

Identifying High Quality Academic Digital Content --by Sunburst Digital

“To succeed in the 21st century, all students will need to perform to high standards and acquire mastery of core subject material. All students also will need to gain the cognitive and social skills that enable them to deal with the complex problems of our age” (Partnership for 21st Century Skills, 2007).

High quality digital content solutions often pursue a multi-disciplinary instructional design approach to empowering teachers and students with technology-based tools for mastering academic content. For instance, Math, Science and Social Studies in an interactive digital materials format can practically offer a locally configured standards-aligned approach to learning, using, and assessing concepts and skills in an engaging and facile digital environment. Key features include course units aligned to common core and state standards together with local district frameworks, interactive media-driven lessons focused on core concepts and skills, close captioning and definitions of key academic terms, embedded subject specific Tier 2 vocabulary, on-going formative assessments, summative unit tests, teacher support materials, and at-home parental involvement learning tools—all designed to be used in concert with the district’s instructional program.

Sunburst Digital has five core instructional beliefs it uses as markers to help identify “quality digital content”:

- 1) All students have a gift for learning; they just learn differently.
- 2) Humans learn best by doing things, applying concepts, and making connections between experiences.
- 3) Technology can play a vital, transformational role engaging students in ways they learn best.
- 4) Educational priorities are local.
- 5) Teaching makes a difference, and teachers can change the world.

These core beliefs selectively guide the design, implementation and support of digital content solutions and services which tightly reflect foundational principles found in the research on high performing schools and districts:

- Specific student learning standards clarify the concepts and skills of a discipline and serve as the basis of a coherent, aligned curriculum.
- Content knowledge and thinking skills are best developed simultaneously in concert with each other.
- Technology can be a vehicle for access to content learning standards and a tool for increasing student motivation and engagement.
- Teachers matter—the quality of instruction is directly related to student achievement, engagement, and joy in learning.

As products are developed and improved, sound digital content solutions are committed to a research-based approach, learning from and with partner districts to improve products and services, and engaging in meaningful program evaluation based on student achievement results.

Coherent, Aligned Learning Standards

“Whatever the format, national or common standards cannot drive change by themselves, nor should they just sit on a shelf. They must be understood and supported throughout the education system by teachers, schools, students, teacher-training institutions, and education publishers.”
(Schleicher and Stewart, 2008)

In the era of high-stakes national, state and local accountability, and with the advent of common core standards and NCLB, teachers across the nation face the daunting task of ensuring mastery of increasingly rigorous learning standards in increasingly diverse classrooms. One of the negative consequences of the current focus on accountability testing is the narrowing of curriculum in classrooms across the nation. Class time once devoted to social studies, languages, science, and the arts has been sacrificed for more study of reading and math. And too often the reading and math content is narrowed to learning and practicing only what is on the test. “Test scores are information for an assessment system — they are not the system itself” (Darling-Hammond, 2002).

As teachers, schools, and districts re-align their curriculums to meet the common core standards assessing the increasing rigor of new accountability tests, they can seize the opportunity to ensure that their instructional programs are not hijacked by a narrow set of tested concepts by providing “content-rich learning material that will support students in acquiring the necessary base of knowledge to reach the expectations that the standards set forth” (Munson, 2011).

* To best support teachers in implementing their core instructional program, the highest quality digital curriculum content is aligned to common core and state standards in the areas of mathematics, science, and social studies and is adaptable to local scope and sequence framework requirements and all program content. While the standards are a core component of the design of the very best available digital content solutions, they are not the only goal. By providing a multi-faceted, digitally robust in-class and extended out-of-class learning environment, our product solutions allow teachers to teach more efficiently and creatively, while students benefit from engaging, motivating content.

Content Knowledge and Thinking Skills

“What we know now is that just as facts alone do not constitute true knowledge and thinking power, so thinking processes cannot proceed without something to think about.” (Resnick and Hall, 1998).

Both research and practice tell us that the debate over whether to teach content or skills is moot. “It’s not a question of content versus skills—it’s about creating challenging, profoundly engaging, and authentic educational experience” (Hersh, 2009). Thinking skills cannot be effectively taught as a separate curriculum apart from content. Instead, they are learned in the process of acquiring content subject-matter knowledge (Brophy, 1992). Content and thinking go hand in hand. Learners gain content knowledge as they think deeply and critically about it, and conversely, they gain thinking skills as they engage meaningfully with content. “What we know now is that just as facts alone do not constitute true knowledge and thinking power, so thinking processes cannot proceed without something to think about” (Resnick and Hall, 1998). In other words, “within the context of core knowledge instruction, students must also learn the essential skills...such as critical thinking, problem solving, communication and collaboration” (Partnership for 21st Century Skills, 2009).

