Promoting Systemic Change in Curriculum Through Technology

Presented by Brett Penza

Summer 2007

14959.   Systemic Change:
Curriculum, Instructional Technology and Professional Development

Foreword by Romeo Marquis
Directed Study Supervisor
Framingham State College

Foreword

Mr. Penza completed the Directed Study format for Course Number 14.959, Systemic Change: Curriculum, Instructional Technology and Professional Development, during the Summer of 2007. I was his supervisor during this process.

During our initial conference before he registered for the course, we discussed several possibilities for research that would apply to his own school setting and be seen as having systemic influence within the school. It was a major point of emphasis that his research would necessarily be school based.

We also spoke of the need to address specific performance standards for students, specific recommendations for professional development, and specific recommendations for the school administration.

This paper represents the results of Mr. Penza's work during the summer term. It reflects the "long view" of his school's needs within the context of technology integration. It includes comparative data from other schools. It also includes case studies that help readers understand the need for systemic technological development up to and including faculty evaluation. The paper closes with several links to related research and supportive information.

During the course of the summer as Mr. Penza's research progressed, we maintained regular communication through emails and through week Skype conferences as we "walked through" various stages of his developing paper.

Directed Study Supervisor
Framingham State College
July 2007

June 22, 2007

Dear Administration,

In recent years we have been building an infrastructure of personal computers, network and internet accessibility.   These efforts have proven of value in providing administrative improvements, centralized e-mail communications, and the introduction of technology-based lessons. We are justly proud of our achievements and we continue to budget effectively to provide value-added technology tools to our staff and students.

Now, with our infrastructure in place and our current curriculum under review, we are strategically positioned to examine our existing educational methods to find effective ways to integrate our technological assets into the classroom experience. We can now embrace a systemic change that will move us beyond the introductory projector based lectures toward a more interesting and interactive classroom. This will result in students who are more motivated to acquire knowledge and better equipped to compete in the professional world.
.
To remain faithful to this vision, I present this justification and recommendation for our immediate future. This document is organized into six parts:

1. First, a recommendation for student courses that will seek to provide project based learning in a constructivist setting. Through these course selections, students will be challenged to create solutions through critical thinking exercises.
2. A study is then presented comparing our existing course offerings against a few of our competitor schools. Clearly, we can see that while our core offerings do have overlap, there is room for enhancement.
3. Thirdly, we will examine a proposed method of implementing one of the recommended courses. Adobe CS3 Web Development software is chosen as a model because it would be the most practical course addition to our current environment.
4. As additional support for this plan, two case studies are cited presenting schools that have witnessed great benefits through technology implementations.
5. A flexible plan for professional development is provided to build faculty and staff as champions of this technological movement.
6. Additional techniques are explored as we reference a website that showcases exciting projects and developments, proving how important technology can be to a student learning process.

I am writing this paper as a requirement for my Masters Degree in Curriculum Technology at Framingham State College. Throughout this process I have remained focused on how we can bring the best educational opportunities to our fine students at Holy Name Jr. Sr. Central Catholic High School. I hope you will find value in this information. If you have any questions or would like to discuss further, please do not hesitate to communicate with me. Thank you.

Sincerely,

Brett D. Penza
Technology Instructor/ Coordinator
Holy Name Jr. Sr. Central Catholic High School

Promoting Systemic Change in Curriculum Through Technology

I. Proposal of Technology Curriculum.

The use of technology in education is growing at a rapid pace.   In order to properly prepare our students for the technical requirements in today's workforce, we must re-examine our current curriculum offerings.   While we do our best to meet the demands of the state and national technology standards in education, there is no question that we are competing against many school systems who have found innovative and effective methods to prepare their students.

These recommendations are not just a "wish list", but come from interaction with other educators in other high school environments and through analysis of Massachusetts State Standards in Technology Education.   Our competitors are training their students in these areas and it is imperative that we make every effort to deliver these offerings as well.

Here is a general overview of Recommended Course Offerings for our Technology Department:

I.   **1. Microsoft Office XP (Semester Course)**

Students will learn to use the component applications of Microsoft Office Professional in a business environment.   Units in Word Processing, Spreadsheet, PowerPoint and Access Database will be explored in a hands-on environment.

