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Managing Multimedia Mania: Taming The Technology Beast

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ABSTRACT

Harnessing student energy for the positive use of technology in the classroom requires significant change for many educators. Students today exhibit a one-click mentality when using computers in the classroom, and are frustrated when they are not provided with instant gratification. Gone are the reading and higher level thinking skills of the pen and paper years. With today's multimedia mania, students see the computer and its programs as toys, and it is extremely difficult to get them to move from toys to technology tools. Educators are misgauging student learning when technology is involved, mainly because it is extremely difficult to assess. It is important for teachers to tame this multimedia beast and model millennial skills, and thus guide students to focus on the computer as a tool, not merely a toy, in the process of learning.

Keywords: technology, assessment, staff development

INTRODUCTION

Technology has become the elephant in the classroom that everyone is trying to ignore. Neither the school board, the educators, the parents nor the students is willing to confront this behemoth. Students have morphed and changed radically through the years. Today's students are no longer the individuals our educational system was designed to teach (Prensky, 2001). While schools were initially developed to maintain and pass along knowledge and culture to future generations the 'digital native,' as coined by Prensky, is a new creature that is reshaping its own environment.

Today's students – K through college – represent the first generations to grow up with this new technology. They have spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age. Today's average college grads have spent less than 5,000 hours of their lives reading, but over 10,000 hours playing video games (not to mention 20,000 hours watching TV). Computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives (Prensky, 2001, p.1).

Educators are woefully behind in necessary restructuring that is mandatory to instruct these digital natives. Teachers are floundering on all fronts: the cost to institute and maintain the technological classroom, the lack of effective training for faculty, and ineffective preparation to develop and achieve sound educational goals. Deep within Prensky's statement of the educational new millennium is the root of the problem. While some rather complicated technology has become commonplace in the lives of today's students, they view these objects and systems as toys and not as tools.

LITERATURE REVIEW

The literature available on professional development for teachers in using technology has far to go in research dealing with methods of effective teacher and student practice and teacher assessment of student learning (Lawless & Pellegrino, 2007). The No Child Left Behind (NCLB) Act of 2002 stated as a national goal that it is vital to improve the quality of teacher qualifications and student learning. However, teacher professional development in areas of technology is inadequate, with a woefully insufficient number of hours allocated for it. The

major stakeholders in the field of education are well aware of the potential value of technology as a tool for teaching and learning (Lawless & Pellegrino, 2007). However, there is a lack of knowledge as to what works, and why, although there are a number of theories as to the nature of learning and assessment. Even with all these theories, there is a paucity of empirical research in technology professional development (Lawless & Pellegrino, 2007). In order to understand which types of activities establish best practice, future studies must manipulate the various elements of professional development in technology and determine what works as well as what does not work in both teaching and assessing, for teachers as well as students. It is important for teachers to understand what practices can facilitate student learning and how to assess the outcomes of learning in these technology contexts (Lawless & Pellegrino, 2007). In an analysis of multimedia projects designed by students of teachers who had technology professional development as compared to a group that did not, the students whose teachers had technology professional development achieved at higher levels than other students in design, content, and overall quality (Lawless & Pellegrino, 2007). These students were using technology as a tool, not merely as a toy, to achieve a desired outcome.

NEED FOR CHANGE

Meanwhile, time is launching forward faster than the speed of light. The first of the digital natives are already entering the workforce. Employers are sharing the struggle of educators in dealing with young talented employees who have high expectations, and are unwilling to "pay their dues." These millennial workers perceive themselves as privileged and having certain entitlements (Raines, 2002).

For the "digital immigrants" (the teachers) charged with educating the digital natives one thing is certain: the good old days, whatever they were, are not coming back (Prensky, 2001). Prensky goes a step further suggesting that educators need to consider not only what is taught but also how it is taught. He divides learning into two kinds of content:

"Legacy" content includes reading, writing, arithmetic, logical thinking, understanding the writings and ideas of the past, etc – all of our "traditional" curriculum. It is of course still important, but it is from a different era. Some of it (such as logical thinking) will continue to be important, but some (perhaps like Euclidean geometry) will become less so, as did Latin and Greek.

