

# Rationale Paper

Chrissy Jarvis

Master's of Educational Technology, Boise State University

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## INTRODUCTION

I started my voyage for a Master's of Educational Technology degree in the winter of 2010. I had completed my degree in Elementary Education the spring of 2009 and it was during this time that I had taken an instructional technology class and realized there could be a future incorporating technology with education.

Upon graduation I did not find a teaching job, so I remained the secretary at our local elementary school, and decided to continue my education while I was still in the learning routine. Everyone I spoke with said to research a master's degree in Special Education - that's where the jobs were. My heart has always been for technology and I remembered my technology class, so I trekked out alone to seek something that would fulfill my technology passion. A quick search led me to Boise State. They had everything I was looking for; online, interactive, internationally recognized staff, accredited, and a nationally recognizable name.

I am now the elementary technology teacher at our school and incorporate what I have learned in this program daily in my classroom. Reflecting back, I have learned so much in this program in such a short time. This paper showcases the artifacts I completed during my coursework and how they connect to the AECT (Association for Educational Communications and Technology) standards.

## STANDARD 1: 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.*

### 1.1 Instructional Systems Design

*"Instructional Systems Design (ISD) is an organized procedure that includes the steps of analyzing, designing, developing, implementing, and evaluating instruction" (Seels and Richey, 1994, pg. 31).*

In EDTECH 503 I created an [Instructional Design Project](#) that meets the 1.1 Instructional Systems Design requirements. The definition of instructional design is the "systematic and reflexive process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation" (Smith & Ragan,

2005, p. 2). This report demonstrates organized procedures using the ADDIE model (analyzing, designing, developing, implementing, and evaluating). The report was 38 pages in length and consisted of a teacher instructional development training creating wiki's for instruction. This training was developed to enrich the classroom learning environment through critical thinking and collaboration projects. I was required to analyze the goal, research the need, plan, create a teacher's guide, evaluate, and field test. A needs analysis was conducted prior to implementing this instruction and upon completion the design was field tested by an outside teacher resource. Upon completion this stand-alone, self explanatory course is easy for any educator wanting to implement wiki's for instructional purposes. Being new to the education field I was amazed to the extent theories, models, philosophy and psychology are when designing instruction. I am now thorough with my instructions, expectations, assessments, and learner views. I realize the environment, learner, and instructional tools need consideration when developing instructional material.

### **1.2 Message Design**

*"Message design involves planning for the manipulation of the physical form of the message"* (Seels and Richey, 1994, pg. 31).

The final project I created in EDTECH 506, Graphic Design for Learning, fulfills 1.2 Message Design standard. I created a [Six Traits Writing unit website](#). This project required we construct at least three lesson plans and incorporated nine visuals. Including graphics helps students relate to the instructional material being taught. This project used theory and models such as ACE (analyze, Create, and Evaluate) and PAT (principles, actions, and tools). The first step was to analyze and identify the purpose of instructional graphic. Selection, organization, and integration had to be considered, including clear objectives, well-organized and comprehensive information. In addition, the overall message and organization must be easily understood. When creating visuals for message design there are specific categories for each classification. Illustrating procedures - transformational visuals; facts - representational and organizational visuals; principles - interpretive visuals; processes - transformational visuals. In creating my project I first analyzed the entire concept of the writing traits, what parts were difficult to understand, and what was already in place to help students remember these traits. I focused on organization which "makes information easier to understand logically" (Lohr, 2008, p. 75). This lesson incorporated message design consisting of using these steps, incorporating visuals, and planning the website to convey meaning to the learners.

### **1.3 Instructional Strategies**

*"Instructional Strategies are specifications for selecting and sequencing events and activities within a lesson"* (Seels and Richey, 1994, pg. 31).

In EDTECH 502 I created two projects that meet the Instructional Strategies standard requirements. The first project was a [Jigsaw Activity](#). The jigsaw classroom is a cooperative

learning technique that provides all students an opportunity to participate, no matter their learning level. Students will become experts in their assigned area; then teach others in their jigsaw group, giving each group a well rounded knowledge of the subject without being responsible for every area alone (Aronson, 2010). This activity requires students to take on individual roles but also to work collaboratively through a sequence of activities. I created a jigsaw for middle school students studying Greek mythology. Using the Jigsaw model provided students the opportunity to use web-based technology tools combined with multiple learning strategies.

