Dane Hartman

Rationale Paper for Master of Educational Technology ePortfolio

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**Introduction**

Hello! My name is Dane Hartman, I teach Spanish at Wheat Ridge High School in Colorado. I have always enjoyed using technology, from the Commodore Vic-20 of my early childhood to the quad-core PCs of today. It was a combination of my passion for teaching and my interest in technology that brought me to this EdTech program. These past two and a half years of online classes have proven challenging and useful; as I browse through my artifacts I am impressed by how much I accomplished. The purpose of this paper is to explain and add context to the artifacts that you will find on my [ePortfolio website](http://www.danehartman.weebly.com), as well as to describe why each artifact has been linked to specific AECT standards. I have chosen to organize this paper sequentially by artifact, beginning with Standard 1 and ending with Standard 5. Thanks for reading, I hope you enjoy.

**Standard 1: Design**

* 1. Instructional Systems Design

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

[The Instructional Design Project Report](http://danehartman.weebly.com/503---idp-report.html) that I created in EdTech 503 is a fine example of Instructional Systems Design. The project goal was to facilitate student production of a portfolio of photographs and written reflections that demonstrate an understanding of the functions and mechanical principals of a camera. Photography has long been a passion of mine– I received a B.A. in Fine Arts from the University of Colorado and have made photography a part of my life since then. The idea of teaching a photography class has always appealed to me, and this assignment represented a chance to prepare for a photography teaching position should it ever arise. One of the unique aspects of this assignment was the participation of a Subject Matter Expert (SME) in the design and evaluation process. My prior involvement in the photography field made this easy, as I had done Photoshop work for a professional photographer in town who agreed to take on this role. The project began with a front-end analysis plan to determine students’ preexisting knowledge of the subject matter. I subjected one of my Spanish 3 classes to this needs assessment and then created an analysis report where I tallied the results and concluded that students knew surprisingly little about photography, especially digital camera terminology. With this in mind, I analyzed and documented the instructional context, designed an entry behavior flowchart, developed a set of instructional and evaluation materials, created a formative evaluation plan, and finally requested feedback from my SME on the finished product. The whole thing was quite a project, and definitely incorporated all of the steps involved in Instructional Systems Design. Aside from the front-end analysis, I have not had the opportunity to implement any of this at my high school, but hopefully the opportunity will arise sometime down the road.

1.2 Message Design

*Message design involves planning for the manipulation of the physical form of the message.*

The three-part instructional unit that I created in EdTech 506 is a good example of message design in that it defines how the instructional material will be presented and manipulated. The [Unit Plan](http://danehartman.weebly.com/506---unit-plan.html), [Justification Paper](http://danehartman.weebly.com/506---justification-paper.html), and [Digital Instructional Unit](http://edtech2.boisestate.edu/hartmand/506/edtech_506_final_lesson_1/page_1_intro.htm) revolve around my belief as a learner and teacher that foreign language should be taught with an emphasis on real-life application. To me, this means putting grammar on the back-burner and focusing on the memorization and practice of essential travel-related vocabulary. I often analogize second language acquisition to the building of a wall where vocabulary is brick and grammar is mortar; you can build a pretty substantial wall with bricks alone, but mortar by itself is useless. If you know enough words, you can get by easily even if you can’t conjugate a verb. It was with this emphasis on practicality in mind that I created this Travel Spanish instructional unit. My plan for the “manipulation of the physical form of the message” (AECT Standard 1.2) consisted of designing a series of simulated travel situations through which students would navigate using the vocabulary that they had learned. These situations included catching a taxi without being ripped off, finding a bed at a hostel, asking for directions, riding the bus, ordering food, making travel reservations, and dealing with medical needs. In each instance I assumed the role of the native speaker with whom the students would interact (the cab driver, hostel owner, waiter, etc). Students prepared for this task not only by memorizing words, but by utilizing a Lonely Planet guidebook (Vidgen & Schechter, 2010) to determine beforehand where they wanted to stay, how much a taxi should cost, which bus to catch, etc. I brought in props to enhance the experience, including a large travel backpack for students to wear and a large taxi-profile for students to sit behind. Overall the unit was successful not only at augmenting students’ vocabulary, but by providing them with a sense of confidence and excitement for the traveling experience.

1.3 Instructional Strategies

*Instructional strategies are specifications for selecting and sequencing events and activities within a lesson.*

The selection and sequencing of events within the [WebQuest](http://edtech2.boisestate.edu/hartmand/502/webquest.html), [Scavenger Hunt Activity](http://edtech2.boisestate.edu/hartmand/502/scavenger.html), and [Jigsaw Activity](http://edtech2.boisestate.edu/hartmand/502/jigsaw.html) that I created in EdTech 502 are good examples of instructional strategies. The [WebQuest](http://edtech2.boisestate.edu/hartmand/502/webquest.html) is separated into five steps including Introduction, Task, Process, Evaluation, and Conclusion (Home, Credits, and Teacher Pages are also included). Dividing the lesson into these sections and then providing detailed step-by-step instructions within each one resulted in an assignment that, when presented to my students, really required no additional explanation from me. Although I am an organized individual who always plans ahead, I had never created a lesson plan quite as thorough and detailed as this [WebQuest](http://edtech2.boisestate.edu/hartmand/502/webquest.html). When I presented it to my Spanish 3 students, there arose no questions that the website couldn’t answer; it took a lot of work on the front end, but made for an easy time in the classroom. The [Scavenger hunt activity](http://edtech2.boisestate.edu/hartmand/502/scavenger.html) asks students to answer a series of 10 questions that proceed in logical order; those at the end benefit from the context that the initial questions provide. I chose the topic of peer-to-peer file sharing because I find the technology behind BitTorrent fascinating; I thought it would be interesting for students to learn about this data transfer protocol and the legal ramifications that surround it. The [Jigsaw Activity](http://edtech2.boisestate.edu/hartmand/502/jigsaw.html) is another example of instructional strategy, this time requiring collaborative work from students. The theme is 9-11 conspiracy theories, a topic that students seem to be fascinated by and eager to explore (please note the key requirement of a signed parent permission slip for this lesson). Students are divided into ‘home groups’ of three students each, with one student from each group assigned a specific sub-topic of the conspiracy theory to research; these include background information and historical precedents, the collapse of the towers, and efforts to debunk the theories that have been put forward. The group then separates and each student finds the individuals from other home groups that have been assigned the same sub-topic. Together these individuals become experts in their particular subset of the 9-11 conspiracy theory, and finally return to home groups to share what they have learned. I have not yet had a chance to implement this activity with my students and given the politically charged nature of the subject matter I’m not sure that I ever will. It’s worth checking out though – I hope you’ll take a look, especially if you are unaware of Building Seven.