* An effective way that digital curriculum can support local instruction is to facilitate students’ opportunity to learn content and practice thinking skills simultaneously through engagement in content-based media pieces that embed the acquisition and use of process skills as content concepts are presented and learned. This combined impact is the result of a proprietary media instructional design honed by actual teacher and student use resulting in a practical application of sound learning methodologies. Because all students learn differently, it is critical for teachers to make constant adjustments to content. In Howard Gardner’s *Multiple Intelligences Theory* educational content is best presented in and of itself as assisting with individualizing instruction. In order to reach all types of learners, it is beneficial to provide multiple pieces of media to convey information in multiple ways. Students explore subject matter content with thousands of

multi-media pieces that include animations, songs, video, and virtual manipulatives such as interactive timelines or flowcharts, a simulation that allows manipulation of objects in virtual space, and countless others. For example, students who are more auditory learners are motivated through the use of an audio of a narrated poem or story, while students who need to physically connect with content are afforded those opportunities through virtual interactive media pieces. Additionally, thinking skills are modeled through the use of our templates. Each thumbnail template represents a particular type of media piece - each related to a particular type of intelligence or learning style - in a familiar, easily identifiable format. These templates create repeatable ways of teaching content while modeling thinking skills such as compare/contrast, cause and effect, and problem solving. When a teacher opens and displays a media piece, students can readily discern the way in which content will be delivered, e.g. presented through a chart or graph, a musical number, or two sides of an issue being debated. These 72 repeating templates, augmented to each subject area content concept, allow students to know in advance how the information will be presented, and then to be able to apply the thinking skill beyond the template.

Leveraging the Power of Technology

“Technology is at the core of virtually every aspect of our daily lives and work, and we must leverage it to provide engaging and powerful learning experiences and content, as well as resources and assessments that measure student achievement in more complete, authentic, and meaningful ways” (National Ed. Technology Plan, 2010).

As noted in the National Education Technology Plan, districts across the nation are grappling with the necessity and complexity of leveraging the power of technology in support of learning excellence and equity (2010). Many schools and districts across the nation are exploring a variety of blended learning solutions for students. Blended learning is the use of both traditional classroom and various technology-based learning opportunities to better meet the needs of students. Examples include online courses, technology-based classroom tools, online assessment, electronic portfolios, e-projects, and the like. “As schools are faced with continued budgetary constraints and with the plethora of free courses, learning portals, and delivery technologies available, blended learning will become increasingly prevalent in K–12 education” (Bonk 2010).

* The best interactive materials and integrated assessments are designed to support core programs in a blended learning setting integrated with local technology, instruction and curriculum decisions. A robust digital curriculum program might consist of several thousand academically scripted media clips; together with another several thousand assessment questions; interdisciplinary vocabulary along with corresponding integrated print lessons, projects, activities and assessments all designed to work cohesively to enhance academic core concepts. An additional means of merging content with technology is through a strategy of incorporating enrichment activities designed to spark student and small group critical thinking opportunities in key, high-stakes science, math, and social studies concepts. After exploring a library of media pieces on a particular topic, students have the opportunity to use the information to complete an interactive project. Students are asked to apply the content learned in a new way and to analyze their findings using a dynamic print component available on and offline together juxtaposed with digital research tools including a virtual “research room” and a virtual “expert” available for online assistance. These activities are collaborative and immersive where students are tasked with responsibilities, asked to research the problem or issue, and finally to apply the information in the form of a report, play, or debate for example.

Teachers and Good Teaching Matter

“We cannot purchase a well-rounded education for a flat world with new technology, a new standardized test, or an SAT prep course. We cannot achieve it by abandoning the rigorous teaching of reading, writing, science, math, history, and literature. Indeed, we need to teach these

subjects far more effectively, along with the 21st century skills...in ways that respect what we know about learning” (Hersh, 2009).

Teachers make a difference. The research is clear. “Some teachers reliably elicit greater gains [in student achievement] than others, because of the differences in how they teach” (Brophy, 1992). Effective teachers are actively involved in planning for, guiding, facilitating, monitoring, and evaluating learning. They are not just “materials managers” (Brophy, 1992).