Tech Requirements: Recommended class size not to exceed 25 students.
                                25 XP Computers.   Standard Hardware: Pentium IV, 256 RAM, 80g HD
                                Overhead Projector / Tablet for instruction.
Estimated Cost: Site License XP Office:
                                XP Computers: $ 25,000
                                Projector/ Table: $ 1,500

II.   **2. Introduction to Programming (Semester Course)**

Students will be introduced to the core concepts of programming a computer. Assignment Variables, Decision structures, Continuous Looping, Arrays, Random Functions.   Concepts are continuously built upon hands-on activities.   Students will use the BASIC language w/ introductions to the GUI environment.

Tech Requirements: Recommended class size not to exceed 25 students.
                                Existing Computer Lab will support this Course.

III.   **3. Advanced Programming (Semester Course)**

Students will continue the efforts of the Introduction Course, by exploring the GUI programming environment.   Through implementation of elements from MICROSOFT VISUAL STUDIO, the students will build interesting applications in a Windows based environment.

Tech Requirements: Recommended class size not to exceed 25 students.
                     25 XP Computers.   Standard Hardware: Pentium IV, 256 RAM, 80g HD
                     Overhead Projector / Tablet for instruction.

Estimated Cost: MICROSOFT VISUAL STUDIO EXPRESS IS FREE.
                     XP Computers: $ 25,000
                     Projector/ Table: $ 1,500

IV.   **4. Introduction to Web Design (Semester Course)**

Students will learn to code interesting web pages with HTML and JAVASCRIPT.   Several interesting Projects will be undertaken as students begin to uncover the mystery behind Web Design.

Tech Requirements: Recommended class size not to exceed 25 students.
                     Existing Computer Lab will support this Course.

                     Overhead Projector / Tablet for instruction.

Estimated Cost: HTML/ JAVASCRIPT are free scripting languages.
                     Projector/ Table: $ 1,500

V.   **5. Advanced Web Design- ADOBE CS/3   (FULL YEAR – or Semester)**

Students will learn the elements of the professional standard in Web Design.   Dreamweaver & Flash will be taught in a hands-on project based environment.   Students will create full-functioning, state-of-the-art web pages.

Tech Requirements: Recommended class size not to exceed 25 students.
                     25 XP Computers.   Standard Hardware: Pentium IV, 256 RAM, 80g HD
                     Overhead Projector / Tablet for instruction.
              .   Macromedia Studio 8, K-12

Estimated Cost: Macromedia Studio 8, K-12   Site License: (500 or fewer): $2,750
                     XP Computers: $ 25,000
                     Projector/ Table: $ 1,500

VI.   **6. Multimedia Production – ADOBE Photoshop Elements/ Premiere Elements (Semester Course)**

Students will be shown how to use photo editing and movie editing software through interesting projects.   Use of Digital Audio & Video Equipment will be required to gather subject elements. A very intense project based learning opportunity.

Tech Requirements: Recommended class size not to exceed 25 students.
                      25 XP Computers.   Standard Hardware: Pentium IV, 256 RAM, 80g HD
                      Digital Cameras
                      Digital Video Camcorder
                      Audio Recording Software (Available)
Overhead Projector / Tablet for instruction.
.   Adobe Photoshop Elements
Adobe Premiere Elements

Estimated Cost: Adobe Photoshop Elements/ Premiere Elements ($150 per student)
        Digital Cameras ($ 200 per camera)
Video Camcorder ($ 600 per camera)
                XP Computers: $ 25,000
                Projector/ Table: $ 1,500

VII.   **7. Music & Technology – Using Sibelius (Semester Course)**

Students will be exposed to the world of electronic music composition.   Through hands-on lessons and project development, students will learn to compose music with the Sibelius Software. In the process, the student will learn about simple networking concepts, peripheral hardware connections, MIDI transfer and proper backup techniques.   While some introductory musical theory will be taught, this course is intended for the student who has acquired some knowledge of the elements of music.

Tech Requirements: Recommended class size not to exceed 25 students.
                      25 XP Computers.   Standard Hardware: Pentium IV, 256 RAM, 80g HD
                      Sibelius Software (Teacher & Student Editions)
                      Electronic Keyboard

Estimated Cost: Sibelius Software (Teacher edition: $ 400, Students: $99 per student)
        Electronic Keyboard ($300)
                XP Computers: $ 25,000
                Projector/ Table: $ 1,500

II.   Vision for the Effective Use of Technology- A Comparison.

The Massachusetts Department of Education has prepared a summary for all public schools preK-12 in regards to the effective use of instructional technology in the classroom. They have established 3 general categories for all students (2001, November):

Standard 1. Demonstrate proficiency in the use of computers and applications as well as an understanding of concepts underlying hardware, software, and connectivity.

