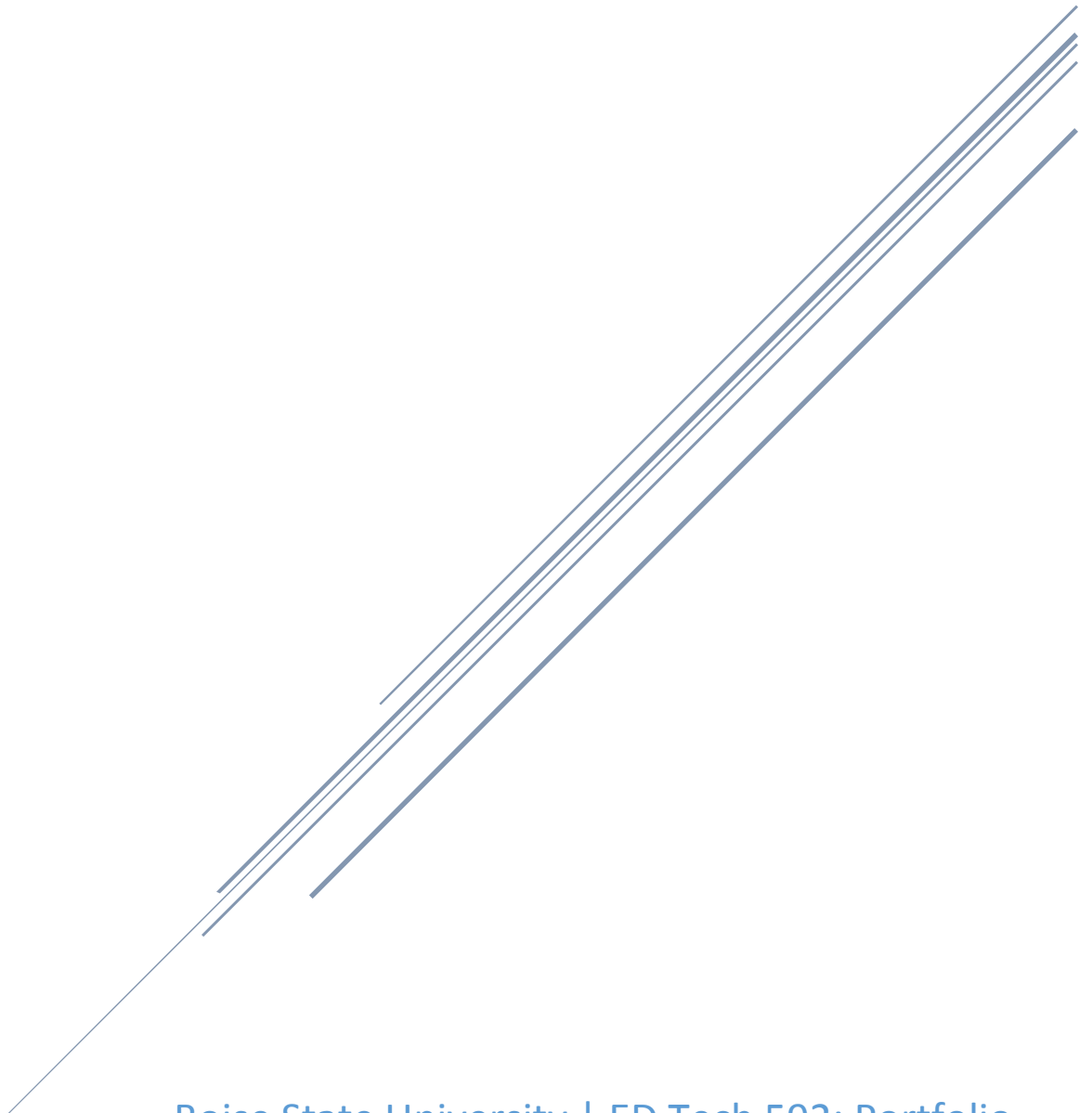


MY PATH TOWARD MEANINGFUL TECHNOLOGY INTEGRATION

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INTRODUCTION

My pursuit of becoming a more effective teacher to serve my school district and my home town led me to the graduate program in Educational Technology at Boise State University. My undergraduate work was in the field of natural resources, where I worked for a few years after graduation until I was called by the principal of my alma mater. My district was in severe need of educators with science backgrounds and my name was brought up. I have always wanted to pursue education so I took the opportunity and moved to my home town to pursue what ended up being the most challenging and rewarding career that I could find myself in. After a few years in the classroom, I begin to realize a key piece that was missing in our curriculum is technology integration. We were not preparing our students for post-secondary education or workforce effectively so I decided that this is going to be my impact. I will take the lead to make useful technology integration happen in my district and others that face our same challenges.

Teaching secondary mathematics and science in a rural school district requires technology as a means to equal education with our limited resources. The gap between students who have access to high quality education and those that do not needs to close. Our nearest natural history museum is in the city, which is a six hour round trip. It is a significant to bring our students to these resources, but I believe that the development of useful resources can help alleviate these issues. High quality education needs to become available to each and every student in the world, and I believe that effective use of technology can help.

The purpose of this paper is to provide a rationale for each of the artifacts which I have mapped to the Association for Educational Communications and Technology (AECT) standards used to demonstrate my abilities in each standard. The AECT standards are divided into five primary categories, Design, Development, Utilization, Management, and Evaluation. These categories represent the five major areas of focus of the lessons completed in this program.

This paper is organized by AECT standard. Each section begins with a brief discussion of the standard as a whole along with a discussion of the underlying theories associated with the standard and the artifacts. In this section, I discuss the learning theory that it best represents and use evidence to support my claims. Each standard has multiple sublevels, for each sublevel I present an artifact that I created during my time in the ED Tech program evidence to support my competency in the area. I briefly describe the artifact and the content from which it is produced and explain why I believe that it supports my abilities and understanding of the standards which it accompanies.