* A thoughtfully designed digital content solution recognizes and respects the primary role of the teacher in the classroom, and is designed as a support to the core instructional program and the core work of teaching, not as a replacement to them. The best programs assist teachers in implementing their curriculum expectations, providing students with additional access to content and time on task in support of curriculum mastery. Well designed digital solutions are intended to be implemented as a supplement to a district’s overall education plan, enhancing a plan’s intended impact through the practical value of easily being utilized in a variety of instructional settings – whole-class, small group, lab, 1:1, homebound, tutorial, and individual—allowing for true differentiation of instruction. The program’s integral digital and offline print material affords students opportunities to practically demonstrate, advance and document their comprehension of the content, making the analysis of their achievements transparent for the teacher. Throughout the program, there are multiple ways for students to record their understandings and thought processes: note-taking, charts, graphic organizers, cloze activities, and open-ended challenge activities embedded in each unit for example. Because the program inherently asks students to demonstrate their learning in a variety of ways and with a wide range of tasks and projects, the teacher is given a clearer view as to the mastery of the content.

Teachers and Good Teaching Matter in Mathematics

Due in part to the pressures of high-stakes accountability, a significant amount of research has been conducted on effective mathematics instruction. It has become very clear that mathematics is best learned through authentic problem solving and active use of mathematical concepts and processes rather than through rote, linear low-level skills (Brophy, 1992). Yet, mathematics teaching in our schools still too often emphasizes repetition; drill; convergent, right-answer thinking; and predictability. And this low-rigor mathematics teaching is too often the common fare of high poverty, new immigrant and diverse students who have been traditionally underserved and underrepresented in rigorous mathematics courses. This type of math instruction is evidenced by routine teaching acts as giving information, asking low-level questions, giving directions, making assignments, monitoring seatwork, reviewing assignments, giving tests, etc. (Ladson-Billings, 1997). This narrowing of curriculum is also evidenced by mathematics classrooms that look more like “test practice” classes than classrooms devoted to teaching students to think, problem solve, and act as mathematicians. And too often the math content is narrowed to learning and practicing only what is on the test. “Test scores are information for an assessment system — they are not the system itself” (Darling-Hammond, 2002). During the era of the math wars, the division between “basic skills” and “rigorous, problem-based mathematics” became a central issue of debate. In fact, what we know now is that learning content and acquiring thinking skills go hand in hand (Resnick and Hall, 1998).

* In the sound digital curriculum based mathematics courses, students engage actively with mathematics concepts and practice mathematical processes through media-based problem-solving activities and simulations. Within each math unit, students are given challenges called FLIPS (Future Leaders in Problem Solving) and Prime Solutions that asks them to creatively find solutions to a variety of dilemmas involving math. These challenges are a combination of media and print where students are asked to work cooperatively to solve the problems in the manner in which they feel most confident. These higher-order thinking challenges will have more than one correct answer and students are encouraged to explore a variety of options and work problems in different ways to arrive at a conclusion. By working through these

challenges and applying information based on prior knowledge, students deepen their understanding of complicated mathematical concepts.

Teachers and Good Teaching Matter in Science

Effective science teachers provide students with the time, space, and resources needed for learning science content through inquiry and active hands-on engagement with scientific processes and skills. Science is most effectively learned through an application, hands-on active methodology in which students “describe, explain, make predictions about, or gain control over real-world systems and events” (Brophy, 1992). Scientific process skills should be applied in the pursuit of scientific content knowledge. And in science instruction, as in other content areas, rigor and depth of content are keys to preparation (NSB, 1998).

Unfortunately, due to the influence of NCLB on instructional practice, scheduled learning time that once might have been devoted to science instruction is too often taken to focus on literacy and mathematics. In states where science is a part of the state accountability testing system (such as in Texas), science has too often become a paper and pencil experience for students rather than engagement in authentic scientific inquiry. And the results are not promising...in 1995, the Third International Math Science Study, which compared achievement in 41 countries, placed the U.S. behind 14 other countries (Beaton, et al, 1996).

* In sound digital curriculum based science courses, students engage actively with scientific content and processes through the use of interactive visual media and scientific simulations. Programs that offer multimedia catering to many different learning styles of a wide variety of learners in mind, the frustration of not “getting it” is removed. The media pieces make strong connections between difficult content and overarching scientific concepts with the interests and tastes of middle school students, thus making it easier for students to relate to and comprehend the material.

Students interact with the content and processes in a variety of ways and with a plethora of material, both online and in print. For example, a science unit may begin with an offline unit challenge requiring students to discuss and demonstrate their baseline concept knowledge, taking notes as to what is already known about the topic. A multimedia introduction to the unit is then shown and followed by two content media pieces that include formal interactive assessments. Additionally, there is a two-part lesson plan to coincide with each topic, a formal unit test in standardized test format, and a “Reality Inc.” enrichment activity that merges all the content knowledge from the unit and culminates in a robust collaborative project promoting critical thinking where students research topics, conduct informal experiments, and discuss findings in small groups and with the whole class.