Standard 2. Demonstrate responsible use of technology and an understanding of ethics and safety issues in using electronic media.

Standard 3. Demonstrate ability to use technology for research, problem-solving, and communication. Students locate, evaluate, collect, and process information from a variety of electronic sources. Students use telecommunications and other media to interact or collaborate with peers, experts, and other audiences. (p. 1)

Standard 1 insures that the student is prepared to use the personal computer to effectively navigate through standard business applications in order to perform successfully on a professional level. The student must be immersed into the environment of computer connectivity and understand how to operate technology tools that have become staples of communication in the business environment.

Standard 2 provides for training and education in the ethical use of electronic media. Programs that insure proper research techniques, discerning the validity of a source for research, protection of personal and private information are all important topics which must be reinforced in the student learning process.

Standard 3 reflects an understanding that today's global marketplace seeks individuals who are well versed with electronic communications and technology. Today's educational institutions are challenged to offer students hands-on experiences with the internet that build proficiency in web communication, development and research.   It is here, that we prepare our students for the professional occupations that they place as the goal of their academic experience.

It is true that Holy Name Jr. Sr. Central Catholic High School is not required to adhere to the public school standards. However, historically it has been prudent for the administration to remain cognizant of all professional standards that regulate primary and secondary education. In order for our fine institution to remain competitive in offering a quality education, we have always been committed to make every effort to exceed the standards offered by the state.

Our technology curriculum has been very effectively employed over the years. However, it is now necessary to re-examine, and perhaps re-design the program. The world is experiencing geometric technological change and we will never deny the continuing responsibility and obligation we have to the proper preparation of our students.

A web search through several high schools in the Worcester Area gives a reasonable comparison of our current technology curriculum.

Holy Name Worcester	St. Peter Marian Worcester	St. John's Shrewsbury	Uxbridge Public
Intro to Computer Programming			
Visual Basic Programming	*Visual Basic Programming*		*Visual Basic*
Microsoft Office		*Microsoft Office*	*Computer Applications I*
Web Design	*Webpage Design*		*Webpage Design*
	C++ Programming	*Turbo C*	*CAD I & II Computer Aided Design*
	Desktop Publishing	*Adobe PageMaker*	*Desktop Publishing*
	JAVA		

Examining this table, we can see that all technology departments offer courses such as Microsoft Office, Basic Programming, and Introductory Web Design. However, we can also see that all comparison schools are offering a course in Desktop Publishing.   St. Peter Marian offers additional programming courses in C++ and Java. Lastly, Uxbridge Public School offers courses in Computer Aided Design which is most applicable to students preparing for careers as design engineers.

While all of these course offerings could contain some overlap, it is clear that the technology curriculum at Holy Name would be well served by additional course offerings. By investing in the Macromedia Creative Suite 3 software, we would raise the playing field, offering state-of-the-art professional web design, animation and image manipulation.   Students would engage in exciting projects which would prepare them to fine tune their creative and critical thinking abilities. Upon obtaining a high degree of proficiency, the students would be challenged to use their newly developed skills by redesigning the school website, www.holyname.net.   The value of a professional looking internet presence alone, in today's marketplace is beyond the cost of the software licensing purchase. Introducing the Macromedia CS3 software would be a magnificent first step toward the systemic technology curriculum change. It would provide prospective students another example of our competitive edge. It would give us another reason to say that Holy Name Jr. Sr. Central Catholic High School is simply the best choice they can make.

III. Implementation Method, an example.

Improper implementation of new teaching technologies can leave a teaching staff threatened or overwhelmed.   A demoralized faculty will have obvious ill effects on the students they teach. Therefore, a plan will be submitted that will effectively communicate a requirement for professional development, with attention to the following:

> 1. Promoting an empowered, unified staff.
> 2. Inviting the staff to seek out continued technological advancement.
> 3. Enhancing and improving staff performance through non-threatening
>   techniques.

The existing technology department consists of instructors that have been transferred from the mathematics department. Equipped with the ability to adapt quickly and the experience to lead students, they stay a few pages ahead of the students as they provide instruction in Microsoft Office Applications and GW/Basic Programming.   Once they have taught the subject, they are ready to repeat the instruction the following year with a higher level of confidence.

