Neal Shelton

Portfolio

June 24, 2008

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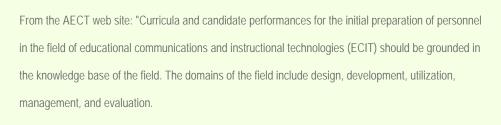
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WELCOME MESSAGE

Greetings, my name is Neal Shelton. I currently work for [Fairfax County Public Schools](#) (FCPS) as a Supervisor of Network Engineering. My job with FCPS allows me to work with exciting new technologies on a daily basis. I am currently enrolled in Virginia Tech's ITMA program. I hope to use the information acquired from this program to help others incorporate technology in the classroom.

The competencies contained in this electronic portfolio are established by the Association for Educational Communications and Technology ([AECT](#)), along with the International Society for Technology in Education ([ISTE](#)).

The [ISTE](#) standards represent recommended foundations in technology for all teachers, and they constitute the core of [NCATE's](#) professional education program technology standards.

Much of the work contained in these web pages are based upon the Association for [Educational Communications and Technology (AECT) standards](#).

From the AECT web site: "Curricula and candidate performances for the initial preparation of personnel in the field of educational communications and instructional technologies (ECIT) should be grounded in the knowledge base of the field. The domains of the field include design, development, utilization, management, and evaluation.

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DESIGN

Candidates demonstrate the knowledge, skills, and dispositions to design conditions for learning by applying principles of instructional systems design, message design, instructional strategies, and learner characteristics.

Supporting Explanations:

"Design is the process of specifying conditions for learning" (Seels & Richey, 1994, p. 30). The domain of design includes four subdomains of theory and practice: Instructional Systems Design (ISD), Message Design, Instructional Strategies, and Learner Characteristics.

These standards are based upon the Association for Educational Communications and Technology (AECT) standards.

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1.1 Instructional Systems Design (ISD)

"Instructional Systems Design (ISD) is an organized procedure that includes the steps of analyzing, designing, developing, implementing, and evaluating instruction"(Seels & Richey, 1994, p. 31). Within the application of this definition, 'design' is interpreted at both a macro- and micro-level in that it describes the systems approach and is a step within the systems approach. The importance of process, as opposed to product, is emphasized in ISD.

Here are two projects that utilize and implement design principles which specify optimal conditions for learning:

1. Overview of Design This assingment was the first one I completed for Instrcutional Design. This document shows the design of both an object and system. It is a good example of an Instrctional Design System.

2. Final Project for Instructional Design This document incorporates all facets of the design process, from analyzing, designing, developing, implementing, and evaluating instruction.

1.2 Message Design

"Message design involves planning for the manipulation of the physical form of the message" (Seels & Richey, 1994, p. 31). Message design is embedded within learning theories (cognitive, psychomotor, behavioral, perceptual, affective, constructivist) in the application of known principles of attention, perception, and retention which are intended to communicate with the learner. This subdomain is specific to both the medium selected and the learning task.

Here is one project that creates a plan for a topic of a content area (e.g., a thematic unit, a text chapter, an interdisciplinary unit) to demonstrate application of the principles of macro-level design.

1. Digital Audio Project The digital audio project was a thematic unit entitled "Day of

Infamy." It challenged students to understand the implications of the Japanese attack on Pearl Harbor. By listening to an audio clip of President Franklin Delano Roosevelt's speech to a joint session of Congress on December 8, 1941, students will interpret the context of the address to the nation.

2. Telecommunication Characteristics of Learners This assignment deals specifically with learning theories (cognitive, psychomotor, behavioral, perceptual, affective, constructivist).

1.3 Instructional Strategies

"Instructional strategies are specifications for selecting and sequencing events and activities within a lesson" (Seels & Richey, 1994, p. 31). In practice, instructional strategies interact with learning situations. The results of these interactions are often described by instructional models. The appropriate selection of instructional strategies and instructional models depends upon the learning situation (including learner characteristics), the nature of the content, and the type of learner objective.

Here are two documents that produce instructional materials which require the use of multiple media (e.g., computers, video, projection).