STANDARD 1: DESIGN

Design requires the application of instructional design, message design, instructional strategies, and understanding learner characteristics. To be considered competent in this area, I need to be able to complete deep design on both large and small scales with quite a bit of attention to detail. To meet this need, I need to have a strong sense of how students learn, how to tailor the message to meet the needs of a variety of learners. This standard relates to learning theory>>>>> (Smith & Ragan, 2005)

1.1 Instructional Systems Design

Instructional Design Final Project (503)

This artifact is the concluding project that collects almost the entirety of the work completed in ED Tech 503: Instructional Design. Therefore, this resource encapsulates a completed instructional design process from beginning to completion including reflection. This artifact is comprised of a reflection paper and the complete lesson. The lesson itself is broken into eight major parts, with each part having multiple subsections. This artifact is mapped to this standard because it demonstrates my ability in each of the sublevels of instructional systems design. This design project features objectives and expected outcomes that are appropriate to the material (1.1.1.a) and were analyzed to ensure that they meet the needs of the learners (1.1.1.b). It is intricately designed to meet the objectives including

a well-designed overall plan (1.1.2.a), specific delivery plans for the lesson (1.1.2.b), and was developed using instructional technology processes that promote learning (1.1.2.c). The resources included in the lesson include produced instructional materials that incorporate multimedia (1.1.3.a) and demonstrate my ability to utilize computer programs to author instructional content (1.1.3.b). This lesson features appropriate accommodations for learners in need and offers suggestions to meet the needs of struggling learners (1.1.4.a). This lesson was delivered by me to teachers in my school as part of a summer training, so it was actually implemented and went well. We still widely use the resource featured in this lesson. Finally, this lesson demonstrates my ability to make good use of a variety of assessments (1.1.5.a) that are mapped to the objectives of the lesson (1.1.5.c) including formative and summative assessments (1.1.5.b).