Unfortunately, while this is an acceptable way to provide instruction for our existing curriculum, it is not going to work when rolling out our proposed curriculum. The current staff is not equipped to teach Advanced Web Design, Multi-Media or Electronic Music Composition. To be most effective, each of these courses will require a very different learning environment. Hands-on, project based lessons will require the guidance of an instructor who has experience with the tools. Students working at various levels will call upon the teacher for assistance. If the teacher is unable to provide effective solutions to questions, the student will begin to sense the instructors' insecurity. This will result in teacher frustration, student dissatisfaction and a breakdown in the proposed model.

It is therefore, important that the teacher be properly trained in the new curriculum prior to the start of any new course offering. While there are several new courses proposed, it is clear that the most technically rewarding offering would be the Advanced Web Design program, driven by the Adobe Creative Suite 3 Web Standard software. This software will also include a year-long curriculum guide that will spark critical thinking and project based learning in web and multimedia design. Using this course as a model, here are two recommended roll-out strategies:

1. Macromedia Creative Suite 3 as an independent study elective (1 or 2 Students).
2. Macromedia Creative Suite 3 Web Standard as a Site License (Full Class Offering).

In scenario 1, the following plan would be exercised:

June 2007	Adobe Creative Studio 3 – Web Standard Edition purchase (3 x $399.00)
June 2007	Instructor is chosen to oversee directed study.
June 2007	Student(s) are selected to take part in directed study.
August 2007	Instructor previews curriculum and prepares approach
September 2007	Students begin coursework, giving up Senior Priviledge Time

At the end of term, the administration would identify an instructor with aptitude and experience in standard Web Design techniques. Then, 1 or 2 students interested in pursuing additional Web Design training would be selected to pilot the program. The students would be juniors finishing the year in good standing, receiving recommendation from the technology department. The software would be purchased. Over the summer, the instructor would have the opportunity to examinine the course curriculum that is shipped with the software, and be prepared to guide the students through the course in the fall.

In scenario 2, the following plan would be exercised:

June 2007	Adobe CS3 – Web Standard Edition Site License ($3,999.00)
June 2007	Instructor is chosen to oversee directed study.
June 2007	Class selection process.
August 2007	Instructor previews curriculum and prepares approach
September 2007	Full Class begins coursework, taking course for full credit.

At the end of term, the administration would identify an instructor with aptitude and experience in standard Web Design techniques. A new course would be offered as Advanced Web Design. Eligible students interested in continuing Web Design training, receiving recommendation from the technology department would be assigned to the course. The site license for the software would be purchased. Over the summer, the instructor would have the opportunity to examinine the course curriculum that is shipped with the software, and be prepared to teach the course in the fall.

Obviously, the first option has immediate benefits. It is much less expensive ($1,200) and gives the instructor and student a less stressful means toward success.   However, it may also prove to be less successful since the student is not pressed toward any credit requirement.

Additional summer training must also be made available to the instructor. In many cases this can be free training through educational grant programs or user group web sites. A motivated instructor will not have trouble finding and pursuing these offerings.

Once the program is successfully implemented and a curriculum in place, the instructor can help educate other interested staff members who are interested in teaching the program. It will be important that members of the technology department are given ample time, through periodic meetings, to work as a cohesive team, comparing and enhancing curriculum.

IV. Technology Case Study.

We must be sure that funds used to alter curriculum or purchase technology will add value to and promote student learning objectives. Educational funding is a precious resource. Proper study and statistical results will be employed to provide valid technical solutions. Proven strategies are chosen not simply because they appears to be "innovative", but because the innovation drives a higher quality of student learning.

To properly evaluate the proposed technology investments, we will examine 2 interesting studies. First, let's look at a 3 year study done at the University of Virginia's Center for Technology and Teacher's Education (CTTE).   In this example, a group of student teachers were trained in using SMART Board interactive whiteboards to teach secondary school science and mathematics.   Once they were properly prepared, it was proposed that each of them would instruct two separate groups of students. One group would be taught with the use of technology and one group without the technology.   This would give a reasonable comparison to determine the effectiveness of the technology tools. The student teachers balked at the proposal. Because they were so convinced that the technology was going to have a positive impact on the students … they felt it was not right to withhold it from some of their sections."(Grove, 2007). To resolve this, an experienced teacher with 14 years of experience was chosen to teach the same subject without the use of technology.