1.4 Learner Characteristics

*Learner characteristics are those facets of the learner's experiential background that impact the effectiveness of a learning process.*

In considering learner characteristics and their relationship with the learning process, the good’ol [Instructional Design Project Report](http://danehartman.weebly.com/503---idp-report.html) from EdTech 503 comes in handy once again. Page 21 of this document provides a Learner Analysis for the target audience of a photography instruction unit, taking into consideration a series of learner characteristics including: Entry behaviors; prior knowledge; attitudes toward content and potential delivery system; motivation to learn; educational level and abilities; general learning preferences, and attitude toward the organization providing instruction. This sort of detailed learner analysis is not something that I have ever performed or deemed necessary as a high school teacher; I get to know the students that I’m working with and make adjustments automatically, but I do not take the time to create formal documentation. I suppose this skill could prove useful in another context, such as one where I am designing a course for a client and need to demonstrate awareness of the target audience.

The [Internet Research Class Proposal](http://danehartman.weebly.com/504---internet-research-class-proposal.html) that I created in EdTech 504 also addresses the idea of learner characteristics, albeit on a larger, more philosophical scale. At the outset of this proposal I argue for a fundamental shift in our nation’s educational philosophy, invoking authors David Warlick, Chris Lott, and George Siemens. The gist of the argument is that as a nation we are preparing our students for an age that has ended; we use a behaviorist model and require that students memorize information and answers, most of which will be irrelevant by the time students enter the workforce. As Warlick puts it, “In a rapidly changing world, it becomes much less valuable to be able to memorize the answer, and much more valuable to be able to find and even invent the answers” (2005). I have seen the blaze of interest, engagement, and desire to share ideas that arises when students are allowed to discuss a topic that is of immediate interest to them, and in this proposal I argue for the creation of a class whose curriculum involves pursuing, analyzing, and sharing information without dictating what that information must be.

**Standard 2: Development**   
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.*

The [eBook](http://danehartman.weebly.com/541---ebook.html) that I created in EdTech 541 is an ideal example of print technology because I actually had it printed! I used the website [MixBook.com](http://www.mixbook.com/) to create a Spanish eBook that tells the story of a bioluminescent zebra fish named Brillo who goes on a journey to the other side of a lake in search of others like him. The Spanish dialogue familiarizes students with greetings, goodbyes, navigation directions, and metric / imperial distance conversion. I spent quite a few hours in Photoshop working on the illustrations, but I think it was worth it. If you are interested and don’t speak Spanish, please see the [English translation](http://danehartman.weebly.com/541---ebook-english-translation.html).

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.*

In my view, audiovisual tools are the most promising manifestation of technology in education today (with advanced kinesthetic manipulability being an exciting addition that is on the horizon). Students are painfully familiar with text-based instructional materials, and it is unfortunate to see teachers use advanced tools like Smart Boards to present material in the same old way (there are too many teachers at my school who use them no differently than a dry-erase board). Some examples of audiovisual projects that I have created include a [VoiceThread video blog](http://danehartman.weebly.com/541---voicethread-video-blog.html), a [Sales Presentation Prezi](http://danehartman.weebly.com/541---sales-presentation-prezi.html), and a [Glogster page](http://danehartman.weebly.com/541---glogster---el-mundo-latino.html) (all created in EdTech 541).

The [VoiceThread video blog](http://danehartman.weebly.com/541---voicethread-video-blog.html), entitled ‘The Benefits of Multimedia’, gives an overview of multimedia and its common components of audio, video, photos, illustrations, and text. The video blog concludes with some key points made by Patti Shank, Ph.D, namely that the brain processes audio and video separately and that multimedia carries the advantage of engaging both of these capabilities simultaneously (2005). I have not used VoiceThread with my Spanish classes, but I think it could have potential especially now that it allows for a continuous narrative across all slides; students could use this instead of PowerPoint to make slideshows that incorporate video and audio. VoiceThread also allows for text/audio comments by collaborators, something that I could envision students using to record an oral response to an audio-video prompt created by the instructor.

The [Sales Presentation Prezi](http://danehartman.weebly.com/541---sales-presentation-prezi.html) was a chance for me to express the main ideas found in my [Internet Research Class Proposal](http://danehartman.weebly.com/504---internet-research-class-proposal.html) (from EdTech 504) into graphic format. The Prezi layout is comprised of four circular frames dedicated to the core ideas that appear in my proposal: Digital Information Fluency (DIF), Computer Supported Collaborative Learning (CSCL), Connectivism, and the top tier of Bloom’s Taxonomy. Using Prezi allowed me to communicate these ideas spatially; larger ideas and categories are represented by larger text and the details are found within these words (literally) as the camera moves around the canvas. I had seen a demonstration of Prezi once before at a professional development meeting, but hadn’t taken the time to try it out for myself until EdTech 541. Once I figured it out, I had my Spanish 3 classes use Prezi instead of PowerPoint for a reflexive verbs presentation. Students did a great job and were much more focused on the presentations of their peers. The ability to display information spatially rather than sequentially is a huge improvement, and I was pleased to find out that within a matter of weeks other teachers in the building were incorporating Prezi into their assignments as well. To me, this was evidence that sometimes the best way to get teachers to adopt new tools is simply to get kids hooked on them – A classroom full of students requesting the opportunity to use Prezi is a more powerful motivator than a professional development meeting.