"Future" content is to a large extent, not surprisingly, digital and technological. But while it includes software, hardware, robotics, nanotechnology, genomics, etc. it also includes the ethics, politics, sociology, languages and other things that go with them (Prensky, 2001, p.4).

While the value of a global point of view and varied modalities cannot be denied, employers are already noticing a chronic impatience, distaste for menial tasks and a lack of skills to deal with difficult people, all skills successfully learned within the so called legacy content (Raines, 2002). Steven Spielberg, one of the great technological minds of the present day, is not happy with the trend.

I think in our romance with technology and our excitement at exploring all the possibilities of film and video, I think we have partially lost something. . . . It's time to renew our romance with the word; I'm as culpable as anyone in exalting the image at the expense of the word. . . . Only a generation of readers will spawn a generation of writers (Spielberg, 1987).

The existing and thin body of research applauds the student use of technology and depicts the educator scrambling to keep in step. While student success is every educator's goal the framework for that success is not well defined nor can it be replicated. Findings from studies done with small homogenously grouped students attending tuition based summer camps that use computer technology as a resource indicate that this practice does not translate well into practical usage in most public elementary schools from September to June. In the special summer camps, students have elected to attend and are motivated, whereas in public schools, the majority of students are required to attend, and do not necessarily share the same motivation (ChanLin, 2008).

With the implementation of No Child Left Behind and educators struggling to adapt assessments to measure performance based on students' learning styles and academic strengths, a popular technology based project is the digital portfolio. This type of project has been used in a variety of forms on all grade levels.

The Illinois initiative studied art teachers having a variety of computer access and various levels of expertise engaged in the preparation of digital portfolios for students to sequence and review their work. The electronic nature of this project allowed the student works to be viewed anywhere prompting discussions in and out of the classroom. The conclusion of the study was that the saving on time and space to arrange and re-arrange portfolio artifacts enhanced student learning. Teachers, however, reported increased demands on instructional time. They accommodated by consolidation of lessons, feeling that the students were accomplishing more than ever before (Fitzsimmons, 2008).

THE DIGITAL NATIVES

Multimodal learning strategies are required for the new millennium and social futures. The multimodal activities that students engage in outside of school can be utilized as resources in school. It is important that teachers learn for these new times, so they can support students in their learning, and guide them to use technology as learning tools, not only as toys. For the Millennial Generation (people born after 1981), reality involves technologies such as the Internet, digital cameras, mobile phones, and MP3 players, for communicating, playing games, taking pictures, and playing music (Miller, 2007). As a result, this Millennial Generation thinks of meanings multimodally, not just as printed words, but also as music and images (Miller, 2007).

In order to communicate and work in the digital, global world of the twenty-first century, human beings will need to be able interpret and design multimodal illiteracies (Miller, 2007). Students need to be able to develop and practice these new skills in school, and attain competence in the new multimodal learning strategies to function effectively in the future. Literacy practices in school must expand to include these new modalities. The gap between the present day practices of teaching with pen and paper and the new multimodal literacy practices has been referred to as the digital divide and disconnect (O'Brien & Bauer, 2005, as cited in Miller, 2007).

Miller (2007) discusses the use of Digital Video Composing as a multimodal literacy tool. "Besides the mediation of their peers (Vygotsky, 1978, as cited in Miller, 2007), the tools (camera, storyboard, editing program), and prior knowledge (of video games, life experiences), students needed the support of their teachers…" to facilitate the successful completion of the project in this interactive learning process.

As much as students like and find digital cameras easy to use, they love their MP3 players even more. The MP3 stores, organizes and plays audio files. Some models also play back and store video files and many cell phones are MP3 capable. Although there are many manufacturers of these digital audio players, the most common and most loved is the Apple IPod. While the majority of schools typically attempt to ban the MP3 players from their halls and classrooms, Apple has already established the ITunes University. ITunes is the Apple organization and download center for the IPod audio files. The IPod user cannot only download their favorite new song but also can download lectures from the top universities, plus radio programs and walking tours of big cities. Much of this can be downloaded through a free subscription.

The MP3 player, generally speaking, is inexpensive and portable. When teachers were given the opportunity to become fluent with the MP3 they found classroom uses ranging from audiobooks in the library to recording and uploading teacher lecturers to the school server (Stiler, 2007).