The results are perhaps even more striking when one considers a newly trained teacher with the use of technology was able to produce higher test scores than an experienced instructor without the technology tools.   Because the students were able to experience visual and interactive presentations, they were capable of discussing curriculum topics with more understanding.

The Consortium for School Networking (CoSN) has assisted many school districts in evaluating and promoting their technology infrastructure.   They provide tools and techniques to help schools find appropriate technology investments to enhance their educational objectives. One such case study was done in a school district in western Pennsylvania. Through the purchase and deployment of a computer network, personal computers and application software, impressive goals have been set, and positive results have already been delivered. Some of the key benefits have been:

- All students, regardless of social economic status are being educated to access information on a high-speed internet connection.
- Students are developing and maintaining websites for small businesses locally, in other states and even internationally. This free service is providing a valuable resume for the students doing this work, and there is discussion towards charging for this service. (CoSN, 2006)
- Since a focus on classroom technology, 2 and 4 year college entry has gone from 10% to 64%. (CoSN, 2006)
- Courses available via distance education (e-learning) provide equity with larger schools that can offer a broader in-house curriculum. (CoSN, 2006)

In addition to these educational benefits, additional operational improvements exist that will promote a positive school environment and make it an attractive educational choice.

- Electronic course curriculums, homework assignments and tests have reduced or eliminated the need for paper and printing supplies.
- Student attendance has increased and behavioral disruptions have significantly decreased.
- The district is experiencing good teacher retention. The investment in technology based instruction has energized the faculty.
- E-Mail connectivity between students, teachers and the administration has proven to be a more effective means of communication.
- Parental support and involvement is enhanced. Through website access and electronic communications they are able to keep tabs on their child's assignments and performance.

There are many examples available that illustrate the improvements that technology can make to the student experience and the educational process. Innovative tools enable the student to visualize learning concepts and interact with the subject material to gain greater understanding. These activities promote critical thinking in and away from the classroom. We must continue to invest wisely in these tools to insure that each of our students maintains a competitive edge.

V. Professional Development Plan.

The positive influence of technology on education is undeniable. A quick web search will return many examples of technology rich lesson plans and techniques for the interested educator. The integration of technology into curriculum has improved teacher presentation methods and enhanced student performance. Further, studies show that a subject taught with the use of technology will lead the student toward higher levels of achievement and understanding.

Still, there are some educators who, for various reasons, remain unconvinced. Teachers who have achieved success over the years through lecture oriented instruction are comfortable in their ways. Out of stubbornness, insecurity, or fear, they are still not ready to turn on the computers and embrace educational technology.

This is understandable. An educator that has established a great track record through traditional means may believe that there is nothing to fix. There is no need to improve. Years of proven results give these educators good reason to rely on their past records and accomplishments. It is hard for them, after investing years in a profession, to simple reinvent their approach, and abandon all that has worked so well for them in the past.

This logic would be sound if not for the fact that the world is changing and technology is driving the change at a geometric rate. To stand still is to fail. Today, young professionals are required to communicate and comprehend successfully in a global economy. It is our duty as educators to prepare them properly and equip them with the tools to succeed. In a book by Dr. Spencer Johnson called "Who Moved My Cheese?" he writes "Smell the cheese often so you know when it is getting old." (Johnson, 2002,p.52)   This is great advice. For in all professions, it is important to remain informed on new tools, techniques or strategies that are in place and designed to improve one's job or performance. Failure to grow can often result in obsolescence.

Nonetheless, care must be taken with the reluctant educator. Professional Development must be offered that will gently guide them along toward small successes. We must continue to recognize that the experienced teacher possesses skills in classroom management, oral communication, and concern for student progress. Always, the primary goal must be to engage them by including them in a non-threatening process. A process that recognizes them as valuable resources, yet adds value to their effectiveness in the classroom.

Therefore, a successful Professional Development Plan must be implemented and made available to faculty members. Each faculty member possesses varying skill levels so it will be important to offer flexible menu offerings. Some offerings will be taught by peer teachers who have incorporated skills into their programs. Other advanced courses will be made available through outside organizations. Each offering will be defined and dedicated toward offering the instructor classroom techniques to enhance their own lessons. From the offerings, they will be able to pick and choose the courses that they believe will provide them with skills to enhance their classroom presentation.