The [Glogster page](http://danehartman.weebly.com/541---glogster---el-mundo-latino.html) that I created is an animated poster that brings together a collection of resources for students to use in a research project on the Latin world. Glogster is probably the most potent example of multimedia as it incorporates not only audio, video, text, and animation, but also hyperlinks. I do not see myself using Glogster as a means of delivering content to students simply because of the time requirements, but it would be a great format for students to synthesize research to share with their peers.

2.3 Computer-Based Technologies

*Computer-based technologies are ways to produce or deliver materials using microprocessor-based resources.*

The most pertinent example of how I use computer-based technology to produce and deliver educational material is the collection of [Smart Board slides](http://danehartman.weebly.com/wrhs---hartman-smartboard-slides.html) that I have produced over the course of the last three years at Wheat Ridge High School. I simply cannot explain how awesome it was to make the change from an overhead transparency projector to an LCD projector with a [Smart Board](http://smarttech.com/us/Solutions/Education+Solutions/Products+for+education/Interactive+whiteboards+and+displays/SMART+Board+interactive+whiteboards/600+for+education). Before the Smart Board, the extent of my interactive presentations was printing custom transparencies using my own laser printer and allowing students to write on them or move them atop the projector. I would wash a river of vis-à-vis marker ink from my hands multiple times a day, and my fingers were still stained blue. At one point I entertained the idea of purchasing a color laser printer so that I could create color transparencies. How wasteful, and (for lack of a more perfect term) ghetto that all seems now. With the Smart Board, there was an explosion of creative options suddenly available to me. The entirety of our [Prentice Hall Realidades](http://www.phschool.com/atschool/realidades/program_page.html) curriculum is available in PDF format, so I could project anything at any time without having to use a printer at all. Pounds of transparency sheets made their way to the trash; anything I didn’t already have in electronic format was scanned, and everything new I created was saved to the flash drive that is always attached to my keychain (I back that sucker up regularly to multiple PCs – I’m not a fan of losing data). Smart Boards are accompanied by the [Smart Notebook](http://smarttech.com/us/Solutions/Education+Solutions/Products+for+education/Software/SMART+Notebook+collaborative+learning+software/SMART+Notebook+collaborative+learning+software) application, which lets a designer create multiple pages within a single file onto which one can pour text, images, links, Flash tools (like timers, dice-rollers, and tons more). I created vocab lists, graphic organizers, fly-swatter grids, pronunciation jeopardy games, and phrase assembly challenge pages (where sentence components are arranged on the board as individual objects and pulled down into order by students to create sentences). I made improvements each semester – pages that were once black and white gained color to clarify language structure (such as verb stems vs. endings), and word categories (adjectives, nouns, etc). The time-consuming write-in-the-answer fields that I had first made were replaced by fields with the correct answer already in place but concealed behind a small shade; students could now approach the board, say out-loud their answers, and immediately check for accuracy (often winning a ‘Paco Peso’). I improved my organization methods, consolidating hundreds of pages into a single Notebook file per level and chapter and creating groups within each file for easy navigation. I’m at the point now where I really no longer have to write lesson plans (or spend time planning at all, if I’m busy working on EdTech assignments ☺) – I can show up in the morning, let the students choose a warm-up slide for the day, and move on to the visual lesson pages, all ready to go. I have made these files available on a shared network folder and am told that my coworkers use them regularly.

In the interest of providing an example of computer-based instructional materials created in an EdTech class, I believe that the [Preterite vs. Imperfect lesson](http://edtech2.boisestate.edu/hartmand/506/edtech_506_final_lesson_7/p0_explanation.htm) that I made in EdTech 506 is relevant. Here I used Fireworks and some images from Clipart.com to graphically illustrate the difference between two forms of the past-tense in Spanish. Turning the page past the initial illustration provides a sample paragraph that incorporates both tenses, and there are buttons along the right hand side that enable highlighting of corresponding words. I ended up embedding some of these graphics in a Spanish 3 Smart Notebook file and have continued to use them in class.

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.*

The language behind the AECT standard ‘Integrated Technologies’ (2.4) is similar to that of ‘Audio Visual Technology’ (2.2), so I resubmit the paragraph about [Glogster](http://danehartman.weebly.com/541---glogster---el-mundo-latino.html) from that section (2.2).

I also submit the [Restaurant Simulation](http://edtech2.boisestate.edu/hartmand/506/edtech_506_final_lesson_2/Page_1_outside.htm) activity that I created in EdTech 506 as satisfier for standard 2.4. It is designed as a fun visual introduction to a series of in-class restaurant simulation lessons. Students learn the words for ‘open’ and ‘closed’ (the restaurant is only open during the day!) and once inside, a mouse-over the waiter’s speech bubble reveals a list of common dining questions that a Spanish learner should become familiar with. I have not used this with my students yet, but I am thinking that by combining the visual material of this project with the A/V and commenting capabilities of [VoiceThread](http://voicethread.com/) I might have a more effective tool. A separate VoiceThread page could be made for each question, each using the same restaurant interior image (with active question highlighted) and playing a unique audio reading for each question. Once invited as collaborators, students navigate through the pages and use audio comments to answer the waiter’s questions. These audio responses are shared, so students can hear the attempts of their classmates. By the end of the unit the class will have collaboratively produced a collection of restaurant dialogues.