1. Digital Audio Project The digital audio project was a thematic unit entitled "Day of Infamy." This thematic unit uses audio to meet the unique needs of the student.

2. Instructional Media Assignment This assignment deals specifically with audio files and how these audio files can be used for instrcutional purposes.

1.4 Learner Characteristics

"Learner characteristics are those facets of the learner's experiential background that impact the effectiveness of a learning process" (Seels & Richey, 1994, p. 32). Learner characteristics impact specific components of instruction during the selection and implementation of instructional strategies. For example, motivation research influences the selection and implementation of instructional strategies based upon identified learner characteristics. Learner characteristics interact with instructional strategies, the learning situation, and the nature of the content.

Here is a document that takes into consideration learner characteristics:

1. <u>Learners</u> This assingment deals specifically with the general characteristics of a target population. Examples of this population include age, grade level and topic area.

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DEVELOPMENT

Candidates demonstrate the knowledge, skills, and dispositions to develop instructional materials and experiences using print, audiovisual, computer-based, and integrated technologies.

Supporting Explanation:

"Development is the process of translating the design specifications into physical form" (Seels & Richey, 1994, p. 35). The domain of development includes four subdomains : Print Technologies, Audiovisual Technologies, Computer-Based Technologies, and Integrated Technologies. Development is tied to other areas of theory, research, design, evaluation, utilization, and management.

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2.1 Print Technologies

"Print technologies are ways to produce or deliver materials, such as books and static visual materials, primarily through mechanical or photographic printing processes" (Seels & Richey, 1994, p. 37). Print technologies include verbal text materials and visual materials; namely, text, graphic and photographic representation and reproduction. Print and visual materials provide a foundation for the development and utilization of the majority of other instructional materials.

Select appropriate media to produce effective learning environments using technology resources:

1. Digital Media Project This project compared the various types of media and how each type could be utilized in instructional materials.
2. Instrcutional Media Project This project used QuickTime, Real Player, and Media Player formats for delivering video clips and virtual reality scenes on the Web. For this activity, I searched the Web for a site that uses one of these visual formats for instructional purposes (either video or VR).

Produce print communications (e.g., flyers, posters, brochures, newsletters) combining words and images/graphics using desktop publishing software.

1. PowerPoint Document This assignment uses words and images to produce print communications with Microsoft PowerPoint. This PowerPoint could have beed used as a print document or as a slideshow on a computer.

2.2 Audiovisual Technologies

"Audiovisual technologies are ways to produce or deliver materials by using mechanical devices or electronic machines to present auditory and visual messages" (Seels & Richey, 1994, p. 38). Audiovisual technologies are generally linear in nature, represent real and abstract ideas, and allow for learner interactivity dependent on teacher application.

Apply principles of visual and media literacy for the development and production of instructional and professional materials and products.

1. PowerPoint Document This assinment was my final project for my "Projects" class. I used audiovisual technologies to apply principles of visual and media literacy for the development and production of instructional and professional materials and products.

2. Instructional Design Activity I used this assignment to locate a visual (not a photograph) on a website and evaluate it using appropriate guidelines and principles. I used a visual design checklist to assess various visuals as they ralted to instruction.

2.3 Computer-Based Technologies

"Computer-based technologies are ways to produce or deliver materials using microprocessor-based resources" (Seels & Richey, 1994, p. 39). Computer-based technologies represent electronically stored information in the form of digital data. Examples include computer-based instruction(CBI), computer-assisted instruction (CAI), computer-managed instruction (CMI), telecommunications, electronic communications, and global resource/reference access.

Design and produce audio/video instructional materials which use computer-based technologies.

1. Multimedia Final Project My final multimedia project used appropriate techniques to design and produce instrctional materials (How to Use Wireless Technology) using computer based technologies (PowerPoint).

2. Instrcutional Media Activity This assignment used audio formats for a given instructional situation and justified each selection of that format with 3 advantages of that format.