The second activity was a [Virtual Tour](#). This project incorporated CSS, XHTML, templates, and numerous page creations to construct a site for a virtual tour of a place students would not otherwise be able to attend. This virtual tour consisted of a venture through four human body systems; the circulatory system, digestive system, skeletal system, and muscular system. Each page had an activity sheet, graphics, and an embedded video, all which integrated multimedia and Internet resources.

These two activities required specific sequencing and selection activities within the lessons and incorporated technology in a new way for student involvement and research.

#### **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).*

EDTECH 501 was my first class in the Educational Technology program. This course culminated with a [Research Synthesis Paper](#), which met the standard of Learner Characteristics. This paper reflected on the background of education, how it has changed due to technology, and where it is headed in the future. Technology has changed education not only for students but also for teachers. I realized how beneficial technology can be for teachers and how important it is for teachers to have some level of technology expertise. Teachers today must learn technology to effectively teach in today’s sophisticated classrooms. Technology has changed the way schools look. Even classroom equipment is now technologically advanced. Teachers use smart-boards, document cameras, flat screens, digital cameras, iPods, and laptops. These devices benefit and enhance learning to help students improve understanding and provide an interactive learning experience. For students, technology provides them with the ability to use applications such as RSS feeds, wikis, blogging, and message boards for research, communication, collaboration, and organization. Understanding characteristics and prior knowledge that students bring to the classroom, helps shape the technology lessons and research sites I plan to teach.

In EDTECH 504, Theoretical Foundations of Educational Technology, we were again tasked with a [Research Synthesis Paper](#). However, this paper focused on theories. This paper reviewed traditional theories such as behaviorism, cognitivism, and constructivism,

and introduced new theories of connectivism, transactional distance, and Technological Pedagogical Content Knowledge (TPCK). I chose to coauthor my paper with two other classmates. The topic we chose was supporting distance education through theory. In coauthoring we ourselves demonstrated learner characteristics.

I learned that teaching has the best results when built on a foundation of theory. Ensuring students are able to construct their own knowledge of topics, there needs to be dialogue, learner autonomy, but also structure in educational technology learning environments. In addition, keeping up to date on theories is necessary in this field. Originally I thought theories were created so long ago, we needed to study them once. Now I realize there are theories emerging continuously in this evolving technological world, and thus we as educators need to be knowledgeable about these theories.

## **STANDARD 2: DEVELOPMENT**

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

### **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 technology are everywhere in education, but in educational technology this becomes more convoluted as many projects and teaching materials do not require printing. However, print technology standards require mechanical or photograph printing. In EDTECH 506 I created a [Unit of Instruction](#) related to the topic elementary school writing enrichment. This unit plan enables teachers to print out the unit and accompanying lessons as a supplement or manual to the online material. The focus of this project was to give teachers access to research based, proven lessons to help them teach writing to elementary students, using technology, books, and printed material. In addition, give students the necessary skills to write, increase student interest using multiple learning methods, and help them achieve the common core standards for their grade level.

Even when teaching occurs online, print technology is important for providing clear communication, and clear record keeping. In EDTECH 521 I created a [telephone interview tool](#) for teachers to use interviewing new prospective students and their families. A printed version of this document is helpful for teachers while they are interviewing students via the telephone or online.

### **2.2 Audiovisual Technologies**

*“Audiovisual technologies are to produce or deliver materials by using mechanical devices*

*or electronic machines to present auditory or virtual messages” (Seels & Richey, 1994 p 38).*

In addition to print, which encompasses almost everything in education, audiovisual technologies are able to produce the same messages visually and auditory. Creating a [Video Blog \(or Vlog\)](#) in EDTECH 541 was a perfect match for this audiovisual standard. Having this opportunity for students may seem difficult at first but is a great alternative to produce material using technology. Even with audiovisual, scripts ([Video Blog script](#)) are easily constructed so that multiple technologies are accessible for students and teachers. In this program we incorporated many uses of audiovisual. Other lessons that I incorporated audiovisual techniques were from EDTECH 521; [Capitalizing Correctly](#) an asynchronous lesson, and [Netiquette](#) a synchronous lesson.

Most learners, including adults prefer to be an active participant in our learning, not reading or being lectured to continuously. Through audiovisual technologies all types of learners are researching, participating, creating, and utilizing many different mediums to learn. Using different types of technology options such as audiovisual technologies we are creating collaborators, organizers, and students who willingly share their knowledge, freely, with others. I will remember in my future teaching that simply producing and delivering material for students using auditory and virtual messages will engage my students more than the traditional lecturing.