These types of projects available are an indicator of possibilities, vision and tremendous public relations. When teachers can provide examples, all educational stakeholders: students, parents, and board members gain a better understanding and appreciation of educational standards and benchmarks. In the context of the above mentioned study the technological skills were infused in to the curriculum; unfortunately, that is not usually the case.

THE DILEMMA

As valid and as valuable as the findings from the studies conducted by Fitzsimmons (2008) and Stiler (2007), an even more critical skill demanding research is the ability of students and teachers to choose the best technological tool and use it appropriately. Google is a reliable tool to scope out data but the higher-order thinking skills of combing through millions of hits is the technological fluency that most students lack. "Integrating teaching, learning and technology is a mandate, not an option, and doing any less would border of professional irresponsibility" (Evans, 2007).

The importance of technology literacy is getting attention at all levels of educational administration. The New Jersey Department of Education is incorporating Computer and Information Literacy benchmarks that must be met by the end of the eighth grade. The targeted proficiencies include technology vocabulary, basic knowledge of computer systems, Internet safety and etiquette, basic keyboarding and knowledge of the universal productivity applications (word processing, spreadsheet, database and presentation). Very little of this criteria is effectively taught *before* high school. This rubric (Figure 1, NTAP General Rubric) places a heavy weight on the students' ability to recognize and choose the best technological tool to create and design project output. Student ability will be incorporated and published as part of the New Jersey School Report Card beginning in 2009.

In an attempt to create a baseline for these skills this author delivered the SAM2003, a computer based assessment developed by Course Technology, to approximately 150 high school freshmen enrolled in a mandatory computer applications class. This test group represented about half of the total ninth grade class. While the SAM2003 is a simulation program it has the look and feel of Microsoft Office. The students were given one classroom period to become familiar with the SAM2003 format. The assessment was conducted during the month of September so that any effect of new learning would be negligible. The students did well in the areas of technology vocabulary, basic knowledge of computer systems, and Internet safety and etiquette because the test lends itself to the ancient format of multiple choice. The previous formal technology education for this sample group was a quarter year class as seventh graders in keyboarding and an optional half year as eighth graders in document formatting. Productivity applications that required independent knowledge of those applications was a dismal failure. Several items on the proposed rubric are not presently included in the computer applications curriculum. The digital natives are not hard wired for literacy or competence in their own environment.

In a study supported by the National Science Council which observed students aged ten and eleven in their use of technology during project based learning in science, ChanLin (2008) found that students must first be educated in the use of technology tools before using them effectively to complete a project. It is necessary to teach them the use of the various web based materials and the application of different computer software programs to analyze information.

Even with that training, the researcher found that many of the students became frustrated with their task due to the complexity of the cognitive skills involved in learning the multi-modal design skills. During the time they worked on the project, student motivation changed from being pleasure driven to persistence driven, and they felt a sense of achievement after the project was completed (ChanLin, 2008). Even though the teachers had had technology training before beginning the project, they found that they often learned much from the students, who knew more than they did about the application of computer skills.

So what is the educator, the digital immigrant or digital foreigner, to do? Basically, catch up. Methodology is ripe for a change. Educators need to model the tools that appeal to today's students. However, recognizing the tools is not enough for the educator. Delivery of instruction needs to be *re-visioned* rather than simply revised. The digital natives enjoy the ease that technology affords them but lack the sophistication to successfully manipulate its tools. While the 'natives' deplore step-by-step instructions, direction is still necessary. Creating lists of website links, Wikis and Web 2.0 tools need to become commonplace in teacher preparation programs. Sources that only a few years ago were considered suspect may now be viable: i.e. blogs and social networks. One of the best resources across all grade levels, K-12, is nettrekker.com. This subscription library service has over 300,000 of the best online resources, aligned with state standards and organized by readability and grade level. Each resource is carefully selected by educators to ensure it is safe, age-appropriate and 100% academically relevant (netTrekker, 2007).