1.2 Message Design

Instructional Software Presentation (541)

There are multiple different ways to deliver messages to reach learners. The purpose of this lesson is to reach the audience of secondary math teachers and inform them about instructional software resources and their prevailing uses. This assignment is designed in to meet a variety of educational philosophies. It begins with drill and practice resources for educators who believe in behavioral practices and moves through resources for instructors who embrace student centered problem solving encouraged in constructivist theory. This artifact was mapped to the message design standard due to its design of instruction (1.2.a) based on theory. Also due to its demonstration of development and delivery of a specific message (1.2.b). And finally because it uses a variety of multimedia in the communication of the message (1.2.c).

1.3 Instructional Strategies

Jigsaw Activity (502)

While learning about, and developing content for, the internet for educators we were asked to create a Jigsaw activity. A jigsaw activity is a big project that is broken up into chunks so students to share the workload and learn from each other. This webpage which I designed focuses on providing information and a structured lesson to improve student understanding how the universe is understood by breaking the large concept into three “expert groups” who learn a piece and come back to home groups to share their knowledge. The hyperlinked content that students are expected to explore contains new and relevant information that was selected for its focus on multimedia and grade level. This webpage was selected as an artifact for standard 1.3 because it utilizes instructional strategies that are appropriate for the situation (1.3.a) and it follows a specific instructional model (jigsaw) that is defined within the lesson (1.3.b).

Learning Theories Synthesis Paper – ED Tech 504

asdf

1.4 Learner Characteristics

Web Accessibility – ED Tech 502

Technology has the ability to reach a wide variety of learners when used effectively. In this particular assignment, we were asked to identify and provide information for learners with specific characteristic that may make learning in a traditional environment difficult for them. This webpage that I created focuses on tools that can support learners with physical, visual, and/or learning disabilities. I mapped this assignment to the learner characteristics standard because it focuses on a range of learner characteristics (1.4.a, b).

STANDARD 2: DEVELOPMENT

This standard requires the ability to develop a variety of instructional materials using a variety of technological resources to meet the varied needs of my learners. It focuses on the ability to create useful and engaging offline resources, creating and utilizing existing multimedia in a variety of ways, understanding and producing computer-based technology's to drive understanding, and integrating each of these technology applications to create rich and diverse lessons to drive instruction and understanding. The artifacts mapped to this standard relate to theory>>>>>

2.1 Print Technologies

[Student Guide to Internet Safety](#) (541)

This simple, two-page text document which I created to communicate and deliver a very important message (2.1.1). This document was created to be useful as both a print and digital document. It was delivered to parents and students at parent night and emailed to all students so they can take advantage of the links. The next sublevel (2.1.2) requires the creation of print communications combining words and graphics. For evidence of this sublevel, I submit [a flyer](#) that I created to invite parents to the kickoff of my successfully funded grant that I created in ED Tech 551 (Grant Writing). The third artifact that I have mapped to this standard is a [presentation](#) I created in ED Tech 501 that had the purpose of describing the extent of digital inequality in the State of Colorado. This artifact meets the third sublevel of the standard which requires competency in using presentation application software to produce presentations and supplementary materials. To complete this assignment, I worked with a small group of other students to create this informational presentation along with speaker notes to supplement the presentation (2.1.3). The final sublevel of the standard requires the production of instructional and professional products using integrated application programs. I believe that the three artifacts included in

this standard represent my ability to utilize a variety of tools to create professional products within print technologies.

2.2 Audiovisual Technologies

Relative Advantage of Hyper Media (541)

One project that I completed as part of my Technology Integration class was the creation of a vodcast to relay information about using Hypermedia in the classroom. To create this video I used Camtasia Studio and the built in webcam and microphone on my laptop. To share the video with a worldwide audience, I uploaded it to the most popular video hosting site on the internet, Youtube and made it available for everyone to view. I also incorporated video clips and images from around the internet to validate my point about the usefulness of Hypermedia. Since I have never been completely comfortable in front of a camera, I broke the video up into scenes and wrote a script to follow using an online teleprompter to meet my needs. This artifact demonstrates my capability in each of the four sections of this standard. I applied the principles of media literacy to produce an instructional product that was made to educate my peers (2.2.1). I had to utilize both storyboarding and scriptwriting to effectively complete this project (2.2.2). I utilized appropriate video hardware and software to produce the video (2.2.3). And finally, I made the video available to be viewed over projection devices to facilitate presentation (2.2.4).