### **2.3 Computer-Based Technologies**

*“Computer-based technologies are ways to produce or deliver materials using microprocessor-based resources” (Seels & Richey, 1994, p. 39).*

In educational technology it is important to have clear directions and multiple technologies to target all audiences. Computer-based technologies are one of the best resources for engaging an audience and giving them information in an organized, concise manner. In EDTECH 551, Technical and Grant Writing, I designed and produced a [Grant Webpage](#) that supports and promotes my media-related grant – video cameras in the classroom. Video cameras were chosen because they give students opportunities for higher level thinking, enriched writing activities, and student collaboration. Students can create written scripts, reports, and narrations, transforming these creative writings into video trainings, tutorials, plays, and even role-playing scenarios. Then students edit, film, revise, and publish their masterpieces using other forms of computer-based technologies. My [Writing Video Lesson](#) created in EDTECH 541 complemented the grant and fulfilled this standard requirement.

### **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).*

Integrating technologies allow student control, interactivity, along with audio, visual, and

graphic environments. The [Mobile Learning Activity](#) I completed in EDTECH 502 meets this standard. This project required a webpage constructed for students to access as a mobile learning opportunity. I chose 'A walking tour of Portland' as the activity. Students from our school have done this fieldtrip before, but not with mobile, integrated technologies. Integrating technologies gives students an interactive experience including the access to online maps to determine routes to their numerous destinations and using their mobile device as a portable camera to create a visual journal of their trip.

The other project I created that meets this standard is the [Server and Personal Website](#) I created in EDTECH 552, Introduction to Network Administration. This project required the setup of a home server using Apache and MySQL, testing, and making the server public. It also included managing hosts, setting up DMZ on my router, and networking, all using Satellite Internet since I live in a rural area. This class was the most challenging, as well as rewarding, as it was hard to comprehend all that goes on within a computer and networking. However, I also learned a great deal about networking, security, and servers and now incorporate this integrated technology daily at work and at home.

### **STANDARD 3: 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.*

#### **3.1 Media Utilization**

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

In EDTECH 501 I was introduced to Zotero. My [Zotero bibliography](#) meets this media utilization standard. As part of media utilization, providing reference information that is accurate and prompt is a part of resources for learning. This application became a resource I use frequently. Zotero is a tool that uses group networking and allows the user to collect, organize, share, export, and store online resources. This tool is invaluable and one I feel is important to showcase as many of my resources and references reflect my Zotero library. I believe Zotero is such a credible research storage tool, I encourage my students to create a Zotero library that they can access throughout their education.

My EDTECH 506 [organization graphic](#) also meets this standard. My graphic chunked information so students could relate to the corresponding step for generating ideas in writing. I used vertical planes, increasing shades of gray, increased graphic size and color for the students to visual what a good writing topic would resemble. Having a solid topic means they will be able to generate lots of supporting ideas to compile enough to write about. Utilizing organized graphics that students easily relate to helps them see the decision-making hierarchy of instruction with fulfills media utilization.

### **3.2 Diffusion of Innovations**

*“Diffusion of innovations is the process of communicating through planned strategies for the purpose of gaining adoption” (Seels & Richey, 1994, p. 46).*

The [Technology Use Plan](#) I created in EDTECH 501 demonstrates the process of communicating through strategies, development, needs, evaluation, and implementation. This project was a collaboration between myself and two other students. We created a plan mapping the future technology goals and included a vision statement, a planning team, a needs assessment, evaluation and research, a timeline, and staff development. Having a technology plan in place creates the framework and foundation to ensure classrooms and teachers are equipped to properly integrate technology for their students educational benefit. Creating this project I was able to view our own districts TUP plan, gaining valuable insight and exposure to the vast involvement of a clear, working technology plan.

### **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).*

My [Professional Development Models Project](#) in EDTECH 501 meets this implementation and institutionalization standard. Professional development requires instructional materials and strategies to be properly executed in real settings. Providing teachers technology implementation that they can use within their specialized teaching area will ensure that teachers continually use it. Implementing different models and consistently using them helps teachers gain knowledge, collaborate, share work, develop efficient strategies, and build camaraderie. In addition implementing professional development models, teachers create a community of learning for students through scaffolding, critical thinking skills, engaging in dialogue, and developing knowledge of practice.