STUDENT ID _____ STUDENT NAME _____
DISTRICT _____ SCHOOL NAME _____

8.1 COMPUTER AND INFORMATION LITERACY – NJTAP GENERAL RUBRIC

Strand A: Basic Computer Skills And Tools

Standard 8.1 for end of Grade 8 SCORE	Advanced Proficient 3	Proficient 2	Partially Proficient 1
Vocabulary will be assessed as part of each of the various skills noted below A.2 – A.12 NOTE: 8.1.8.A.1: Use appropriate technology vocabulary			
8.1.8.A.2: Use common features of an **operating system** (e.g., creating and organizing files and folders) **8.1.8.A.12:** Create, organize and manipulate **shortcuts**	Create/ customize common features of an operating system (e.g., shortcuts, files, and folders)	Independently use common features of an operating system (e.g., creating and organizing files and folders and creating, organizing and manipulating shortcuts)	With assistance, use common features of an operating system (e.g., creating and organizing files and folders and creating, organizing and manipulating shortcuts)
8.1.8.A.3: Effective, accurate and uses proper techniques when inputting text and data, using **touch keyboarding**	Able to model to others the proper techniques to effectively and accurately input text and data using touch keyboarding while completing a specific task in a specific core curriculum content area	Use proper techniques to effectively and accurately input text and data using touch keyboarding	With assistance input text and data, using touch keyboarding
8.1.8.A.5: Create documents with advanced text and formatting and graphics using **word processing**	Able to create a multi-page document with citations, advanced text formatting and graphics using word processing software in conjunction with other tools that demonstrates the ability to format, edit and print in a specific core curriculum content area	Create word processing documents independently that include advanced test-formatting and graphics	With assistance, create documents with advanced text formatting and graphics using word processing
8.1.8.A.6: Create a file containing customized information by **merging documents**	Independently create two or more documents to create a merged document in a specific core curriculum content area	Independently use two or more existing documents to create a merged document	With assistance, create a file containing customized information by merging documents
8.1.8.A.7: Construct a simple **spreadsheet**, enter data, and interpret the information	Able to create a spreadsheet, enter data, use mathematical or logical functions to manipulate and process data, generate charts and graphs, and interpret the results in a specific core curriculum content area	Independently construct a spreadsheet by entering and interpreting information	With assistance, construct a simple spreadsheet, enter data, and interpret the information
8.1.8.A.8: Design and produce a basic **multimedia project**	Independently create and produce original multimedia project using and importing text, graphics, moving images and sound in a specific core curriculum content area	Independently design and produce a basic multimedia project using text, graphics, moving images and sound.	With assistance, design and produce a basic multimedia project using text.

Standard 8.1 for end of Grade 8 SCORE	Advanced Proficient 3	Proficient 2	Partially Proficient 1
8.1.8.A.9: Plan and create a simple **database**, define fields, input data, and produce a report using sort and query	Create a database, define fields, input data from multiple records, produce a report using sort and query, and interpret the data in an original task-specific core curriculum content area	Independently create and produce a report by sorting and querying a database file	With assistance, plan and create a simple database, define fields, input data, and produce a report using sort and query
8.1.8.A.10: Use **network resources** for storing and retrieving data	Able to model and assist others with managing and organizing network resources for storing and retrieving data	Independently use network resources to store and retrieve data	With assistance, use network resources for storing and retrieving data
8.1.8.A.11: Choose appropriate electronic **graphic organizers** to create, construct, or design a document	Use the appropriate electronic graphic organizer in an independent and original task in a specific core curriculum content area	Choose the appropriate electronic graphic organizer to create construct or design a document	With assistance, use an electronic graphic organizer to create, construct, or design a document