3. Instructional Media Activity This project compared the various types of media and how each type could be utilized in instructional materials to design and produce audio/video instructional materials which use computer-based technologies

2.4 Integrated Technologies

"Integrated technologies are ways to produce and deliver materials which encompass several

forms of media under the control of a computer" (Seels & Richey, 1994, p. 40). Integrated technologies are typically hypermedia environments which allow for: (a) various levels of learner control, (b) high levels of interactivity, and (c) the creation of integrated audio, video, and graphic environments. Examples include hypermedia authoring and telecommunications tools such as electronic mail and the World Wide Web.

Use authoring tools to create effective hypermedia/multimedia instructional materials or products.

1. Multimedia Design Page This assignment used authoring tools to created effective hypermedia/multimedia instructional materials or products. There are examples of Adobe Flash, PowerPoint and Visio.

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UTILIZATION

Candidates demonstrate the knowledge, skills, and dispositions to use processes and resources for learning by applying principles and theories of media utilization, diffusion, implementation, and policy-making.

Supporting Explanations

"Utilization is the act of using processes and resources for learning" (Seels & Richey, 1994, p. 46). This domain involves matching learners with specific materials and activities, preparing learners for interacting with those materials, providing guidance during engagement, providing assessment of the results, and incorporating this usage into the continuing procedures of the organization.

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3.1 Media Utilization

"Media utilization is the systematic use of resources for learning" (Seels & Richey, 1994, p. 46).

Utilization is the decision-making process of implementation based on instructional design specifications.

Identify key factors in selecting and using technologies appropriate for learning situations specified in the instructional design process.

1. Project This document identifies key factors in selecting appropriate technologies for learning situations. The materials used in this project included software products such as Microsoft Office Suite, Adobe Acrobat/Reader and Macromedia. These specific materials were used to support the goals and objectives of the class.
2. Digital Audio Projects This digital audio project The digital audio project used an audio clip of President Franklin Delano Roosevelt's speech to a joint session of Congress on December 8, 1941. Students interpreted the context of the address to the nation based upon the audio clip.
3. Software Evaluation The software evaluation project used various indicators to ensure that The Oregon Trail program met appopriate criteria for instructional design.

3.3 Implementation and Institutionalization

"Implementation is using instructional materials or strategies in real (not simulated) settings. Institutionalization is the continuing, routine use of the instructional innovation in the structure and culture of an organization" (Seels & Richey, 1994, p. 47). The purpose of implementation is to facilitate appropriate use of the innovation by individuals in the organization. The goal of institutionalization is to integrate the innovation within the structure and behavior of the organization.

Use appropriate instructional materials and strategies in various learning contexts.

1. Project Final This assingment uses all facets of using instructional materials and

   strategies to aid individuals to innovate.

3.4 Policies and Regulations

"Policies and regulations are the rules and actions of society (or its surrogates) that affect the

diffusion and use of Instructional Technology" (Seels & Richey, 1994, p. 47). This includes such

areas as web-based instruction, instructional and community television, copyright law,

standards for equipment and programs, use policies, and the creation of a system which

supports the effective and ethical utilization of instructional technology products and processes.

Identify and apply policies which incorporate professional ethics within practice.

1. Educational Web Document This document outlines specific guidelines of how to

   use copyrighted materials. It identifies ploicues that incorporate ethics with practice.

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EVALUATION

Candidates demonstrate knowledge, skills, and dispositions to evaluate the adequacy of instruction and learning by applying principles of problem analysis, criterion-referenced measurement, formative and summative evaluation, and long-range planning.

Supporting Explanations:

"Evaluation is the process of determining the adequacy of instruction and learning" (Seels & Richey, 1994, p. 54). ECIT candidates demonstrate their understanding of the domain of evaluation through a variety of activities including problem analysis, criterion-referenced measurement, formative evaluation, and summative evaluation.

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5.1 Problem Analysis

"Problem analysis involves determining the nature and parameters of the problem by using information-gathering and decision-making strategies" (Seels & Richey, 1994, p. 56). ECIT candidates exhibit technology competencies defined in the knowledge base. Candidates collect, analyze, and interpret data to modify and improve instruction and ECIT projects.