A successful implementation would require value-added course offerings, availability of equipment, and progress evaluation. First, each course must provide the teacher optimum value in the classroom:

Course Criteria
1. Customized training that will offer enrichment at each level of technical ability. 2. Tangible examples that teachers can immediately include in their teaching toolkit. 3. Flexible offerings during and after school, to meet teacher scheduling. 4. Hands-on experiences with the tools that are demonstrated and taught.

Secondly, teachers cannot be given expectations to use equipment without an ample supply of available tools. In order for all staff members to prepare and perform in a technology based setting:

Availability of Equipment
1. Full-time Technology staff coverage will be available to setup necessary equipment and offer informal assistance on operation of electronic devices and or software. 2. An Ample supply of all technology equipment will be made available to all instructors. 3. Access will be given to all appropriate network locations for storing and retrieving information.

Finally, In order to maintain focus on objectives and insure value on PD funding, the administration will implement the following requirements:

Progress Evaluation
1. All Faculty members will introduce a minimum of one technology lesson plan per quarter. 2. Observations and Summative Evaluations will include a measurement for effective use of technology in curriculum. 3. Professional Development Points will be awarded and required for continued employment.

In this way, the entire school community will become empowered to experience the opportunities that technology can bring to their classroom environment. Through consistent support and measured successes, all faculty members will become champions of the technological movement in education.

PROFESSIONAL DEVELOPMENT SAMPLE COURSE OFFERINGS:

1. **Intro to Basic Computer Training and Operation.**
This course would assist teachers in understanding the basic operational features of the IBM/Clone personal computer w/ Windows XP.   Points of Knowledge:
  - Including: Hardware of the Personal Computer; Input, Processing, Output
  - Devices. Storage methods, Backup Procedures.
  - Startup Processes, Accessing "Safe Mode".
  - Windows Navigation and Menu Systems

Learning Objective:
  Teacher will create several files using notepad, paint.   An understanding of simple computer operations will be instilled, enabling teacher to create, edit and save information with confidence.

2. **Network Navigation and E-Mail.**

This course is designed to give teachers an understanding of the personal computer within the context of the Network and Windows Domain. The following Points of Knowledge:
  - The wired / wireless solution. Simple introductory discussion of IP addressing and physical NIC Hardware. Universal Naming Conventions.
  - The physical map. Outlining Network Servers, Printers, Common Drives. Hubs, Switches, Firewalls.
  - User access.   Mapping a Network Drive, Printer access, Security.

Learning Objective:
  The teacher will be able to navigate across the network, accessing drives and applications of importance.

3. **Microsoft Office Applications.**

The Office Suite can be taught as individual modules for the introductory student. Advanced courses can also be given to show integration of applications. Finally, an advanced course could be given, showing the many websites that contain exciting lesson plans exclusively produced through the use of MS/Office applications. Points of Knowledge:
  - MS/Word – Introductory- Intermediate-Advanced
  - MS/Excel – Introductory-Intermediate-Advanced
  - MS/PowerPoint- Introductory-Intermediate-Advanced
  - MS/Access- Introductory-Intermediate-Advanced
  - Integration- Word-Excel-PowerPoint information transfer.
  - Websites dedicated to MS/Office lesson plans/ creative ideas

Learning Objective:
  Teacher will learn how to use MS/Office to their level of interest. As a basic application suite, MS/Office is required at so many levels of communication, planning

and creativity. It is imperative that every teacher possess competent skills with this software.

4. Internet Surfing and Research.

The Internet contains a wealth of information. This course is designed to give the teacher a roadmap to surfing the internet.   Many educational sites will be offered to spark teacher creativity and innovation. Points of Knowledge:
- Web surfing techniques, search engines, lookup syntax
- Outstanding educational websites that will provide exciting lesson plans.
- Identifying and discriminating credible web sources.

Learning Objective:
>   The websites that are uncovered in this course will provide teachers with hours of innovative and creative ideas that they can easily implement into their classroom.

5. Web Questing.

Web Quests are an exciting way to get students to work creatively and independently through well-guided, interactive instruction.   In this training, the teacher will learn about the elements of a good Web Quest. The will evaluate many existing Web Quests, and finally develop tools to create their own on-line Web Quests. Points of Knowledge:
- Understanding the anatomy of a Web Quest
- Evaluating a good Web Quest
- Finding good Web Quests
- Developing simple web technique to create their own Web Quest

Learning Objective:
>   The teacher will acquire proficiency at three levels:
>   a. Understand Web Quests and develop ability to find and use them.
>   b. Develop basic web development skills and upload to Host Sites.
>   c.Create Web Quests for use in class.