Strand B: Application Of Productivity Tools

Standard 8.1 for end of Grade 8 SCORE	Advanced Proficient 3	Proficient 2	Partially Proficient 1
8.1.8.B.2: Exhibit **legal and ethical behaviors** when using information and technology, and discuss consequences of misuse	Exhibit legal and ethical behavior when using information and technology in an independent and original task in a specific core curriculum content area	Exhibit legal and ethical behavior when using information and technology as evidenced by using copyright fair-use laws as part of an assignment in a specific core curriculum content area	Verbalize an understanding between appropriate and inappropriate behavior related to legal and ethical issues as defined in the copyright fair-use laws
8.1.8.B.3: Explain the purpose of an **Acceptable Use Policy** and the consequences of the inappropriate use of technology	Distinguish safe and appropriate use and misuse of technology according to the AUP when making choices while working independently	Exhibit an understanding of the district's AUP through the safe and appropriate use of technology in all core curriculum content areas	Verbalizes an understanding of safe and appropriate use and misuse of technology according to the approved district Acceptable Use Policy (AUP) and knows the consequences of misuse but needs assistance to follow procedures for citing sources
8.1.8.B.4: Describe and practice **safe Internet usage**			
8.1.8.B.5: Describe and practice **"etiquette"** when using the Internet and electronic mail			
8.1.8.B.6: Choose appropriate tools and information resources to support research and solve real world problems, including, but not limited to: • On-line resources and databases • Search engines and subject directions	Able to effectively and efficiently use Boolean logic for research, and filtering strategies	Independently choose appropriate tools and information resources (online resources and databases, search engines and subject directories)	With assistance, choose appropriate tools and information resources to support research and solve real world problems, including but not limited to: • On-line resources and databases • Search engines and subject directions

Standard 8.1 for end of Grade 8 SCORE	Advanced Proficient 3	Proficient 2	Partially Proficient 1
8.1.8.B.7: Evaluate the **accuracy, relevance, and appropriateness** of print and non-print electronic information sources	Able to cite and support information sources using credible (accurate, relevant and appropriate) print and non-print electronic information sources	Independently evaluate information sources for credibility of print and non-print electronic information sources based on a predetermined criteria list	With assistance, evaluate the accuracy, relevance, and appropriateness of print and non-print electronic information sources
8.1.8.B.8: Use computer applications to modify information independently and/or collaboratively to solve problems	Consistently demonstrates the ability to create and manipulate information independently and/or collaboratively to solve problems and to design and develop products in a specific core curriculum content area	Independently and collaboratively use computer applications to modify information to solve problems	With direct instruction use computer applications to modify, gather and sort information independently and/or collaboratively to solve problems
8.1.8.B.9: Identify basic hardware problems and demonstrate the ability to solve common problems	Identify, diagnose and suggest solutions for non-functioning technology systems	Identify basic hardware problems and demonstrate the ability to solve common problems without assistance	Given basic hardware problems, demonstrate the ability to solve common problems with assistance
8.1.8.B.10: Determine when technology tools are appropriate to solve a problem and make a decision	Identify a problem in a content area and formulate a strategy to solve the problem using the appropriate technology tool(s), if applicable	Determine when technology tools are appropriate to solve a problem and make a decision	Given a problem, select the appropriate technology tool, if applicable, to solve the problem from a given set of solutions

New Jersey Department of Education (2006). The New Jersey Technological Assessment for Proficiency and Integration (NJTAP-IN).

LEGEND:
<31 Partially Proficient
32-48 Proficient
>49 Advanced Proficient

Figure 1: NTAP General Rubric

For students, it is important for schools to provide appropriate opportunities and experiences to support their development of knowledge and competency in using technology as a tool for learning. "Future implementation for planning on increasing students' involvement and confidence in using technology is needed" (ChanLin, 2008). In determining what skills students must have by the time they reach college, it is important to consider such goals as technology and information literacy, critical thinking skills, and group interaction and teambuilding skills (Evans, 2007). The environment into which these students will be graduated expects competency in these areas. Schools must provide opportunities for students to master technological proficiency. "We must … get them more quickly acclimated and connected to the ubiquitous cyberspace engine" (Evans, 2007).

Millennial workers have lived a very structured lifestyle and while they have no problem challenging the resident authority, their expectation is to find leadership in the leader. The finding of the U. S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) report was that schools need to provide the workplace with workers who can think creatively, make decisions, problem solve, organize concepts and processes, and basically, know how to learn. The first of the millennial workers, because of the orneriness that fuels their sense of entitlement and their intolerance of life's mundane daily tasks, are the type of workers that employers find frustrating. These digital natives enter the workforce with the higher level skills encourage by the SCANS (U.S. Department of Labor, 1991), yet they do not want to be bothered with what they perceive to be menial chores.