**Standard 3: Utilization**

3.1 Media Utilization

*Media utilization is the systematic use of resources for learning.*

As examples of the systematic use of resources for learning, I offer two activities created in EdTech 541 as well as my [Smart Board slide collection](http://danehartman.weebly.com/wrhs---hartman-smartboard-slides.html). For EdTech 541 I created a [Google Earth Activity](http://danehartman.weebly.com/541---google-earth-activity.html) that takes advantage of the [‘My Places’ feature](http://earth.google.com/support/bin/answer.py?answer=176683) of the Google Earth desktop application. Designed as follow-up to a primary source research project, students design a tour across the globe with stops at key locations. At each location they provide an image and written summary of the event(s) that took place at that spot.

I also offer a [Social Networking Activity](http://danehartman.weebly.com/541---social-networking-activity.html) that comprises three sets of instructions for the use of the web 2.0 tools [Livemocha](http://www.livemocha.com/), [Rosetta Stone SharedTalk](http://www.sharedtalk.com/), and [MixedInk](http://www.mixedink.com/). [MixedInk](http://www.mixedink.com/) falls into a different category than the other two, as it enables local same-language collaboration rather than distance multi-language interaction. The MixedInk process is fairly clever; students first write individual essays about a given topic, and then ‘share’ them with each other via a class MixedInk group. Students read all of the essays and then vote on which they feel is the best one. The essay with the most votes becomes the ‘top version’, and then students proceed to take bits and pieces from this version and any of the other essays and combine them until they feel that they have produced an even better version. The voting process takes place again, and a new top version is chosen. This process continues until the students or the instructor is satisfied with the product. One of the great things about this is that MixedInk keeps track of exactly who was responsible for writing each block of text that made it into the final version; students are able to collaborate and borrow bits and pieces from each others’ writing, but in the end everyone gets credit for what they wrote.

[Livemocha](http://www.livemocha.com/) and [SharedTalk](http://www.sharedtalk.com/) are entirely different but equally amazing and probably more important for a foreign language class. The idea behind both of these tools is to connect foreign language learners with native speakers of their target language. Direct interaction with native speakers is both extremely beneficial and hard to achieve; the biggest limitation of the traditional language classroom is probably the lack of language use in real-life situations. [Livemocha](http://www.livemocha.com/) is a very ambitious website – Upon creating an account, one can become ‘friends’ with other users (much like Facebook) and then chat with them live or initiate email conversations. One great feature is the ability to write something (a paragraph, essay, letter, etc) in the target language and then submit it for review and correction by a native speaker. I tried this out and I had written feedback from a native Spanish speaker within one hour. Livemocha also offers an extensive collection of free and paid computerized language courses. As one participates in the Livemocha community, one is rewarded with ‘Mocha Points’ – These are given for completion of language courses and for participation in the online community (such as reading and providing feedback on the writing of those learning English). The Mocha Points system is a wonderful thing for teachers who want to make this an integral part of their curriculum, because it provides evidence of effort and participation while giving students the flexibility to engage in different ways. Students can select courses that fit their ability level and still receive points; it eliminates the one-size-fits-all problem that persists in many classrooms. Despite its promise, I have not yet made use of Livemocha with my Spanish students. I have, however, used SharedTalk.

[Rosetta Stone SharedTalk](http://www.sharedtalk.com/) has the single dedicated function of enabling real-time text and voice chat between people who want to learn another language. When creating an account, one provides basic personal information including native language and target language. Once signed-in, there are a number of public chat-rooms according to language intent (such as ‘Spanish-English’). It is also possible to initiate private chat sessions with other users and to have multiple private chat windows open at a time. This tool has been an amazing addition to my Spanish 3 classes – They stay engaged for a full 90 minute block class communicating in Spanish with real people. As I walk around the room students will ask me what words and phrases mean and how to say what they want to say in Spanish. It’s a teacher’s favorite thing to hear students declare how much they learned and that they want to repeat the activity again soon. Even though the site is closely monitored by Rosetta Stone administrators, any online interaction carries the risk of receiving inappropriate messages from creeps (so far there has only been one, eloquently named “Dixie Normus”) so I require a signed permission slip from parents before students can participate.

Finally, I offer my [Smart Board slides](http://danehartman.weebly.com/wrhs---hartman-smartboard-slides.html) as satisfier of Standard 3.1. The Smart Board is the single most useful piece of classroom technology that I have access to, and these slides demonstrate my systematic use of this resource. Please see Standard 2.3 for a description of this artifact.

3.2 Diffusion of Innovations

*Diffusion of innovations is the process of communicating through planned strategies for the purpose of gaining adoption.*

I am glad to say that the Diffusion of Innovations standard bears direct relevance to my current work situation. Over the course of the last five years at Wheat Ridge High School, I have gained a reputation for computer fluency and have been assigned responsibilities accordingly. Rather than monitoring the hallways or supervising in-school suspension, I serve as a secondary I.T. person; I help teachers around the school resolve computer issues and I help our primary I.T. guy accomplish large tasks like the imaging of computer labs. My experience with and rapid adoption of new technology tools has resulted in me leading professional development trainings for [Smard Boards](http://smarttech.com/us/Solutions/Education+Solutions/Products+for+education/Interactive+whiteboards+and+displays/SMART+Board+interactive+whiteboards/600+for+education), [FLIP cameras](http://www.theflip.com/en-us/), video editing, and a variety of web 2.0 tools (most of which I discovered in EdTech!). I have created instructional materials for the staff, such as these [BizHub scanner instructions](http://danehartman.weebly.com/wrhs---scanner-guide.html) where I explain how to use the school copiers to scan documents and download the PDF output files through a web browser.

