the most current and comprehensive data about the uses and benefits of classroom technology in 2015. Gathered from its annual Speak Up poll of K-12 students, parents, educators and community members, the results make a definitive statement about technology's importance in the minds of the most critical stakeholders: administrators and parents.

More than 90% of administrators (principals and district administrators) said that the effective use of instructional technology is important for achieving their core mission of educating students. Parents echoed this view, with 84% indicating that school technology adds value to their child's learning – and 78% saying that the best way for their child to develop the college, career and citizenship skills needed for future success is the regular use of technology at school.[1]

Not surprisingly, districts and principals of schools that have embraced a blended learning environment – one which combines traditional classroom learning with some degree of self-paced online student learning – are on the forefront successfully using digital content. Among these schools, those that have successfully implemented digital solutions increased their use of digital content from 42% in 2013 to 61% in 2014 – a 45% increase.[2]

Two-thirds of the principals of these schools agree that the use of digital content increases student engagement, and 63% also believe it increases the relevancy and quality of the instructional materials. Among the teachers in these classrooms, 50% or more stated that because of digital learning, students are:

- Working together more often
- Developing greater problem solving and critical thinking skills

- More motivated to learn
- Taking more ownership of their learning

Rounding out the key players, two-thirds of middle school students say that effective technology use increases their interest in what they are learning.[3]

THE CASE FOR VIDEO: EVIDENCE-BASED RESULTS

Video – as a component of a majority of digital content – is clearly predominant in today's classroom. New only in its quality, delivery and availability, instructors have been using video to support effective learning for decades, and research over this span of time has consistently demonstrated the positive benefits of its use.

A summary of the research related to the use of educational video identifies the following key benefits culled from several decades of research. Findings indicate that video:[4]

- Facilitates thinking and problem solving
- Fosters mastery learning
- Inspires and engages students
- Helps develop learner autonomy
- Delivers authentic learning opportunities

In terms of inspiring and engaging students, the benefits go beyond general attentiveness and enjoyment of the material, with strong evidence from one study indicating that the use of digital video resulted in increased motivation, an enhanced learning experience and higher marks.[5]

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Also notable among these findings is that "in some cases, video can be as good as an instructor in communicating facts or demonstrating procedures to assist in mastery learning where a student can view complex clinical or mechanical procedures as many times as they need to."[6]

Undoubtedly, as the use of digital video in the classroom continues to explode, our understanding of the benefits will likewise grow. At present we know that principals who have implemented blended learning in their schools say that the use of digital content:[7]

- Increases student engagement in learning - 75%
- Extends learning beyond the school day offering students opportunities for self - directed learning and remediation - 72%
- Increases the relevancy and quality of the instructional materials - 63%
- Provides an innovative way for instruction to be personalized for each student - 56
- Decreases the traditional dependency on textbooks - 51%

CLASSROOM VIDEO USE TODAY

According to a recent teacher survey, 94% of classroom teachers have effectively used video during the course of the previous academic year – and they were using it frequently, on average, once per week.[8] While the DVD (or even VHS) player-laden media cart may on occasion still be wheeled into the classroom, we can assume that today much of the video content teachers turn to is digital. One source estimates that 43% of teachers use online video, images, and articles on a regular basis.[9] Another indicates that in blended classrooms nearly half (49%) use online curriculum.[10]

A relatively new phenomenon that's dramatically on the rise in blended classrooms is the use of teacher-created videos. Doubling in use from 2013-2014, 20% of classroom instructors in the 2015 Speak Up survey were developing and displaying their own video content to support the curriculum. Add to this the online curriculum cited above, plus online textbooks (used in 37% of blended learning classrooms), animations (29%), and virtual labs (14%), and it's clear that digital content is making a major impact in K-12 education.[11]

Students may in fact be using video at least as often as their teachers. Savvy instructors, recognizing their students' YouTube-developed affinity for video are using the medium to tap into student creativity and expressiveness, assigning video projects instead of essays or presentations.[12]

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Also fueled by student experience with at-home video viewing, the flipped classroom model relies on students getting their initial information about a subject at home from teacher-created videos or sources such as Khan Academy, then discussing it during class time. As noted by the Center for Digital Education in its Q1 2015 report on digital technology trends:

> By offering lessons that would have traditionally been presented during class time and then making those videos available online, students are able to access lessons anytime, anywhere. This allows students to learn at their own pace and on their own time. By using video, educators can often cover more subject matter and move through topics quickly as they do not have to slow down to check for understanding. Additionally, it empowers students to take control of their own learning — they can speed up, slow down or re-watch each lesson as needed. Students can also use video in a flipped classroom model to work collaboratively on group projects during class time. They can record their own labs, speeches and other class-time activities, allowing them to review and critique their own work outside of school.[13]

Recent research strongly indicates that the move to the flipped classroom is proving to be a positive experience for instructors and students alike.[14] As a result:

- 96% of educators who have flipped a classroom or lesson would recommend it to their colleagues

- 71% of educators saw improved grades after moving to the flipped classroom model
- 52% of instructors share videos created by other educators with students

SUPPORTIVE TECHNOLOGY

"ViewSonic education projectors and interactive displays incorporate robust audio capabilities to support the range of multimedia applications."