GUIDELINES FOR THE FUTURE

Focusing students on appropriate research is critical. Educators need to push them beyond the one click mentality of information gathering. Students lack the mental maturity and are ill prepared to block out, specifically, the Internet as a distraction. This distraction is taking a dangerous turn from mere time wasting daydreaming to online addictions in the form of gambling and pornography. Educators need to break themselves from using step-by-step instructions. Instead, they should provide the youngest of students with simple checklists to organize their assignment and later wean the digital natives towards the ownership qualities of the rubric.

The difference between a checklist and a rubric is significant. A checklist provides the student with elements that need to be present in an assignment. The checklist may contain choices and/or provide points for the inclusion of specific elements. This gives the student an opportunity to choose the elements that represent their strengths. Once the educator becomes more comfortable with the format it can be adapted to accommodate differentiated learning styles.

A rubric does much more. While a checklist merely corroborates existence of particular criteria a rubric analyzes quality. Rubrics spell out the teacher's expectations but they also confront the student by placing the initial academic control squarely in the hands of the student. It picks up the pace for the impatient digital natives but it also gives them much needed experience with personal time management and analysis of research materials. The challenge for the educator is developing a fair and clear rubric. A variety of websites exist to get a start but practice does help. Both checklists and rubrics should be distributed with the assignment and the due dates so they provide a clarity that stands up to the other group of important stakeholders, the parents.

Students can grasp the basics of the technical aspects even more quickly than their teachers. The teachers need to infuse rather than tack on technology activities to the curriculum. The growing acceptance of the rubric as an assessment tool assures the fitting into place of the final educational cog. However, how to assess student work or determine a grade is not the most significant element for the classroom teacher. Determining what is a valid assessment and how is it engineered and managed for student success remains the larger issue.

Consider a common high school assignment, the study of the novel, *To Kill a Mockingbird* by Harper Lee. Quizzes and tests on vocabulary, characters, quotes and themes perhaps culminating in a term paper are typical assignments. However, would it be less valid to ask the student to prepare a three minute presentation illustrating the coexistence of good and evil in the classic novel? The teacher would need to be technically fluent enough to allow the student to choose PowerPoint, MovieMaker, IMovie or maybe even Flash. Thus the teacher's dilemma begins. However, it does not need to start at this point unless it is the teacher's intent to assign a value to the complexity of the technological tool that the student decides to use. The teacher could review with the class the rubric for the assignment (Figure 2) and the class can view some movie trailers and discuss the merging of visual, written and spoken ideas.

Still, there is no reason for the teacher to break into a sweat. Classroom management takes shape in the project milestones or checkpoints. A milestone might be the production of a storyboard which is movie talk for an outline. The student output might be a graphical organizer such as Kid Pixs, the flowchart option in PowerPoint or a bulleted list completed in Word. Another milestone would be to have the students create their own timeline citing a completion date for the project.

It would be at this point that this author would allow the students to form groups because it is a large project but now every student has brought something to the table. Negotiating skills would be employed as the group melds the various ideas together.