With regards to EdTech projects that correspond to the Diffusion of Innovations standard, I submit a [Technology in Education Memo](http://danehartman.weebly.com/501---memo-on-tech-in-education.html) and a [Technology Use Plan Proposal](http://danehartman.weebly.com/501---tech-use-plan-proposal.html), both from EdTech 501. In the Technology in Education Memo I analyze the impact of technology on teaching and learning and present a positive argument for the use of technology in the classroom. I address the preconceptions, limitations, and prerequisites that surround this topic and present evidence for its benefits. I include references to studies that demonstrate a correlation between the incorporation of computer-based instructional tools and increased student test performance (Stratham & Torell, 1996, pp. 11-12; CARET: Student learning).

With the [Technology Use Plan Proposal](http://danehartman.weebly.com/501---tech-use-plan-proposal.html) I offer a set of guidelines for the successful implementation of technology in an education setting. The target of this presentation is the Jefferson County School District; within it I offer a rationale, process description, vision statement, set of goals and objectives, [online needs assessment survey](http://www.surveyconsole.com/console/takesurvey?id=516622), staff development guidelines, evaluation guidelines, and a timeline for implementation. I have not yet presented this to anyone at the district, but I may do so when the time feels right.

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.*

In the way of Standard 3.3, my work situation has provided me with the opportunity to implement and institutionalize ideas since day one of EdTech. One example of an instructional tool that I use routinely in a real setting is [www.proferpaco.com](http://www.proferpaco.com), the Spanish class website that I built. The name is a combination of the word *profer,* which is short for short *profesor,* and *Paco*, which has been my Spanish nickname since freshman year in high school. I built this Google site while enrolled in EdTech 551 as part of the grant application process. Although I decided to use [Weebly](http://www.weebly.com/features.php) for the final grant proposal website, the Google site became and remains my primary Spanish class website. Our district does provide a tool called School Center for building class pages, but its capabilities are limited and its interface is very counterintuitive; [Google sites](http://www.google.com/sites/help/intl/en/overview.html) was a much better solution. I spent a good deal of time on the visual appearance of the page, creating a banner in Photoshop and a matching color scheme throughout the page. On the left sidebar one can access resources organized by Spanish level and chapter as well as a collection of links to some great web 2.0 tools that I discovered in EdTech. The site has been a great asset, especially when dealing with students that have been absent for a long time; now when I get that homework request email, I can just say “check the website” instead of finding, printing, and delivering missed work to the office.

The [Travel Vocab Digital Instructional Unit](http://edtech2.boisestate.edu/hartmand/506/edtech_506_final_lesson_1/page_1_intro.htm) is another artifact that I have been able to implement annually in my level 3 Spanish classes. Although I have not made much use of the actual HTML site, the resources and lesson ideas that were born from this project have been translated into an instructional unit that fills several weeks during the second semester of each school year. A detailed description of this unit can be found above in the section dedicated to AECT standard 1.2.

Lastly, a section on implementing instructional materials in real settings would not be complete without once again mentioning the [Smart board slides](http://danehartman.weebly.com/wrhs---hartman-smartboard-slides.html) that I have created and used over the last three years at Wheat Ridge High School. Please see Standard 2.3 for details.

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.*

In realization of Standard 3.4, I offer a [Netiquette Overview](http://edtech2.boisestate.edu/hartmand/502/netiquette.html) and a [Copyright Scavenger Hunt](http://edtech2.boisestate.edu/hartmand/502/scavenger.html). Created in EdTech 502, both of these artifacts address policies and regulations surrounding the use of instructional technology. The Netiquette Overview lays out some dos and don’ts with regard to mass-emails, capitalization, color choice, spelling, and privacy. It’s fairly straightforward, but is a good reminder for people who tend not to think before pressing ‘send’. The Copyright Scavenger Hunt addresses the theme of peer-to-peer file sharing; it was designed to help learners understand how peer-to-peer file sharing works and how it can enable the illegal distribution of copyrighted content. I have not implemented either of these artifacts in my Spanish instruction because they don’t really correlate with the subject matter.

**Standard 4: Management**

4.1 Project Management

*Project management involves planning, monitoring, and controlling instructional design and development projects.*

I produced several artifacts throughout the course of this EdTech program that involved planning, monitoring, and controlling a project. The enormous [Instructional Design Project Report](http://danehartman.weebly.com/503---idp-report.html) for EdTech 503 is probably the best example. The planning components of this project were many, including a Front-end Analysis Plan, Instructional Objectives Outline, Goal Analysis Document, Sub-skills and Entry Behaviors Flowchart, Context Analysis, set of Instructional Materials, and a Formative Evaluation Plan. The monitoring and controlling aspects of this project included a Front-end Analysis Report, Learner Assessment Document, and Formative Evaluation Results. When I look through this IDP report, I’m not sure how I managed to pull the whole thing together – However I did it, it certainly involved project management.

The [Grant Proposal](http://danehartman.weebly.com/551---grant-proposal.html) that I wrote in EdTech 551 is another example of project management. The process of preparing a grant application was a long one; it involved selecting an appropriate funding source, gathering data, creating an outline of the proposal and website, revising the outline, completing a draft of the website and application, revising the draft in accordance with peer and instructor review, and submitting the final polished application and website. Each of these steps involved a substantial amount of work and scheduling. In selecting a funding source, I had to find a grantor whose application requirements were compatible with my school characteristics and project purpose. After deciding on the [Lowe’s Toolbox](http://www.toolboxforeducation.com/) grant, I had to contact Lowe’s and have Wheat Ridge added to its database of eligible schools. Then came the data gathering process, which required emails and personal conversations with the school secretary and administrators. The outlining, writing, revising, and website building process was a long one; at each stage I had to go back and rethink my tone and message in an effort to create the most convincing document possible.

