Assistive Technology for Struggling Readers / Dyslexia 301 Planning & Reflection

This document will trace the design of this K-12 District online training from start to finish. Additionally, it will offer a window into what each element looked like in practice. This training acted as a final for a course on instructional design and was adopted by the district upon completion. This training was implemented as the third course in yearly hour-long online training on supporting struggling readers and learners with dyslexia across grade levels and areas of content. Evaluation and the results of the training are not included at this time.

NOTE - This document was developed during the creation of the training, and the verbiage reflects that fact. This document has additional detail beyond what would normally be captured within a reflection.

Contents:

Project Proposal

Introduction

Statement of the Problem

Teachers in the Rapid City Area School district are moving to blended learning and are increasing the amount of text that students encounter when getting instruction. While many teachers are adding additional videos and graphics, most teachers start building e-learning with heavy emphasis on text for instruction as videos, graphics, and other ICT require additional course-building time. Unfortunately, teachers already report a lack of planning time. Because of the increase in text AND the frequency that students are likely to encounter this text outside of the immediate classroom, students with reading disabilities are likely to face increased difficulty with the current status of blended learning in the district. These at-risk learners are already often neglected in the curriculum as instructors primarily respond to students with dyslexia with shortened text and in-person discussion alternatives.

Some training has already been done on Dyslexia, but the training does not solve the above issue. Teachers in the district have been provided with two one-hour courses through the Canvas LMS on Dyslexia (a “101” and “201”). Teachers were to take “101” in their first year with the district and to take “201” in their second year. Common complaints reported to the Dyslexia team were 1) the lack of immediate application in the first course and 2) the emphasis on StudySync as a Dyslexia support and on using Dyslexia supports within StudySync. The first course was intended primarily to educate staff on Dyslexia while the second was intended as training on supports. However, an oversight in the creation of the “201” course was that StudySync is only used by Reading classrooms in the district and not by all secondary teachers, rendering some of the suggestions unusable. The “201” course also provided information on supports for elementary teachers through Wonders, StudySync’s sister program. This had better results as Wonders is more widely used among these grade levels. However, both 101 and 201 were created before 2020 and the current push by the district to make all classes accessible and available through the LMSs. The supports in StudySync and Wonders still work, but do not “plug in” to anything other than their own program. Learners still have to use the LMS to get basic instruction, complete assessments, and interact in the majority of courses.

To conclude, teachers have not been instructed on dyslexia/literacy supports that can be used within the LMS and outside of it. Moreover, teachers are not currently aware of the supports, know how to implement the supports (both in an individual capacity and in a Universal Design capacity), know the limits of such supports, and train learners on the use of these supports. Without these supports OR without extensive, paid work time, teachers are unlikely to be able to construct blended learning courses that can accommodate learners with reading difficulties. As this paid work time is unfeasible and does not guarantee support for struggling readers beyond multimedia resources, training on dyslexia and literacy software as a support for learners is a necessity.

Overview of Document

This document will outline the problem, the goals of the proposed project, the characteristics of the audience, describe the completed product, detail the delivery strategies used, outline the steps in the creation of the project, and show a sample of the to-be-delivered product. In addition to these items that define the project, this document will also provide a timeline, list any related costs, and describe the purpose of any related costs.

Project Definition

Project Goals

The goals of this project are 1.1) participants will be able to articulate at least two assistive tech tools for students with dyslexia, 1.2) participants will be able to identify how a tool can support students with dyslexia or reading difficulties, 1.3) participants will be able to identify the limits of any assistive technology tools for students with dyslexia or reading difficulties, 1.4) participants will be able to select the appropriate assistive technology for the student's age, context, and technology expertise, 2) participants will be able to install at least two assistive tech tools for students with dyslexia, 3.1) participants will be able to use the assistive tech tool on their own, 3.2) participants will be able to train students on the use of any assistive tech tools. These goals are divided into 1) knowledge, 2) installation, and 3) usage.

Audience Description

The audience is an urban district of 400 teachers in a largely rural state. The audience will be composed of teachers of all grade levels and all subject matters (including special education teachers). The audience has limited time to access additional training. The audience has experience with Canvas LMS as a teacher and as a student. The audience has had basic training on dyslexia and dyslexia supports but training has been considered ineffective and information from the training has been difficult to implement. The district is slightly over one year into the blended & 21st century learning initiatives. The district has a shortage of reading specialists and special education teachers. The district has a larger percentage of struggling readers than similarly-sized districts.