2.3 Computer-Based Technologies

Animation Assignment (511)

The artifact that I have chosen to represent Standard 2.3, Computer based technologies is the Animation Assignment from ED Tech 511: Designing Interactive courseware. I created this assignment near the beginning of the spring semester of 2014. This assignment calls for the use of Adobe Flash to produce differing types of animation to relay a message. To meet the parameters of the assignment in

the scope of my larger project that focuses on the fundamental components of middle school mathematics, I chose subtracting integers as my topic. I selected this artifact to demonstrate my competency in computer-based technologies because it demonstrates my ability to produce and deliver educational materials using computer based resources. To complete this assignment, I needed to plan out the lesson in full, make use of the tools in Adobe Flash to make it into an animation that could be viewed online by my students. My students were able to navigate to the URL and observe the lesson at their own pace and on their own time, which helped them deepen their understanding of subtraction. The theory behind this lesson is that helping student develop conceptual understanding using visual representations, especially animations, helps students comprehend the relationships between ideas. (NEED REFERENCE)

2.4 Integrated Technologies

[Technology Integration Final Project \(541\)](#)

[Mobile Learning Activity \(502\)](#)

This standard calls for the production and delivery of materials through several forms of media. While I believe that every course offered in the Educational Technology program at Boise State offers an opportunity to demonstrate mastery in this standard, the artifacts I am mapping to this standard are the final overall project to ED Tech 541: Integrating Technology into the Classroom Curriculum and my Mobile Learning Activity from ED Tech 502: Internet for Educators. The final overall project for 541 is a website which hosts all of the assignments created during the class. I selected this project to serve as an artifact for this standard primarily because of the various examples of integrated technologies that were discussed and used to create the varying resources. The 541 project site demonstrates my mastery of authoring media based instructional materials (2.4.1) which are useful for distance education delivery (2.4.2) and also demonstrates my mastery of developing web pages, in this case using Google Sites, with appropriate links (2.4.5). The second artifact, the mobile learning activity, was selected as a

single assignment resource that covers many aspects of the sublevels of the standards and also because it is a good real life example of the use of integrating technologies to analyze ecosystems. To complete this activity, students will have to properly prepare laboratory equipment and follow a series of instructions using a mobile device in the field. Students use their mobile device to both follow the proper techniques of collection in the field and report their data using a digital form and also view historic data on a spreadsheet. This tool goes beyond the simple use of electronic mail discussed in the standard and allows students a unique opportunity to both learn through working and collaborate with their peers to collect and share real time data on a potentially world-wide scale.

STANDARD 3: UTILIZATION

Utilization is the actual use of processes and resources for learning. This is based around four areas: media utilization, diffusion, implementation, and policy making. To successfully demonstrate my capability in these standards, I need to demonstrate my ability to utilize media resources to deliver lessons, an understanding of processes and theories behind the diffusion of ideas and technologies, the challenges and progressions of implementation of innovative technologies, and an understanding of the policy-making process that drives utilization in education (AECT, 2001). The artifacts mapped to this standard below relate to educational theory and technology application >>>>>>

3.1 Media Utilization – Edit and Update

[Relative Advantage Chart \(541\)](#)

This assignment required the critical analysis of differing technologies and determining the relative advantage, if any, these technologies had over other techniques or resources. I selected this artifact because it required the analysis of multiple problems, researching applicable technologies, determining the relative advantage that the technologies resource(s) had, and describing the expected outcome of the technology use. Media utilization has two primary sublevels, identifying key factors when

selecting technologies (3.1.1) and using technology resources in a variety of learning contexts (3.1.2). This artifact reaches both of these expectations. While completing the chart I had to both research technologies appropriate for each problem and justify the use of the technologies based on their need and application. Although there is one central theme, math practices, there are multiple learning contexts covered in the technologies discussed in the chart. These learning contexts include collaboration in group projects including improving communication, practicing mathematical fluency individually, and working to develop conceptual understanding to work through problem solving.