The [Response to Request for Proposal](http://danehartman.weebly.com/505---response-to-rfp.html) that I wrote in EdTech 505 is also appropriate in a discussion of project management. Although the Response to RFP did not involve the actual management of a project, it did involve evaluating whether a project should continue to exist and be marketed. This meant describing the evaluation method, defining the questions that the evaluation would attempt to answer, specifying who would conduct the evaluation, creating a step-by-step task schedule, and writing a detailed budget for the project. As an individual who would love to break free of his school district’s Curriculum Alignment Project and write his own Spanish instructional program, the familiarity that I gained through this Response to RFP might come in useful. If I manage to create my own Spanish curriculum, at some point it may be subject to an RFP!

4.2 Resource Management

*Resource management involves planning, monitoring, and controlling resource support systems and services.*

A number of the artifacts that we created in EdTech represent examples of resource management, but there is one that stands out as particularly relevant: The [Final Instructional Unit](http://danehartman.weebly.com/541---final-instructional-unit.html) from EdTech 541. This unit involved the creation of two separate lesson plans, each comprised of four major sections: Motivation / Engagement; Informational Activities; Application Activities; and Closure Activities. Each of these four sections required the gathering, creating, planning, and controlling of a number of resources. The first lesson from this unit was designed to pique student interest in study abroad by preparing them for the day-to-day challenges that living in another country can present and by providing background knowledge about geography, climate, and population. The resources involved in this lesson include: A verb chart database activity; a population chart database activity; a downloadable lesson plan document; two downloadable tutorials; links to a series of YouTube videos; and links to a series of web tools for students to use. The second lesson was designed to familiarize students with the foreign actions of the U.S. government, particularly those of the CIA. The resources involved in this unit include a collection of 12 primary source documents, five video clips, and links to three web tools that students use to complete each phase of the assignment. Within both lesson plans I also specified the resources necessary accommodate learners with special needs; this includes FM Transmitters for deaf and hard of hearing students, School Messenger system reminders for at-risk students, OCR + text-to-speech systems for visually-impaired learners, speech-to-text applications for students physically incapable of writing, and multimedia tools that gifted and talented students can use to challenge themselves. I have not yet incorporated either of these lessons into my teaching, but I do believe that they represent a satisfactory example of resource management.

The [Annotated Bibliography](http://danehartman.weebly.com/504---annotated-bibliography.html) from EdTech 504 is another example of resource management. This document presents an argument for a technology-oriented learning paradigm that can facilitate a transition from the behaviorist model of the 20th century to new 21st century cognitivism-oriented model. Abbreviated as CSCL, the Computer Supported Collaborative Learning model is based on a dynamic group framework that foments collaboration across various stages of learning. Collaboration has been shown to enhance learning (Nussbaum et al., 2009), and this is a fundamental tenet of the CSCL model. The goal of CSCL goal is not to enable distance learning but rather to provide a fined-tuned medium through which students can collaborate in the classroom. I chose to focus on CSCL for this assignment because it correlates with the [Internet Research Class Proposal](http://danehartman.weebly.com/504---internet-research-class-proposal.html) that I created in Edtech 504 (see standard 1.4); it was a chance to dig up some theory in support of a learning model that emphasizes process and collaboration over subject matter.

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.*

In fulfillment of the Delivery System Management standard, I offer three items: A [WRHS Tech Wiki](http://wheatridgetech.wikispaces.com/), my [Spanish class website](http://sites.google.com/site/proferpaco/), and the [Digital Instructional Unit](http://edtech2.boisestate.edu/hartmand/506/edtech_506_final_lesson_1/page_1_intro.htm) that I created in EdTech 506.

The first is a [Wikispaces page](http://wheatridgetech.wikispaces.com/) that I set up as a note-sharing medium for myself and six coworkers in preparation for International Society for Technology in Education ([ISTE](http://www.iste.org/welcome.aspx)) conference. The seven of us were fortunate enough to attend ISTE when the conference came to Denver in the summer of 2010, and it was important that we keep track of our experiences in order to share them with each other and with the rest of the Wheat Ridge staff. When you open the Wiki, you’ll see that I provided an introduction for general viewers and special instructions for my coworkers in attendance. I created a separate page for each of us, along with pages for general conference information, web 2.0 tools, and staff development planning ideas. The conference was interesting; so many leading minds in the education field argued precisely against the current movement in the American education system toward more unified curriculum, fewer electives, and more standardized testing. It was encouraging to see so many forward-thinking people and know that there is an international community that really understands what education can and must be. It was good to see that my frustration with the system is shared by many; keynote speaker J.F. emphasized that in our exponentially-changing times we need students to leave school with a very different global mindset than earlier generations and he questioned why institutions of education are some of the most resistant to change when they should be the opposite. The conference had a lot to offer, and I’m glad we were able to save some notes and photos in a lasting online document.

My [Spanish class website](http://sites.google.com/site/proferpaco/) and my [Digital Instructional Unit](http://edtech2.boisestate.edu/hartmand/506/edtech_506_final_lesson_1/page_1_intro.htm) from EdTech 506 also constitute examples of delivery system management in that they involve planning, monitoring, and controlling the organization and distribution of instructional information to learners; you can read more about them in sections 3.3 and 1.2 respectively.

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.*

There are several artifacts that I have discussed in this paper so far that represent examples of Information Management. My [Spanish class website](http://sites.google.com/site/proferpaco/), [Tech Wiki](http://wheatridgetech.wikispaces.com/), and [Smart Board Slide collection](http://danehartman.weebly.com/wrhs---hartman-smartboard-slides.html) are all relevant because they involve sharing and managing information between multiple people. For more information on these artifacts, please see sections 3.3, 4.3, and 2.3, respectively.