Product Description

The product to be designed will be a 1-hour, online-only, e-learning training through the Canvas LMS. It will cover five different pieces of assistive technology for struggling readers / learners with dyslexia in a blended or online environment. Participants will select two of the five tools to focus on. For each tool, participants will receive instruction and practice on correctly installing the tool, using the tool, identifying if the tool fits with a learner, and other related topics as outlined in the project goals.

Delivery Strategies

The content will be delivered through the Canvas LMS to align it with the 101 and 201 courses. It will be delivered as an online-only e-learning training. Technology used to deliver the content will include 1) videos, 2) interactive scenarios in quiz+feedback format, 3) informational pages, and 4) graphics. Learners will be assessed through an exit quiz as well as short, comprehension quizzes throughout. This will provide the instructors with precise data points by which to refine the course for the second “class” the following year. The course will be structured into an overview module, a module covering general knowledge about the tools, a module on installation of the tools (with one interactive video per tool), a module on the features of the tools (with one interactive video per tool), and a module on training learners to use assistive tools.

Project Steps

The project will be constructed in a spiral-fashion, circling through the different components (characterizing the learners, outcomes, activities, assessment, and evaluation) and gradually building a clearer and more refined product through each phase. Effort will be made throughout to draft and prototype before reaching the final product. First, the scope and general aspects of the project will be defined in this document. Second, the learning sequence and events will be designed. Third, the specific materials for the learning will be demonstrated. Fourth, the materials and events will be placed into the LMS and developed. After this stage, the product will be delivered and additional work may follow to refine the finished product. During the second phase, an early diagram of the instructional sequence and events will be run by the clients. During the third phase, a portion of the target audience will be provided with a sample interactive video/scenario to provide input on. Before the fifth phase, a pilot test will be conducted.

Schedule & Budget

Project Timeline

The proposal and definition of the project will be reviewed and completed by 10/24/21. The design of the learning sequence and events will be reviewed and completed by 10/31/21. The creation of learning materials and media will be reviewed and completed by 11/7/21. The materials, events, and media will be placed into the LMS by 11/14/21. The pilot group will test the product by 11/21/21. The product will be delivered the following year in August 2022 in the Rapid City Area School District.

Costs

There will be no costs for this project. The LMS and hosting will be provided by the client district. The materials and media will not require any additional software beyond Canvas Studio, a free Canva account, and the district-provided camera. Additional software and technology will

be provided for free by the vendor: Blue Yeti microphone, Logitech webcam, OBS Software, and ChromaCam.

Design Document

Executive Summary

The Rapid City Area School District teachers are in need of training on assistive technology to support both struggling readers and learners with dyslexia. Staff have already received some training on dyslexia support in an in-person environment. As the district moves to blended learning and requires all teachers to have e-learning pathways available across all grade levels and subject areas, the amount of text learners will encounter on their own will increase. Staff largely are new to using the Canvas LMS and e-learning, and, as such, rely heavily on text-based instruction. Due to this, struggling readers and learners with dyslexia will face additional difficulties. Training staff on implementing digital supports can alleviate a large portion of these difficulties.

In the same vein as the previous training (“Dyslexia 101” & “Dyslexia 201”), another 1-hour online course will be made to meet these needs: “Dyslexia 301.” This training will provide staff with knowledge on these digital tools & supports, the ability to install and use one such support, and help them create a plan to implement the support. Additional information will be provided on general accessibility elements in LMSs for innovators & early adopters. The training will rely on simulations, mastery-based quizzes, and opportunities for implementation. It will be completed independently online during the first week before school starts in 2022. A visual overview of the training is available here: Link to course outline

Training Context

Learning Need

Teachers in the Rapid City Area School district are moving to blended learning and are increasing the amount of text that students encounter when getting instruction. While many teachers are adding additional videos and graphics, most teachers start building e-learning with heavy emphasis on text for instruction as videos, graphics, and other ICT require additional course-building time. Unfortunately, teachers already report a lack of planning time. Because of the increase in text AND the frequency that students are likely to encounter this text outside of the immediate classroom, students with reading disabilities are likely to face increased difficulty with the current status of blended learning in the district. These at-risk learners are already often neglected in the curriculum as instructors primarily respond to students with dyslexia with shortened text and in-person discussion alternatives.