In addition, when creating my [Instructional Design I Project](#) in EDTECH 503, I created a blog for education tutorial that teachers could implement in their classrooms. Teachers were given instructions to implement their blog in an actual classroom setting and test its effectiveness over a two-week period of time. At the follow-up session, teachers were to report on the benefits of the blog, and propose any questions or concerns regarding the programs implementation. Creating and using a blog routinely means teachers become more familiar with the process, open communication with parents, reflect on their teaching, and inspire students to write. This blogging tutorial is an example of this implementation and institutionalization standard.

### **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).*

The first time I heard the word netiquette was in EDTECH 502. As described on my [netiquette page](#), netiquette is short for Internet etiquette and defines that the user needs to follow certain rules to ensure positive and courteous communication. This was one of my first web pages created and is a simple two column page, with numbered bullets, subheadings, and different backgrounds. The columns explain the definition, basics, confidentiality, safety, and tips box for new email users. Now teaching technology, I have implemented a netiquette unit that utilizes my netiquette page. I am continually amazed at the number of teachers inquiring about this lesson, as netiquette is also a new word for them!

In this class I also learned the policies and regulations regarding copyrights and what online copyrights entail. It is the first time I had ever heard of creative commons and learning how to cite online pictures and other related graphics. My EDTECH 502 [Copyright Scavenger Hunt](#) discussed these policies using a question and answer format along with an attached worksheet and self test about online copyright laws. This assignment was also one of my first web page creations containing bullets, links, attachments, anchors, and subtitles.

#### **STANDARD 4: 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.*

##### **4.1 Project Management**

*“Project management involves planning, monitoring, and controlling instructional design and development projects” (Seels & Richey, 1994, p. 50).*

In EDTECH 505, Evaluation of Educational Technologists, my first large project was creating a [proposal for a Far West Laboratory for Educational Research and Development](#). This was an evaluation of determining instructional purposes (DIP). The goal of this evaluation was to determine the needs to create and market the DIP training program. This evaluation was to provide FWL with information, recommendations, and school interest for dissemination of the units. The project included an explanation of the evaluation method, an organized and detailed task schedule, project personnel description, and a budget. This project involved planning, monitoring and project development. This proposal gave me insight of project management skills, including how to initiate a proposal, identify needs, recommend changes, evaluate progress, suggest improvements, and the confidence to conduct an official evaluation.

##### **4.2 Resource Management**

*“Resource management involves planning, monitoring, and controlling resource support*



*systems and services” (Seels & Richey, 1994, p.51).*

This standard requires documentation of cost effectiveness and justification of effectiveness. The [School Evaluation Plan](#) I created in EDTECH 501 meets this standard. This project entailed evaluating the school’s Technology Use Plan, reviewing administration, curricular, support, connectivity, and innovation. Each category and the included subcategory required an evaluation rating of intelligent, integrated, islands, or emergent evidenced using a technology maturity model evaluation tool. From this project I learned not only the technology inclusion level at our school, but all of the areas of education technology infiltrates and the systems that must be in place to support this service.

#### **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).*

The [thematic unit website](#) I created In EDTECH 541 on integrating technology into content areas fulfills this standard. This unit presented instructional information for teachers and learners combining technology with core content. I chose content areas of math, language arts, ELL, and music. Each subject included strategies, advantages, outcomes, and resources for Internet for instruction, tool software, instructional software, and productivity software. I previously thought of delivery systems only pertaining to an online learning environment. I now incorporate this unit in my classroom teaching, allowing learners to participate globally by distributing technology in different delivery system management ways to incorporate all facets of learning.

#### **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).*

Part of EDTECH 541 was a networking field trip project, which meets this standard. My [Network Field Trip](#) was an interview, visual, and descriptive account of our districts network system. Setting up and maintaining a network involves extensive planning, monitoring, and controlling of all parts of the network. Our rural district uses a LAN network which consists of eight servers and seven switches that store and transfer data among the network that staff and students access. I discuss the different layers of a network, the circular process of how a network functions, and how communication occurs across a network. Teachers need a basic understanding of a network to provide a technology learning process for students, and to also aid the network specialist in the event of trouble shooting. This lesson was invaluable to see a glimpse behind the scenes of how information

management is handled at our district.

## **STANDARD 5: 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.*

### **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).*

The [Evaluation report](#) I created in EDTECH 505 fulfills this standard. This evaluation analyzed an all-inclusive online calendar system in use at our school district. This evaluation consisted of a front-end analysis, choosing and executing a method for sampling, collecting and analyzing information from population groups, and conducting interviews. Using the data and information collected as part of this evaluation determined the school district's decision to continue the investment and use of this program.