Identify and apply problem analysis skills in appropriate educational communications and instructional technology (ECIT) contexts (e.g., conduct needs assessments, identify and define problems, identify constraints, identify resources, define learner characteristics, define goals and objectives in instructional systems design, media development and utilization, program management, and evaluation).

1. Multimedia Strategy This assinment defines specific learner goals and objectives and how they relate to the overall success of the class.

2. Multimedia Objectives This assinment has specific goal statements that meet specific instrcutional strategy goals.

3. Multimedia Final This assinment defines specific learner goals and objectives and how they relate to the overall success of the class.

4. Final Project This assinment defines specific learner goals and objectives and how they relate to the overall success of the class. This PowerPoint presentation was incorporated into my "Projects" class.

5.2 Criterion-Referenced Measurement

"Criterion-referenced measurement involves techniques for determining learner mastery of pre-specified content" (Seels & Richey, 1994, p. 56). ECIT candidates utilize criterion-referenced performance indicators in the assessment of instruction and ECIT projects.

1. Multimedia Design The multimedia design project uses criterion-referenced

performance indicators in the assessment of instruction. For instance, this document is the basis for training FCPS personnel on wireless technology and evaluating their perfomance based upon specific criteria.

5.3 Formative and Summative Evaluation

"Formative evaluation involves gathering information on adequacy and using this information as a basis for further development. Summative evaluation involves gathering information on adequacy and using this information to make decisions about utilization" (Seels & Richey, 1994, p. 57). ECIT candidates integrate formative and summative evaluation strategies and analyses into the development and modification of instruction, ECIT projects, and ECITprograms.

1. Multimedia Strategy This multimedia strategy document uses ECIT developments to teach technicians to implement Fairfax County Public Schools (FCPS) DIT Technical Bulletin 641 with the mandate for secure wireless and a handout of the secure wireless configuration.

5.4 Long-Range Planning

Long-range planning that focuses on the organization as a whole is strategic planning....Long-range is usually defined as a future period of about three to five years or longer. During strategic planning, managers are trying to decide in the present what must be done to ensure organizational success in the future." (Certo, et al, 1990, p. 168). ECIT candidates demonstrate formal efforts to address the future of this highly dynamic field including the systematic review and implementation of current ECIT developments and innovations.

1. Multimedia Strategy This multimedia design document uses ECIT developments to teach technicians to implement Fairfax County Public Schools (FCPS) DIT Technical Bulletin 641 with the mandate for secure wireless and a handout of the secure wireless configuration.

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RESEARCH

During my tenure in the Virginia Tech ITMA program, I complete a number of research projects.

As a student in the ITMA program, I have been fortunate to review reasearch in the Instructional Technology. The examples provided show how various media formats can be used for instructional purposes.

I have also been involved in crtiquing articles from pioneers in the instructional design process.

Here is a sample of my research projects:

1. Research in Audio --I identified an article and discussed how this article provided me with a better understanding of the use of audio in the classroom?
2. Media Formats -- Types and Functions of various audio formats
3. Article Critique -- I analyzed a document entitled "The Effect of Graphic Format on the Interpretation of Quantitative Data."
4. Article Research -- I evaluated a research document entitled "Gender-based Preferences toward Technology Education Content, Activities, and Instructional Methods"

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RESOURCES

Here are the resources that I have used during my tenure in the ITMA
program.

State Resources

1. Virginia Standards of Learning
2. Virginia Department of Education

National Resources

1. Department of Education
2. Education Resources Information Center

Virginia Tech Resources

1. Web Guidelines
2. ITMA Page

Professional Organizations

1. Association for Educational Communications and Technology
   (AECT)
2. International Society for Technology in Education (ISTE)
3. NCATE

Definitions of Instructional Technology

1. Seels, B., & Richey, R. (1994). Instructional technology: The

definition and domains of the field. Washington, DC:

Association for Educational Communications and Technology.

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MANAGEMENT

Candidates demonstrate knowledge, skills, and dispositions to plan, organize, coordinate, and supervise instructional technology by applying principles of project, resource, delivery system, and information management.