To effectively support video-based learning, student and classroom technology must be equipped with adequate audio as well as quality image display. Designed for use with headphones or in close proximity to the user, student devices such as Chromebooks and tablets can generally be counted on to deliver sufficient audio quality. To fully support the multimedia experience, however, front-of-classroom display technologies require top quality audio to ensure that students throughout the room are able to hear the material.

Unfortunately, both projectors and interactive displays are often evaluated solely by their image display properties. Many manufacturers count on this and often treat audio as an afterthought. In terms of projectors, not all include audio and often those that do deliver sub-optimal quality difficult to hear throughout a classroom. Projector manufacturers may cite high wattage levels as an indication of sound quality. This, however, can be misleading, as wattage alone isn't a reliable measure of speaker performance. Hardware design and amplification capabilities are equally important.

Projectors that deliver great sound quality in addition to high quality images will be designed and manufactured with both of these attributes in mind. Look for options such as ViewSonic's LightStream™ projectors with SonicExpert™ that include speakers specifically designed to deliver higher volume and enhanced sound quality in a compact projector speaker. Powerful enough to fill classrooms with clearly audible, wall-to-wall sound, LightStream™ projectors deliver higher volume, advanced sound clarity and full-range sound thanks to multiple design enhancements, including:

- Improved transducer driver design – using quality materials more suited to small speakers to deliver stronger sound and wider frequency range
- Greater transducer driver power – for higher SPL sound pressure
- 30% larger speaker chamber – which boosts feedback power and creates a wider frequency range for reduced distortion and stronger sound
- Software fine tuning – extensive mixing and testing enabled the development of a best-fit sound response curve, resulting in clearer, more comfortable sound

Known for reliably outstanding image quality, ViewSonic education projectors and interactive displays incorporate robust audio capabilities to support the range of multimedia applications. For those looking to boost classroom collaboration with a large-screen display, the ViewSonic® CDE7060T 70" Full HD interactive LED display with ViewBoard™ annotation software features 10-point simultaneous touch and dual integrated 10-watt speakers for full, robust audio in classrooms.

Streaming media ports add easy access and interactivity

One of the most efficient ways to access a vast range of digital media content is via wireless streaming media adapters, which also support sharing and interactivity by enabling teachers to present from their mobile devices while moving around the room. Classroom projectors with intelligently-designed input capabilities will facilitate the use of streaming media. Featuring the patented PortAll™ enclosed adapter compartment, ViewSonic LightStream™ projectors keep media adapters securely out of sight and away from curious hands, while content is wirelessly streamed in brilliant, true-to-life SuperColor™ mode. Compatible with any HDMI media adapter (including the ViewSonic Wireless Presentation Gateway Dongle) PortAll lets teachers quickly connect their favorite adapter and start their lessons. An additional advantage in busy classrooms, LightStream projectors also include an exclusive new cable management system that eliminates unsightly cable clutter.

CONCLUSION

For decades, video has been an important teaching tool with a proven track record for enhancing learning. Today we are undoubtedly on the forefront of an even greater reliance on video in the classroom, both by teachers and students. Propelled by increased availability of technology, faster internet connectivity and evidence supporting the benefits of blended learning, video use will continue to rise for the foreseeable future. As schools equip themselves to support multimedia learning, the careful evaluation of hardware audio in tandem with image quality will enable students to most fully benefit from this transformative trend.

For more information, contact ViewSonic sales at salesinfo@viewsonic.com or visit www.viewsonic.com

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[4-6] Video for Teaching and Learning: Pedagogical Benefits, The University of Queenland Institute for Teaching and Learning Innovation. Accessed 9.5.15 at: http://www.uq.edu.au/teach/video-teach-learn/ped-benefits.html

[8] The Benefits of Using Educational Video in the Classroom, Sane Education, Accessed 9.5.15 at: http://www.zaneeducation.com/educational-video/education-and-video.php

[9, 12] Patton, Carol, How Video Can Help Students, and Teachers, Learn, Scholastic Administrator, Accessed 9.5.15 at: http://www.scholastic.com/browse/article.jsp?id=3758521

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