### **5.2 Criterion-Referenced Measurement**

*“Criterion-measurement involves techniques for determining learner mastery of pre-specified content” (Seels & Richey, 1994, p. 56).*

The [WebQuest rubric](#) I created in EDTECH 502 demonstrates mastery of this standard. This rubric allows students to self evaluate their level of mastery performing this WebQuest based to help improve math concepts. Giving students rubrics in association with assignments gives them clear expectations of project criteria. In creating rubrics in my technology classroom, students are able to visualize, follow, and rise to the level of performance I expect. They are able to use them as checklists, self and peer review evaluations, and feedback tools for their final submissions.

### **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).*

The [evaluation report](#) I created in EDTECH 505 fulfills this standard. Our school uses an online program, Tandem, which is a calendar program that organizes event information, sports schedules, gym/room reservations, publicize community events, reserve computer labs, and list non-school days into one easy-to-view area. This evaluation report illustrates the formative and summative evaluation requirements perfectly.

For the formative evaluation, surveys were sent to participants to gather information, rate their satisfaction, and seek interest for areas of improvement or training needs. The results from this evaluation determined overall satisfaction, continued use of the program, if the product was reaching the intended audience, further training requirements, and implement suggested improvements and modifications. The report determined the calendar is utilized to a higher degree than first expected.

For the summative evaluation piece, the information was gathered into a culminating report. The results revealed that participants were satisfied overall with the Tandem Online Calendar Program, and very satisfied with the Tandem as an all-in-one calendar scheduling system. Areas for improvement were difficulty entering information, and information is lacking or incorrect.

Overall, this program seems practical, effective, and efficient for Gaston School District's needs. The results overwhelmingly conclude that Tandem is a beneficial program for the district. I submitted my final evaluation report to the district's administrative staff and they in turn sent the information to Tandem stakeholders. Both parties were pleased with the results and anxious to make necessary changes to further improve the program for future needs.

#### **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).

One project that best fulfills long-range planning of three to five years, is the [Technology Use Plan](#) I created in EDTECH 501. This plan is a guide that includes a process description, rationale, planning team, vision statement, needs assessment, plan goals, staff development, evaluation, and timeline for the districts educational technology. Technology changes rapidly and being able to forecast long-range needs can be difficult, but it is important to look ahead, prepare accordingly, and create an organized thorough plan to best incorporate technology in education.

The other assignment that is an example of long-range planning is the [Technology in Education report](#) I created also in EDTECH 501. This report explains the importance of educational technology, how it has changed, and where it is most likely headed. Although this assignment does not give specific timelines, it does forecast how schools should try to decide in the present to insure success in the future. It details how technology is saving needed time and money in education, creates a shift in thinking, develops collaborative inquiry, and providing global access for students.

## CONCLUSION

My vision is to utilize technology to help all students of all ages achieve their fullest learning potential. This can be accomplished by incorporating technology to prepare students for a technologically literate society, providing global access so learners can utilize the educational world around them, and training and supporting staff to integrate technology in their classrooms.

I have become proficient in many software programs, am able to incorporate and support many technologies in learning, am inspired to create a rich learning experience for students, and now have experience to properly research best technology practices so that technology extends learning in the most powerful ways.

This M.E.T program has given me the tools I need to achieve this goal. I have learned that Educational Technology provides students with global access to the educational world around them. It is imperative that educators and school systems understand the magnitude that technology will continue to have on society and ways to properly educate students so they are prepared to enter the working society.

## REFERENCES

Aronson, E. (2010). The Jigsaw Classroom. Retrieved from <http://www.jigsaw.org/overview.htm>

Certo, S. C., Husted, S. W., Douglas, M. E., & Hartl, R. J. (1990). *Business* (3rd ed.). Boston: Allyn & Bacon.

Lohr, L. (2008). *Creating graphics for learning and performance: lessons in visual literacy* (2nd ed.). Upper Saddle River, NJ: Pearson/Merrill/Prentice Hall.

Seels, B. B., & Richey, R. C. (1994). *Instructional technology: The definition and domains of the field*. Washington, DC: Association for Educational Communications and Technology.

Smith, P., & Ragan, T. (2005). *Instructional design*. Hoboken, NJ: John Wiley & Sons, Inc.