I also offer the [folder structure](http://danehartman.weebly.com/wrhs---folder-structure-example.html) of my teaching resources collection as evidence of information management. Within the ‘School Files’ folder of my USB Flash Drive, there are 3,356 files and 327 subfolders – This is a 4.3GB digital filing cabinet that I have been building for the past five years. Everything of value that I find is assigned an appropriate file name and saved in a location that makes sense, including PDF scans of all useful hardcopy resources that I come across. I do have a physical filing cabinet in my classroom where I store reusable photocopies, but I really could set the thing on fire and have lost nothing; it’s all there on the USB drive attached to my keychain. The gravity of keeping so many eggs in one tiny basket is not lost on me – I create a full backup of the entire drive 3-5 times a week to both my work and home PC. I also perform a monthly full backup of my entire 1TB home PC hard drive to an external fire/flood-proof 2TB drive. In addition, I archive all important documents, photos, and videos to DVD on a regular basis (I have a set of 23 ‘Archive DVD’s and 45 ‘Photo Backup DVD’s), making two copies of each and storing one set at another site. Before storing them, I add each disc to a digital catalog using the program CDWinder; this way I can search through the contents of every disc in my DVD binder within seconds. I simply cannot stand losing or struggling to find data, and I believe that the data organization and archival system that I have developed is a pertinent example of monitoring and controlling the storage and transfer of information. With regards to the sharing of data between multiple people, I would add that I have made sections of my ‘School Files’ collection available on a shared network folder to all teachers in my department. I am told that they use these resources often, particularly the Smart Board files. As a note for anyone reading this who navigates and manipulates files and folders on a regular basis, I urge you to try out the powerful Shareware file manger utility [Total Commander](http://www.ghisler.com/). Inspired by Norton Commander from the days of DOS, this two-panel file manager does just about everything one could imagine, including: Fast wildcard selection of files and folders; multi-rename with find-and-replace, regular expressions, counters, case-change, and much more; built-in FTP; fast access/creation/modification of all archive formats (ZIP, RAR, 7z, etc); clipboard capture of file structure details; multi-directional folder comparison and synchronization; and much more. The very first thing I do when sitting down at a computer is open [Total Commander](http://www.ghisler.com/) (I have a portable version on my USB drive that can run without installation) ; if you are someone who deals with files and folders regularly, I cannot recommend this program enough.

**Standard 5: Evaluation**  
5.1 Problem Analysis

*Problem analysis involves determining the nature and parameters of the problem by using information-gathering and decision-making strategies.*

In fulfillment of the Problem Analysis standard, I offer the needs assessment portion of my [Instructional Design Project Report](http://danehartman.weebly.com/503---idp-report.html) from EdTech 503 (see pages 6-10). The front-end analysis plan is an example of problem analysis in that it attempts to ascertain students’ preexisting knowledge of digital photography. The designing of this 25-question assessment gave me an appreciation for how difficult it is to design an effective multiple-choice test; coming up with plausible-sounding incorrect answers was a challenge, but also kind of fun. In the end I think it turned out well, because most of my students did poorly. Please see standard 1.1 for more information on this artifact.

As another example of problem analysis, I offer the [online needs assessment survey](http://www.surveyconsole.com/console/takesurvey?id=516622) that I created in EdTech 501. This survey targets the Wheat Ridge High School staff and is designed to guide professional development by determining to what degree teachers have embraced their new Smart Boards. I have not administered this survey to the Wheat Ridge staff because I just didn’t feel comfortable doing so. Still, having learned how to create an online survey will probably come in useful in the future.

5.2 Criterion-Referenced Measurement

*Criterion-referenced measurement involves techniques for determining learner mastery of pre-specified content.*

The Criterion-Referenced Measurement standard aligns with the evaluation components of several EdTech artifacts such as the [WebQuest Evaluation Rubric](http://edtech2.boisestate.edu/hartmand/502/evaluation.html) from EdTech 502 and the [Evaluation Report](http://danehartman.weebly.com/505---evaluation-report.html) from EdTech 505.

The [WebQuest Evaluation Rubric](http://edtech2.boisestate.edu/hartmand/502/evaluation.html) is a summative evaluation tool designed to measure student learning as the result of a Spanish Artist Research Paper and Presentation. There are actually two rubrics, one for the research paper and the other for the presentation; each addresses four content categories and provides performance summaries for four different score-ranges. Some content category examples include biographical information, grammar and organization, and connection to the Hispanic world. I am happy to say that this rubric did make it into my curriculum; my coworkers and I used this research project as a Spanish 3 fall semester culminating activity. Having the rubric in hand (together with a pen and highlighter) while evaluating their essays and presentations made the grading process significantly easier and more uniform across classes and instructors.

The [Evaluation Report](http://danehartman.weebly.com/505---evaluation-report.html) from EdTech 505 is another example of criterion-referenced evaluation. If you open this document and take a look at Table #2, you will see a list of student names and a summary of pretest and posttest vocabulary assessment scores. The table indicates that the number of memorized words doubled among the class as a whole, with all but two students showing some degree of improvement. This is a good example of criterion-referenced measurement because it provides a precise measurement of student mastery of pre-specified content. Interestingly, pre-tests are something that we almost never do within the World Language department at Wheat Ridge High School. I’m somewhat divided about whether they are worth the time and effort; it takes a lot of time to administer and grade an assessment, and adding an extra test at the beginning of each chapter is a significant amount of extra work. When I think about it, I suspect that potential utility of pre-tests varies greatly by course level. For Spanish 1 students who have had no previous exposure to the language, a pre-test of upcoming chapter material seems silly; the majority of students will score near zero. For Spanish 2 and 3 students, a pre-test might be of more value because it can show the instructor how much information students have retained from their previous years of Spanish. This is something that I will mention to my department members.