Supporting Explanations:

"Management involves controlling Instructional Technology through planning, organizing, coordinating, and supervising" (Seels & Richey, 1994, p. 49). The domain of management includes four subdomains of theory and practice: Project Management, Resource Management, Delivery System Management, and Information Management. Within each of these subdomains there is a common set of tasks to be accomplished: organization must be assured, personnel hired and supervised, funds planned and accounted for, facilities developed and maintained, and short- and long-term goals established. A manager is a leader who motivates, directs, coaches, supports, monitors performance, delegates, and communicates.

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4.1 Project Management

"Project management involves planning, monitoring, and controlling instructional design and development projects" (Seels & Richey, 1994, p. 50). Project managers negotiate, budget, install information monitoring systems, and evaluate progress.

Apply project management techniques in various learning and training contexts.

Project Design This assignment uses involves the planning of instructional design processes to create a PowerPoint document that instructs teachers on how to use an interactive whiteboard.

4.2 Resource Management

"Resource management involves planning, monitoring, and controlling resource support systems and services" (Seels & Richey, 1994, p. 51). This includes documentation of cost effectiveness and justification of effectiveness or efficiency for learning as well as the resources of personnel, budget, supplies, time, facilities, and instructional resources.

1. Software Evaluation This assignment uses appropriate efficiency for learning by evaluating the Oregon Trail Software.

4.3 Delivery System Management

"Delivery system management involves planning, monitoring and controlling 'the method by which distribution of instructional materials is organized' . . . [It is] a combination of medium and method of usage that is employed to present instructional information to a learner" (Seels & Richey, 1994, p. 51). This includes attention to hardware and software requirements, technical support for the users and developers, and process issues such as guidelines for designers, instructors, and ECIT support personnel.

Apply delivery system management techniques in various learning and training contexts

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Neal Shelton.

1. Filebox Management This assignment shows how my filebox is organized.

2. File Hierarchy This assignment shows how my filebox is organized.

3. Project Design This final project includes attention to hardware and software requirements, technical support for the users and developers, and process issues, especially in relation to the use of interactive whiteboards.

4.4 Information Management

"Information management involves planning, monitoring, and controlling the storage, transfer, or processing of information in order to provide resources for learning" (Seels & Richey, 1994, p. 51). Information is available in many formats and candidates must be able to access and utilize a variety of information sources for their professional benefit and the benefit of their future learners.

1. Audio Final Project This project uses a variety of methods to incorporated audio into lessons to benefit learners.

2. Distance Education Student Distance education is the democratization of the learning process by removing barriers such as time and space. No longer do students have to be on campus to receive instruction. Now, students only need a computer, internet access and a desire to learn to accomplish educational goals.

3. Designing Courses for Distance Delivery For distance education instructors, the iterative design process is used to deliver content and information to students in many diffierent formats.

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REFLECTIONS

Over the past two years, I have had the honor of being part of the Virginia Tech ITMA program. As I have porgressed during my studies, I grown both personally and professionally. Here is a sample of my educational philosophy as it relates to Instructional Technology.

1. View of Technology (IT Context Assignment 1)
2. Review of Technology (IT Context Assignment 2)
3. Instructional Technology (IT Context Assignment 3)
4. Professional Needs (IT Context Assignment 4)
5. Needs Addressed by Technology (IT Context Assignment 5)
6. Professional Context (IT Context Assignment 6)
7. Previous Apporach to Instruction (IT Context Assignment 7)
8. Current Approach to Instruction (IT Context Assignment 8)
9. Final Essay of the Program (IT Context Assignment 9)
10. Portfolio Proposal
11. Plans for Revision

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The relections portion of my portfolio shows my transformation as an education and instructional technologist throughout the ITMA program.

My first document shows my views of technology, both past and present. As I entered this program, I viewed technology as a physical item, and not as a process. . I now view it from a more holistic manner. I now believe that technology is a concept that encompasses science, commerce, culture, knowledge and processes.

My final assignment is an example of the ways the ITMA program has affected my life is through giving me a better understanding of the instructional technology process. Before the program, I looked at technology as one looks at a physical object. Now, I understand that instructional technology is all about a structured process. This process has allowed me to create learning environments for all students.