3.2 Diffusion of Innovations

[A Student Guide to Internet Safety \(ED Tech 541\)](#)

In middle school, students begin to have quite a bit more freedom when it comes to using the internet. My district began having some issues with students being unaware of the potential issues that could arise from misuse of the internet at the same time that I was working on a project for Integrating Technology based on Internet Safety. I created this simple guide that was made specifically for students but was also given to parents. I intentionally created this document with students in mind and found supporting documents and videos to link to that were relevant to their interests and were pertinent to our situation. I chose this artifact to represent diffusion primarily because of how we moved to incorporate the ideas in this guide to our students. We gained awareness amongst staff and parents through meetings, our secondary social studies teachers used this document and its resources as the primary framework of a writing unit. I provided my staff with a resource, built their interest on the subject, and oversaw the process through adoption. Our students and parents are now much more informed on the issue, which is the first step to safety. The strategies that I identified and implemented (3.2.1) created a way to deliver this resource to help students understand this complex issue.

3.3 Implementation and Institutionalization

[WebQuest – ED Tech 502](#)

One of the final assignments in Internet for Educators required me to create a webquest lesson. This lesson consists of a series of webpages created in HTML5 and CSS3. This lesson is complete including a detailed process, evaluation, a lesson review, and detailed teacher instructions with additional resources. I chose this artifact to represent this standard since it was one of the first lessons that I designed in the ED Tech program that I implemented into my curriculum. Students took to the lesson very positively and I feel that it effectively met the objectives of the lesson. The development of this lesson lead to other engaging lessons that became an important part of my curriculum. I believe that I can trace this lesson as one of my first very open constructivist problem based lesson that became a major component of my educational philosophy. This lesson contains instructional resources that are appropriate for the task (3.3.1) and improves integration (3.3.2) by having readily available lessons that promote further adoption in my district and beyond (3.3.3).

Instructional Design Final Project (Part 3b & 4) – ED Tech 503

3.4 Policies and Regulations

[Netiquette Webpage \(502\)](#)

It is important for everyone to develop an understanding of proper etiquette for the varying environments that will work in. This is also true, yet commonly forgotten, for digital environments. To help educate students in this area I created a policy webpage with the intent of helping students understand some basic accepted online etiquette. I selected this artifact to highlight my work in this standard because it is a case where instructional technology standards are being identified (3.4.1) and discussed in terms of professional ethics (3.4.2). It also has elements in the message about implementing effective policies such as how to inquire assistance online, that aid in the utilization of online tools (3.4.4).

[Copyright Scavenger Hunt – ED Tech 502](#)

In addition to online etiquette, it is becoming more and more important that students understand copyright regulations and how they should be treated online. This lesson was written for secondary students to serve as a self-directed activity that helps students develop an understanding of how to avoid plagiarism. The lesson includes hyperlinks to relevant sites, multimedia, and offline student resources. Students are able to progress through the lesson by answering a series of questions and then can check their answers at the conclusion of the lesson. This artifact was selected because of its focus on copyright practices (3.4.3) and its relevance to regulations in distance delivery technologies (3.4.5).