		Multimedia Mania 2004 - Judges' Rubric												
		Primary Sponsors: ISTE's HyperSIG, North Carolina State University College of Education, Arizona State University, IntelliTools, mPower												
		***** Based on this element, the project does not qualify as a finalist for Multimedia Mania**												
		Criteria	0	.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	**Scores**		
												Raw	Weight	Total
	1	**Technical**	Project does not run satisfactorily. There are too many technical problems to view the project.			Project runs minimally. There are many technical problems when viewing the project.		Project runs adequately with minor technical problems.			Project runs perfectly with no technical problems. For example, there are no error messages, all sound, video, or other files are found.		x 1	
	2	**Navigation**	Buttons or navigational tools are absent or confusing. No buttons and navigational tools work.			Minimal difficulty experienced while navigating through project.		Few difficulties experienced while navigating through project.			Users can progress intuitively throughout entire project in a logical path to find information. All buttons and navigational tools work.		x 1	
	3	**Spelling & Grammar**	Project has multiple errors in spelling and/or grammar. (Four or more errors)			Project minimally honors rules of spelling and/or grammar. (Three or less errors)		Project adequately honors most rules of spelling and/or grammar. (Two or less errors)			Project honors all rules of spelling and/or grammar.		x 1	
	4	**Completion**	Project is incomplete and contains many unfinished elements.			Project is incomplete and contains some unfinished elements.		Project is incomplete and contains several unfinished elements.			Project is completely finished.		x 1	
	5	**Screen Design**	Screens are either barren and stark or confusing and cluttered. Exaggerated emphasis on graphics and special effects weakens the message and interferes with the communication of content and ideas.			Multimedia elements accompany content but there is little sign of mutual reinforcement. There is no attention to visual design criteria such as balance, proportion, harmony and restraint. There is some tendency toward random use of graphical elements that do not reinforce message.		Multimedia elements and content combine to adequately deliver a high impact message with the elements and words reinforcing each other.			The combination of multimedia elements and content takes communication to a superior level. There is clear attention given to balance, proportion, harmony, and restraint. The synergy reaches the intended audience with style and pizzazz.		x 1	
	6	**Use of Enhancement**	No graphics, video, audio, 3-D, or other enhancements are present or use of these tools is inappropriate.			Limited graphics, video, audio, 3-D, or others enhancements are present but do not always enrich the learning experience. In some instances, use of these enhancements is inappropriate.		Most graphics, video, audio, 3-D, or other enhancements are used appropriately to enrich the experience. For example, clips are either too long or too short to be meaningful.			All graphics, video, audio, 3-D, or other enhancements are used effectively to enrich the learning experience. Enhancements contribute significantly to convey the intended meaning.		x 1	
	7	**Organization**	The sequence of information is not logical. Menus and paths to information are not evident.			The sequence of information is somewhat logical. Menus and paths are confusing and flawed.		The sequence of information is logical. Menus and paths to most information are clear and direct.			The sequence of information is logical and intuitive. Menus and paths to all information are clear and direct.		x 2	

	8	**Branching**	Project contains few choices. The design is linear.	Project contains few well-designed and age-appropriate choices. The design i s primarily linear.	Although project contains some well-designed and age-appropriate choices, some portions are linear.	Project is truly multimedia, rather than linear and contains a significant number of well-designed and age-appropriate choices.		x 2	
	9	**Citing Resources**	No sources are properly cited within the project according to MLA style. ***	Few sources are properly cited within the project according to MLA style.	Most sources are properly cited within the project according to MLA style.	All sources are properly cited within the project according to MLA style.		x 1	
	10	**Permissions Obtained for Resources**	No permissions to use text, graphics, audio, video, etc. are available. ***	Few permissions to use text, graphics, audio, video, etc. are available.	Most permissions to use text, graphics, audio, video, etc. are available.	All permissions to use text, graphics, audio, video, etc. are available.		x 1	
	11	**Originality**	The work is a minimal collection or rehash of other people's ideas, products, images and inventions. There is no evidence of new thought.	The work is an extensive collection and rehash of other people's ideas, products, images and inventions. There is little evidence of new thought or inventiveness.	The project shows some evidence of originality and inventiveness. While based on an extensive collection of other people's ideas, products, images and inventions, the work extends beyond that collection to offer new insights.	The project shows significant evidence of originality and inventiveness. The majority of the content and many of the ideas are fresh, original, and inventive.		x 3	
	12	**Curriculum Alignment (Objectives are clearly stated on Entry Form)**	No evidence of connection to target curriculum. Users are not likely to learn from this project.	Some evidence of connection to target curriculum. Users may learn from this project.	Adequate evidence of connection to target curriculum. Users are likely to learn from this project.	Clear evidence of connection to target curriculum. Frequent and clear references are made to facts, concepts, and cited resources. Users will learn from this project.		x 3	
	13	**Evidence That Objectives Were Met**	No evidence that project content supports stated objectives.	Little evidence that project content supports stated objectives.	Some evidence that project content supports stated objectives.	Clear evidence that project content supports stated objectives.		x 3	
	14	**Depth & Breadth of Project Content**	No evidence that higher level thinking skills were used in the creation of this project.	Little evidence that higher level thinking skills were used in the creation of this project.	Some evidence that higher level thinking skills were used in the creation of this project.	Clear evidence that higher level thinking skills were used in the creation of this project.		x 2	
	15	**Subject Knowledge**	Subject knowledge is not evident. Information is confusing, incorrect, or flawed.	Some subject knowledge is evident. Some Information is confusing, incorrect, or flawed.	Subject knowledge is evident in much of the project. Most information is clear, appropriate, and correct.	Subject knowledge is evident throughout the project. All information is clear, appropriate, and correct.		x 2	
May be reproduced for classroom use as long as no fee is charged and the source is cited as Multimedia Mania (http://ced.ncsu.edu/mmania/)									