Teachers and Good Teaching Matter in Social Studies

Social Studies education plays a critical role in developing an educated, engaged citizenry. In social studies, students should focus on connecting content around powerful ideas and concepts rather than on lists of isolated dates and names (Brophy, 1992). Effective teachers dig directly into primary sources and harness technology “in an attempt to help students better understand the past and bring it to life” (Robeson, 2011). But due to the NCLB-era pressure to focus on literacy and mathematics, social studies is universally considered an often expendable, neglected content. Many teachers attempt to gain instructional time for math and literacy by integrating social studies into the teaching of reading. But reading a novel or story about the civil war, for example, is not at all the same as reading and comparing primary and secondary source documents to understand the causes of the civil war and its impact on today’s society. “Beyond ensuring a superficial treatment of the subject matter, this practice threatens the continuing development of reflective, engaged citizens” (McGuire, 2007). Debate, discussion, and engagement with the big ideas of social studies require the selection and effective use of content-rich learning material. This type of learning material supports students “in acquiring the necessary base of knowledge to reach the expectations that the standards set forth” (Munson, 2011).

* Well designed digital content based social studies courses allow students to engage actively with the big ideas of history, geography, culture, and civics through the use of interactive visual media that incorporate primary and secondary source documents and media that “bring the powerful ideas of social studies to life.” For example, after studying media on the pre-revolutionary period in American history, students are asked to choose a side in a debate between British rule and colonial self-rule, stating their case in a colonial town-hall meeting and using content from the media pieces and print material to support their positions. In a social studies unit challenge focusing on the Constitution, students are asked to devise a compelling argument as to why voting is important. Drawing on both the media and primary source documents, students are tasked with creating a presentation that discusses reasons why some citizens choose not to vote. This challenge involves students searching through documents and media content, and analyzing – not simply memorizing – the information. In another instance, students are asked to imagine what the founders of the United States would think about students in America today. The media pieces demonstrate how to interpret data, how the same issue can be viewed in a variety of different perspectives, and assist students in making strong connections to history using higher-order thinking skills.

Teachers and Good Teaching Matter in Feedback on Learning

“Teachers need to know about their pupils’ progress and difficulties with learning so that they can adapt their work to meet their needs” (Black and Wiliam, 2010).

Teachers assess learning for two key purposes—

- 1) To make instructional decisions that help students learn more, and
- 2) To measure what students have learned.

Assessment FOR learning (formative assessment) serves to help students learn more and provides teachers and students with immediate feedback for course correction. Formative assessment is the process by which teachers gather data about student learning in order to adjust instruction. Assessment OF learning (summative assessment) serves to check student achievement at a particular point in time (Stiggins, 2002). Summative assessment is an important part of evaluating learning, but does not fill the critical role of on-going, “in the moment” assessment for making immediate instructional decisions. In the era of high-stakes testing, formative assessment has given way to an over-reliance on summative assessments and too often resulted in misuse of assessment results.

* All quality digital curriculum based content courses offer embedded feedback as an integral part of the learning process for students and the instructional process for teachers. On-going, embedded formative assessments (built into all course units and topics) provide teachers and students with feedback on learning via practical, real-time checks for understanding for immediate “course correction.” Summative end-of-unit assessments provide evaluation of learning for determining mastery, providing student/parent feedback, and for teacher instructional decision-making.

Because of the inherent motivation and engagement instructionally designed into core of digital content, students and teachers each experience increased confidence. This confidence manifests itself in deeper knowledge of difficult concepts. By giving students and teachers materials and media that are best suited to their individual learning styles, and the tools to succeed in both open-ended and summative assessments, a passion for learning and classroom teaching, and thus success, is achieved.

Summary

Clear learning standards, well-designed curricula, effective teaching, and engaging learning environments are key components in an effective teaching and learning system. These components must work in concert to ensure meaningful learning of expected learning standards.

* Through unique digital media technology for access to and engagement with core content concepts and skills, the best digital content solutions offer teachers a classroom resource and connected extended learning for all students' success that leverages the power of digital technologies to support mastery and maintenance of learning standards (common core, state and local) in a dynamic, flexible format. Sunburst Digital believes that our portfolio of digital content solutions are powerful teaching and learning resources for all classrooms and all learners when implemented as part of an overall research-based instructional program. Sunburst Digital believes that by providing engaging tools and resources in service of teachers, all classrooms can be places of high expectations, high achievement, and joy.

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