Some training has already been done on Dyslexia, but the training does not solve the above issue. Teachers in the district have been provided with two one-hour courses through the Canvas LMS on Dyslexia (a “101” and “201”). Teachers were to take “101” in their first year with the district and to take “201” in their second year. Common complaints reported to the Dyslexia team were 1) the lack of immediate application in the first course and 2) the emphasis on

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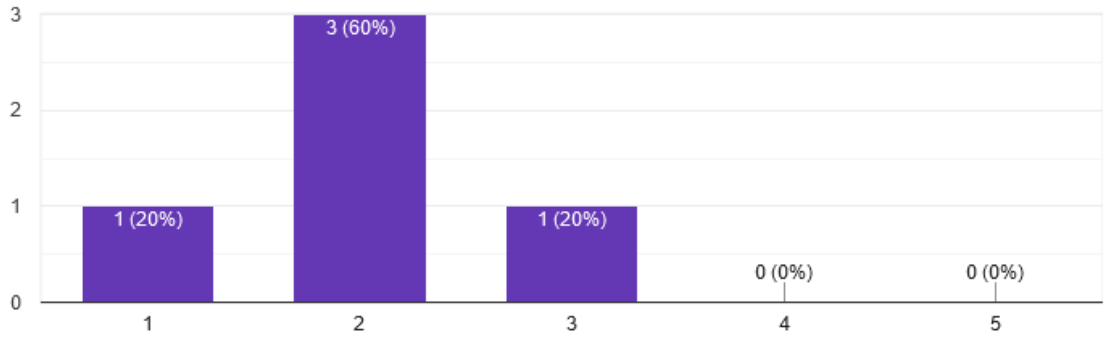
To conclude, teachers have not been instructed on dyslexia/literacy supports that can be used within the LMS and outside of it. Moreover, teachers are not currently aware of the supports, know how to implement the supports (both in an individual capacity and in a Universal Design capacity), know the limits of such supports, and train learners on the use of these supports. Without these supports OR without extensive, paid work time, teachers are unlikely to be able to construct blended learning courses that can accommodate learners with reading difficulties. As this paid work time is unfeasible and does not guarantee support for struggling readers beyond multimedia resources, training on dyslexia and literacy software as a support for learners is a necessity.

Additional data on this is as follows: two early questions polled with the client (Dyslexia Task Force) include “On a scale of 1-5, how well do RCHS teachers understand how to implement dyslexia supports in e-learning / LMS (in your opinion)” and “On a scale of 1-5, how much would RCHS teachers benefit from training in implementing and integrating dyslexia supports in e-learning / LMS (in your opinion)?” For the first question, it was identified as a “2,” suggesting that the majority of teachers do not understand how to implement the supports. For the second question, it was identified as a “4.4” by the client, suggesting that most teachers would benefit from training in implementing the supports.

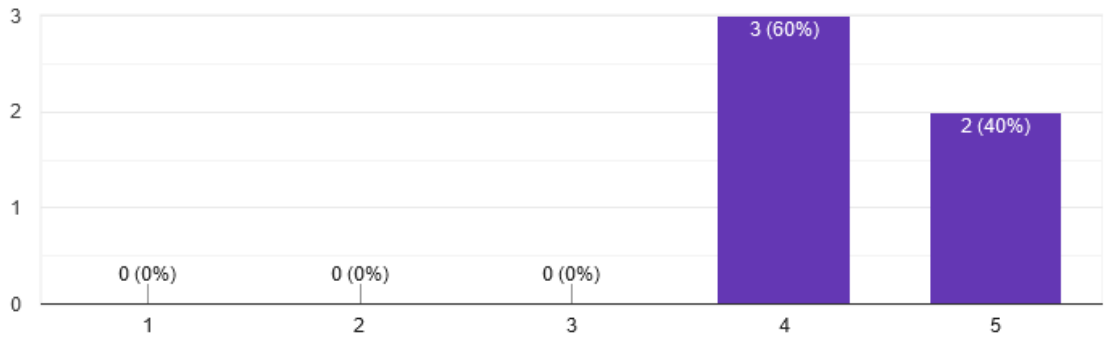
On a scale of 1-5, how well do RCHS teachers understand how to implement dyslexia supports in e-learning / LMS (in your opinion)?

5 responses



On a scale of 1-5, how much would RCHS teachers benefit from training in implementing and integrating dyslexia supports in e-learning / LMS (in your opinion)?