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.*

With respect to the formative and summative evaluation standard, I offer the [Evaluation Report](http://danehartman.weebly.com/505---evaluation-report.html) from EdTech 505 and the [Instructional Design Project Report](http://danehartman.weebly.com/503---idp-report.html) from EdTech 503.

The [Evaluation Report](http://danehartman.weebly.com/505---evaluation-report.html) incorporates formative evaluation in the form of a pretest vocabulary assessment and an attitude survey administered prior to the unit. The idea is to determine students’ preexisting knowledge of Spanish travel vocab and to better understand students’ feelings about the subject matter in general. Both of these qualify as formative assessments because they provide information that can be used to modify the unit content and approach. Upon completion of the unit, a post-test vocabulary assessment is administered along with a final attitude survey. This represents summative assessment because the data is used to make decisions about the future of this instructional unit.

In the interest of providing a more detailed example of formative evaluation, the [Intructional Design Project Report](http://danehartman.weebly.com/503---idp-report.html) comes in handy once again. This artifact contains a section that is actually called ‘Formative Evaluation Plan’. Comprised of two parts, this section includes a one-to-one formative evaluation and an instructional product field test. The one-to-one evaluation involves five separate one-on-one conversations with five different students; these conversations take place at 6 weeks into the semester and again at 12 weeks. Through an oral question and answer process, these students – who have been carefully chosen to represent a spectrum of ability levels and attitudes – will be asked to apply what they have learned to hypothetical picture-taking situations. Students’ responses to these questions will provide the teacher with an idea of whether or not the instruction has been effective and will help identify which aspects of the material need more clarification. The instructional product field test provides students with an opportunity to demonstrate their mastery of digital photography in an outdoor location that offers a variety of subject matter and light conditions. Students are given a printed list of photo production tasks and must walk around the location taking pictures until they have produced work that meets every requirement. Photos will later be shared with the rest of the class using an LCD projector. The degree of success that students have at producing the required elements will serve as a formative indicator for the instructional designer.

I have not had the opportunity to implement this instructional unit at my school, but I am hopeful that at some point during my teaching career I’ll get the chance to teach a photography course.

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.*

With respect to the Long-Range Planning standard, I offer three artifacts: The [Technology Use Plan Proposal](http://danehartman.weebly.com/501---tech-use-plan-proposal.html) from EdTech 501; the [Internet Research Class Propsal](http://danehartman.weebly.com/504---internet-research-class-proposal.html) from EdTech 504; and the [Grant Proposal from EdTech 551](http://danehartman.weebly.com/551---grant-proposal.html).

The [Technology Use Plan Proposal](http://danehartman.weebly.com/501---tech-use-plan-proposal.html) relates to long-range planning in that it argues for a reshaping of the current educational paradigm in this country. I believe that the core idea behind a true 21st century classroom is a shift away from memorization and a greater focus on problem solving and collaboration. Technology is a promising tool that can facilitate this transition in that it allows students to guide their own learning, visualize difficult-to-understand concepts, connect with people, and access vast information resources. This is a transformation that will take many years, probably decades; as former World Bank President J.F. Rischard points out, institutions of education tend to be some of the most resistant to change, when it should be the opposite (Rischard, J.F. “Keynote address.” ISTE. Denver. 27 Jun. 2010.). I have definitely found this to be true in the K-12 public education setting, and unfortunately it seems that there is a nation-wide push – in exactly the wrong direction – toward a one-size-fits-all unified curriculum with more standardized tests.

The [Internet Research Class Proposal](http://danehartman.weebly.com/504---internet-research-class-proposal.html) represents long-range planning in a way similar to the Technology Use Plan Proposal, but it contains more specific content as far as what a constructivism-based classroom environment would look like. The defining characteristic of this course is a curriculum whose focus is on process rather than content; students choose a topic that is of interest to them and then acquire research and collaboration skills by exploring that topic. The idea is that knowing a piece of information is of less important than knowing where and how to retrieve it. As educational theorist George Siemens puts it, “The pipe is more important than the content within the pipe” (Siemens, 2006). In terms of my current situation as a Spanish teacher, constructivism means maximizing collaborative interaction. Rather than adhering to a specific scope and sequence of material from a textbook, I would like to see my students maintain mutually-instructive distance relationships with language learners from around the world. Using web 2.0 tools such as Livemocha, students would not only be responsible for submitting Spanish writing samples for review by native Spanish speakers, but would also be charged with providing English learners with corrective feedback on their own writing endeavors. I would like to see these collaborative interactions develop over time into real relationships; when students start to see themselves as experts and understand that learning a new language really can open doors to new experiences and new friendships, a powerful transformation takes place and their outlooks change not just toward language learning, but toward learning as a whole. Constructivism is all about this type of flexible curriculum and collaboration-oriented learning; as educational theorist Bernhard Nett puts it, “from a constructivist point of view, education is not a one-way ride from blueprints to practice, but a recursive, iterative, multi-perspective practice” (Nett, 2008).

As a final example of long-range planning, I offer the [Lowe’s Toolbox grant proposal](http://danehartman.weebly.com/551---grant-proposal.html) from EdTech 551. An integral part of any grant application is an explanation of how the funds will be used over a period a time; in my case, this meant describing a purchase, implementation, and training plan for a new computer lab at Wheat Ridge High School. I provided a timeline for when the equipment would be purchased, who would do the installation, when staff would be fully-trained in its use, and how it would help strengthen the community at our school.

**Summary**

I have learned quite a bit over these last 2.5 years at EdTech. The projects that we completed forced me to become proficient with some excellent web 2.0 tools that I wouldn’t otherwise have made time to explore. Knowing that my students and coworkers have already benefited from this knowledge shows me that it was worth the time and money. I also finally learned how to use a semicolon; it’s a wonderful punctuation mark that has saved me from many an awkward wording conundrum.

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