STANDARD 4: MANAGEMENT

To successfully demonstrate a mastery of educational technology management, I will demonstrate my ability to plan, organize, and cooperate while using the principles of project, resource, delivery, and information system management. In the following artifacts I demonstrate my ability to progress through multiple projects in multiple different roles while maintaining proper communication with all involved parties. The management of resources requires an understanding of available tangible and personal resources. Delivery management is ensuring that all resources are able to be accessed by all learners and ensuring that the methods of delivery are appropriate for the situation. Information management involves the processes involved working with data and ensuring that information is available to collaborators and capable of delivering resources for learning. The following artifacts represent these characteristics (AECT, 2001). These artifacts relate to educational technology learning theory...>>>>

4.1 Project Management

Final Grant Project (ED Tech 551)

The final project for grant writing for educational technology was to complete and submit a complete grant proposal. This daunting task required a significant amount of research into the local issues of the school, understanding what may make an impact, and presenting an argument to potential funders

to demonstrate the value of the project. In the duration of this project, I identified a technology need in the middle school and created a grant to address this issue. It is important to note that this project was funded and implemented into my school district this year. This artifact was selected for this standard due to its demonstration of project management techniques in educational context (4.1.1). Over the time of this project, I went through the entire project management cycle. I interviewed important stakeholders about the current state of the district and helped identify need areas, from these need areas I condensed the project into a series of obtainable goals, created a meaningful budget, finally a plan for evaluation.

4.2 Resource Management Evaluation Proposal (ED Tech 505)

To earn a contract to conduct an evaluation begins by submitting a response to a request for proposal. In ED Tech 505, I was required to respond to a hypothetical request for proposal as though we were experienced evaluators and create an effective plan that would earn the contract. To complete this task, I was required to clarify the situation, suggest effective evaluation methods that relate to the situation at hand, identify pertinent information that would be required to complete the evaluation, develop a schedule with realistic deadline dates, identify project personal, and develop a reasonable budget for the total cost of the evaluation. This artifact meets the requirements of the resource management standard by demonstrating my capability of identifying and controlling available resources to meet the objectives of a problem (4.2.1). In this artifact I demonstrate working within a budget, providing a justification for the allocation of resources, and present an argument for the use of other finite resources including time and available personal.

4.3 Delivery System Management Horizon Report Tech Trends (501)

After reading the Horizon Report on Tech Trends, I was tasked with choosing an interesting aspect of the report to design an engaging lesson. The lesson that I created centered on using game-based

learning and simulated environments to provide a framework to discover geometric principles. To successfully complete this assignment, I had to deeply plan this lesson to make it available for other instructors to be able to teach. To make this happen, I had to be precise with the technical aspects of the lesson and have clearly defined objectives and outcomes. This artifact represents delivery system management through its attention to the detail in ensuring that each user of this lesson is aware of both hardware and software requirements. It also provides resources for additional support for the users of this document. These delivery system management techniques ensure that anyone who utilizes this resource will be ready and able to incorporate this lesson into their curriculum.

4.4 Information Management

Digital Divide Presentation (ED Tech 501)

To distribute information about the critical issue of digital inequality, I worked alongside my peers in this program to create an online presentation. We had to work together as a group to determine ten potential options to address the inequality issue, identify pros and cons of each option, and rank the options based on our beliefs. To complete this project, my group and I used internet resources to have multiple meetings, collect quantitative data using online measuring tools, create and share notes, and collaboratively create the presentation. This artifact meets the information management standard by demonstrating my ability to effectively plan a collaborative group project using internet resources, properly store and transfer the information that we collect and present in a manner that is appropriate and effective for the group project, and utilize collaborative resources to share the ideas of the group. These competencies are central to online collaboration and are extended to many aspects of a professional educators work.