5 responses



Instructional Goals

The instruction will provide staff with the 1) knowledge needed to select assistive technology for struggling readers and/or learners with dyslexia, 2) the ability to install and use a piece of assistive technology, and 3) help them build a plan to train learners on the assistive technology. Instruction will also review general characteristics for Dyslexia as well as provide tips and tricks on creating a more accessible LMS setup. These goals are critical as the district is pursuing blended learning across all classrooms. In a blended learning environment, text is usually the first element used as videos & graphics take far longer to produce. During this transitional period, struggling readers and learners with dyslexia are placed with the additional burden of extra text-based content and instruction.

Audience Description

The audience is an urban district of 400 teachers in a largely rural state. The audience will be composed of teachers of all grade levels and all subject matters (including special education teachers). The audience has limited time to access additional training. The audience has experience with Canvas LMS as a teacher and as a student. The audience has had basic training on dyslexia and dyslexia supports but training has been considered ineffective and information from the training has been difficult to implement. The district is slightly over one year into the blended & 21st century learning initiatives. The district has a shortage of reading specialists and special education teachers. The district has a larger percentage of struggling readers than similarly-sized districts.

Relationship between types of adopters classified by innovativeness and their location on the adoption curve.

SOURCE: Everett M. Rogers, *Diffusions of Innovations*, 5th ed. (New York: Free Press, 2003), p. 281.

The audience includes the following subgroups in relation to the adoption of blended learning initiatives: innovators & early adopters, early majority, late majority, and laggards. Following Roger's 2003 innovation adoption curve, approximately 16% will be in the innovator & early adopter group, approximately 34% will be in the early majority, 34% in the late majority, and 16% in the laggards. These innovators and early adopters are members who are willing to try out new things and are motivated by a need to innovate. According to J. Michael Spector's *Foundations of Educational Technology*, early majority are "generally thoughtful and willing to change once the advantages of change have been clearly demonstrated" (Spector, 126). Late majority are "generally skeptical of change and new ideas and only adopt an innovation when the vast majority are already regular users," and laggards are "generally critical of anything new and reluctant to adopt any innovation, and who may resist long after the vast majority are supportive users" (Spector, 126).

As this training is thinking critically about the needs of struggling readers (dyslexic and non-dyslexic) within the blended learning initiative, understanding the push and categories approaching this initiative is critical. According to the October 6th, 2021 Teacher Advisory Council (a listening group on issues raised by teachers) report by the district, one comment was that “blended learning has put many over the edge.” Additional items on this report emphasize that staff feel overwhelmed and overburdened by the amount of work on their plate. Given that there are still many reports of blended learning struggles, it is reasonable to characterize the late majority as having not been won over to the technology yet. As such, the majority of the training should be on items that do not require background knowledge on the LMS to implement; too many teachers are still nascent in setting up their blended learning to handle “advanced items” such as checking accessibility within the courses.

To reach all groups, job aids will be provided on advanced LMS structuring to assist struggling readers for innovators, early adopters, and early majority, but the main “throughline” of the course must reach members in the late majority and laggards. To reach the laggards, it is critical that some assistive technologies explored will be very easy to implement.

Other relevant comments from the Teacher Advisory Council that can help characterize the district include “Feel like we should be at the end of the school year already with the fatigue everyone is experiencing already,” “Staffing classroom has been a challenge due to state and federal rules,” “We know that staff morale is low and we will continue to explore options to recognize and support them.”

Delivery Environment

The instruction will be delivered asynchronously to learners in many locations. The training will be assigned to around 400 staff members across multiple buildings roughly at least one week before the school year starts. Staff will be provided with one week to complete the training. During this week, staff will have other assigned training (both in-person and online) as well as general work time to set up their classrooms. One hour of time will be allotted across this week for this training, but it may not be at the same time or any required time across the buildings. Some buildings may request that staff do it on a specific day while other buildings may request that staff simply complete it before the deadline. The instruction will be delivered through the Canvas LMS. This platform is used by the district for both staff training and used to deliver content to K-12 learners. Staff will be able to access the training directly from their Canvas account. They will not need to create a new account or sign up for the course to be able to access it. The training will be assigned by the district technology coordinator.