6. Using the Smart Tablet.

This course is designed to allow the teacher the opportunity to experience the use of the Smart Tablet.   In combination with a projector, the Smart Tablet opens a door to exciting and interactive student learning. Points of Knowledge:
- Understanding the hardware requirements of the tablet.
- Installation procedures.
- Using the basic tablet features.
- Using interactive software to produce templates
- Development of an Interactive Student Lesson Plan.

Learning Objective:
>   The teacher will be able to implement the device into her teaching environment to enhance the learning experience in class. Interactive learning and enhanced student interest is the goal here.

7. Using Digital Camera and Video.

With the popularity of the internet and websites like YouTube.com, digital pictures and video have become very effective presentation methods. This course will assist the teacher in discovering new possibilities through the use of a variety of tools that can motivate students create more interesting reports or presentations. Points of Knowledge:
- Understanding digital terminology. Pixels, Memory Constraints, Formats.
- Using tools. Cameras, Video Cams.
- Software: Adobe Premier Elements, Adobe Photoshop Elements
- Editing, Formatting, and Uploading to the Web

Learning Objectives:

The teacher will develop an understanding and working knowledge of the possibilities of digital video production.   With this level of understanding, the teacher can confidently employ digital video requirements on student projects.

VI. Demonstrations in Technology.

The following links are examples of exciting educational developments made possible through the use of technology. These demonstrations can also be previewed at The Learning Curve (2007) on the web. For web access go to: romeomarquis.com

1.   Reflection and Refraction of Light.   A study done to show the student the results of light rays against various surfaces.

2.   Peer Editting. A multimedia presentation that explains the peer editing process. Students are given visual examples of the students working in the classroom environment and step by step instruction on the process.

3.   Writing Process. A multimedia presentation that shows the positive effect of technology in the writing process.

4.   Welcome to Algebra. An overview of a technology integrated Algebra class.

5.   Handheld Units. A video showing some of the uses of the handheld computer devices in the classroom.

6.   Little Red School House. An eye opening examination that compares yesterday's educational model with today's systemic change model.

7.   Did You Know? Additional statistical information that begs for systemic change in today's educational curriculum.

All of these examples give an idea of the capabilities that exist today to prepare our students for their world. Using multimedia equipment, the instructor is able to bring visual examples into the classroom. Additionally, the student is interactively engaged to produce multimedia presentations that exhibit a thorough grasp of the course material.

VII. Conclusion.

The purpose of this presentation has been to make a strong case for the systemic change that must occur in our educational environment. The research that has been identified clearly shows the wealth of opportunity that lies ahead through the implementation of technological tools. By incorporating strategies in professional development training and technology based courses, we will establish a firm foundation for the future of our proud educational offering at Holy Name Jr. Sr. High School. As a result, this new approach will deliver a competitive opportunity to each student that will prepare them well for the challenge of tomorrow.

References

Adobe Systems Incorporated. (2007). Retrieved June 12, 2007, from
        http://www.adobe.com/buy/volume_license/k12/

Consortium for School Networking. (2006, March). Retrieved June 15, 2007, from
        http://www.classroomtco.org/one_to_one_case_studies/District3CaseStudy.pdf

Grove, Jane Chamberlin. (2007, Summer). New ICT Benefits. *I.E. Interactive Educator,Vol.3
        No.3,* 10-11.

Johnson, Dr. Spencer. (2002). Who Moved My Cheese? New York: G.P.Putnam

The Learning Curve. (2007). Retrieved June 22, 2007, from http://romeomarquis.com

Massachusetts Department of Education. (2001, November). *Massachusetts Recommended PreK
        – 12 Instructional Technology Standards*. Retrieved June 9, 2007, from
        http://www.doe.mass.edu/edtech/standards/itstand.pdf

St. John's High School. (2002). Retrieved June 9, 2007, from
        http://www.stjohnshigh.org/cgi-bin/topic.pl?page=technology_softlist.html

St. Peter Marion Jr. Sr. High School. (2006). Retrieved June 8, 2007, from
        http://www.spmguardians.org/course_offerings.php

Uxbridge Public Schools. (2007). Retrieved June 9, 2007, from
        http://www.uxbridgeschools.com/uhs_department_technologyeducation.shtml