Figure 2: Multimedia Mania Judges' Rubric
(Multimedia Mania, 2004)

As a practically a milestone to be considered is the collection of all visuals and props before any taping is scheduled. The digital foreigner, the English teacher, may be crying, "Where is the thesis statement, and pages of critical writing?" Both the thesis statement and critical thinking are there but the format has changed and maybe the students actually had to **read** the book.

How will the teacher grade the project? With the rubric provided at the beginning of the assignment. Even the digital foreigner will be able to distinguish the level of technical expertise although the content understanding might, or in the case of an A+ project should, be evident in a variety of media. The teacher will recognize a depth of understanding.

CONCLUSION

For this idyllic outcome support must be provided. Teacher training in technology has been sporadic. Student training in the critical tools has also been sporadic. The New Jersey Department of Education is correct in determining that technological literacy should be evident by the eighth grade. Although technology is all around the students at birth, teachers in the primary grades need to model and discuss the correct use of various devices such as digital cameras and MP3 players. Basic keyboarding skills need to be taught no later than the fourth grade. Technology productivity and appropriateness of the tools of word processing, spreadsheet and presentation need to be fully integrated into students' school lives from that time forward. Such approaches to changing the educational environment of schools can help students prepare for life in an increasingly digital democracy (Miller, 2007).

AUTHOR INFORMATION

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REFERENCES

1. ChanLin, L. (2008). Technology integration applied to project-based learning in science. *Innovations in Education and Teaching International, 45*(1), 55-66. Retrieved November 18, 2008 from ProQuest database.
2. Evans, R. (2007). Student learning outcomes in a cyberspace age. *Diverse Issues in Higher Education, 24*(11), 85. Retrieved November 19, 2008 from ProQuest database.
3. Fitzsimmons, D. (2008). Digital portfolios in visual arts classrooms. *Art Education, 61*(5), 47-53. Retrieved November 19, 2008 from ProQuest database.
4. Lawless, K., & Pellegrino, J. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. *Review of Educational Research, 77*(4), 575-515. Retrieved November 5, 2008 from ProQuest database.
5. Miller, S. (2007). English teacher learning for new times: Digital video composing as multimodal literacy practice 1. *English Education, 40*(1), 61-84. Retrieved November 5, 2008 from ProQuest database.
6. Multimedia Mania (2004). Retrieved November 23, 2008 from http://www.ncsu.edu/mmania/mm_docs/mm_judge_rubric2.html
7. netTrekker. (2007) . America's #1 educational search engine. Retrieved November 19, 2008 from http://nettrekker.com/
8. New Jersey Department of Education. (2006). The New Jersey Technological Assessment ForProficiency and Integration (NJTAP-IN). Retrieved November 19, 2008. From http://www.state.nj.us/education/techno/techlit/tapin/
9. Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon, 9*(5). Retrieved November 19, 2008 from http://www.marcprensky.com/writing/
10. Raines, C. (2002). Managing millennials. Retrieved November 19, 2008 from http://www.generationsatwork.com/articles/millenials.htm

11. U.S. Department of Labor. (1991, May). Secretary's commission on achieving necessary skills (SCANS). Retrieved November 18, 2008 from http://wdr.doleta.gov/SCANS/whatwork/
12. Spielberg, S. (1987). Academy awards speech. Retrieved November 19, 2008 from http://www.truveo.com/Steven-Spielberg-Academy-Awards-Speech-1987/id/98395768
13. Stiler, G. (2007). MP3 players: Applications and implications for the use of popular technology in secondary schools. *Education, 128*(1), 20-33. Retrieved November 19, 2008, from ProQuest database.

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