STANDARD 5: EVALUATION

Evaluation requires an understanding of how learners can demonstrate their understanding. I use the following artifacts to demonstrate my ability to create and engage in evaluation processes. Evaluation is fundamental to an educator or other professional in educational technology. Determining the effectiveness of instruction and policies is critical in these roles. Understanding the value of goals and objectives and being capable of identifying and implementing strategies to measure the success of a program is integral to educational technology (AECT, 2001). Evaluation relates to educational technology policy and theory by >>>>

5.1 Problem Analysis Needs Assessment (ED Tech 551)

One of the most important parts early in the grant writing process is to determine the extent of the need. To complete this process, I first needed to interview important stakeholders to determine where I should begin. I then moved to research important information about the current state of the area, school district demographics, historic performance data, and official administrative documents. I completed my research by talking to parents, students, and other important stakeholders. After accumulating this information, I was comfortable identifying a potential solution to help address some aspects of the identified need of the school district. I feel that this artifact represents this standard appropriately since it demonstrates my ability to identify the context of a situation, determine the value of existing resources, and suggest solutions centered on educational technology resources to meet the needs of these issues (5.1.1).

5.2 Criterion-Referenced Measurement School Technology Evaluation Summary (ED Tech 501)

The final concluding project for the introductory course in educational technology featured a final project which required the completion of an overall school technology evaluation. After providing

background information on the school district, I was required to rate multiple aspects of the school districts technology maturity level and justify each of my ratings on the artifact. I chose this artifact to support criterion-referenced measurement because it demonstrates my ability to apply measures of proficiency based on a predetermined criteria (5.2.1) and support my conclusions with evidence from my interviews and research.

5.3 Formative and Summative Evaluation

Project Based Learning Assessments (542)

One of the most important elements of my Project Based Learning project was designing meaningful assessments. The assessments were broken up into Formative (including project checklists, content quizzes, learning logs, and links to premade formative assessment lessons) and Summative (final rubrics and interactive self-assessment forms) assessments which were used to modify the content of the lesson to meet the needs of students and determine the overall effectiveness of the project, respectively. I selected this artifact to represent my performance under this standard because I feel that it demonstrates my capability to develop and have ready to apply both forms of assessments in educational technology contexts (5.3.1).

ID Final Project Assessments (503)

5.4 Long-Range Planning

Final Evaluation Report (ED Tech 505)

My report for evaluation picked up where I left off with my grant proposal. Right when the class was about to begin, I found out that my proposal was going to be fully funded so it seemed like the perfect project to critically evaluate. I started thinking about the evaluation process in grant writing, but I really got an opportunity to explicitly work through the evaluation process while implementing a program that I wrote. To complete this report, I needed to develop measurable goals based off of a needs assessment,

identified resources and constraints of the evaluation, and provided long-term recommendations (5.4.1) based on the identified project goals. This evaluation report has been submitted to my superintendent and school board and has helped inform both short-term technology decisions and long-term technology implementation policies that will impact my district. I also feel that this artifact is a good example of my ability to design tools used to measure goals and interpret the information to give informed technology recommendations, which is an important aspect of my personal career development.

CONCLUSION

This program has helped me grow as an educator. It has helped me develop, define, and elucidate my personal philosophies of education and how we can fundamentally improve our existing systems. I am significantly more confident expressing my understanding of complex situations that educators face and offer potentially useful insight to help my peers grow in content areas understanding, pedagogy, and the design and delivery of effective lessons. I have always had a fondness toward technology and had a belief that it is the tool that can help rural educators develop students who can compete with their peers who have access to significantly more resources.

I feel that my work at Boise State has made me a more confident and capable leader in my district and in my state. Since I have begun work in the educational technology program, I have been recognized by my school district as teacher of the year, was selected to meet with the leadership of the Gates Foundation based on my work in educational mathematics, and invited to participate in a legislative panel discussing the impact of the Common Core standards on mathematics education at the state capitol. I would not have been able to reach these career accomplishments in the short time that I have been teaching without the work ethic required by this program and support of my school district and family.

In my personal statement that was included in my letter of application to gain admission to this program, I mentioned that I want to be on the forefront of the coming changes in education so I would be capable of helping my students recognize their potential. I know that this program was a step in that

direction. There is no finish line, technology will perpetually change our environments, it is up to all of us as professional educators to stay relevant and drive the change in directions that will benefit our learners the most.

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