Training Design

General Outcomes

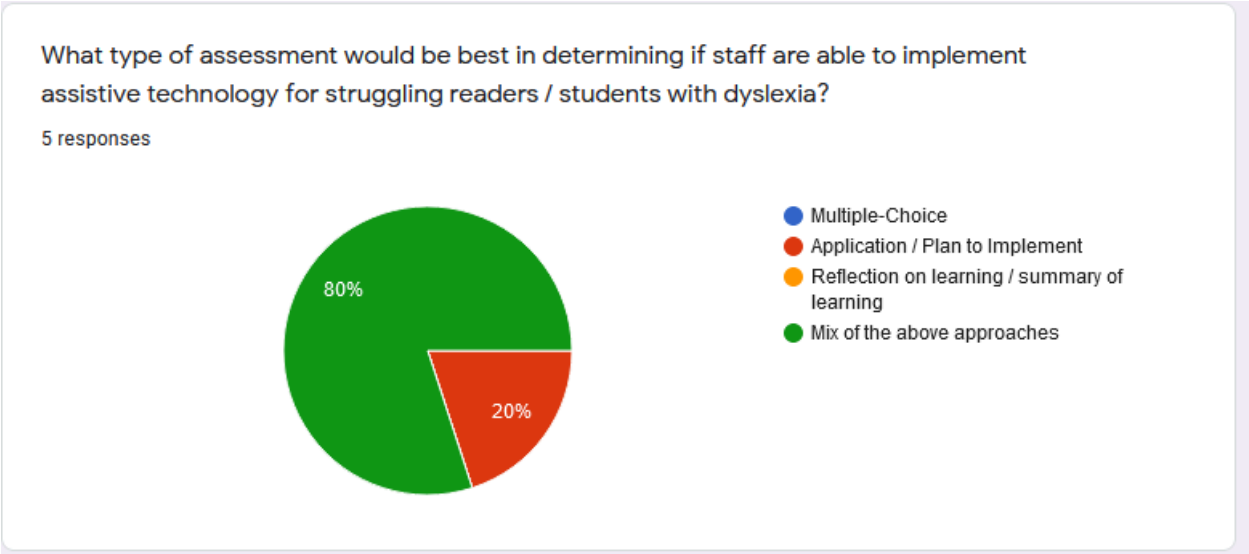
The outcomes of this project are 1.1) participants will be able to articulate at least two assistive tech tools for students with dyslexia, 1.2) participants will be able to identify how a tool can support students with dyslexia or reading difficulties, 1.3) participants will be able to identify the limits of any assistive technology tools for students with dyslexia or reading difficulties, 1.4) participants will be able to select the appropriate assistive technology for the student's age, context, and technology expertise, 2.1) participants will be able to install at least one assistive tech tool for students with dyslexia, 2.2) participants will be able to use the assistive tech tool on their own, 3) participants will be able to train students on the use of any assistive tech tools.

Assessment Strategies

Given the narrow time available for the training (1 hour max, online), the assessment needs to be highly-effective and well-embedded. Given this, there will be three assessment items, each focusing on a different aspect and aligned to an appropriate assessment method. First, a pre-assessment will be necessary to evaluate how well participating staff remember the content from the previous course (Dyslexia 201). This pre-assessment needs to be graded instantaneously by the program to be able to determine if review is needed. As such, it cannot be an open-ended or textbox-based assessment. Instead, this pre-assessment will be composed of five questions ranging from multiple choice to matching to true/false. This pre-assessment will be scored by the computer and provide feedback for all wrong answers. If participants score lower than an 80% on the quiz, they will be assigned to review the main instructional material from the previous year (prezi presentation) by the mastery paths feature within the Canvas LMS. Otherwise, they will be allowed to move into the new material directly.

The second assessment item will come in the form of the videos with embedded questions. Five videos are planned for the instruction, each with their own set of questions. Learners will only be required to complete one of these. Like the pre-assessment, a score of 80% will be expected. Unlike the pre-assessment, an 80% is required to move on to the next item. These videos will cover how to install and use a piece of assistive technology. As this needs to be graded instantly by the program, these questions will be multiple choice. This is also in alignment with the required knowledge. For the specific objectives (2.1 & 2.2), it is a matter of direct application and knowledge of a tool. The type of knowledge assessed is procedural knowledge. According to Cennamo in *Real World Instructional Design*, "When you learn and perform a skill at an automatic, or habituated, level, it's procedural knowledge" (59). This same text suggests that assessments for this type of knowledge include "apply concept or procedure OR solve problems" (59). While this type of assessment would be ideal, a multiple choice quiz embedded into the modeling video--"demonstration of steps in process"--will allow for instant feedback on whether the skill is being performed correctly. It is important that the questions in the video directly relate to imitating the video rather than simply declarative knowledge from the video.

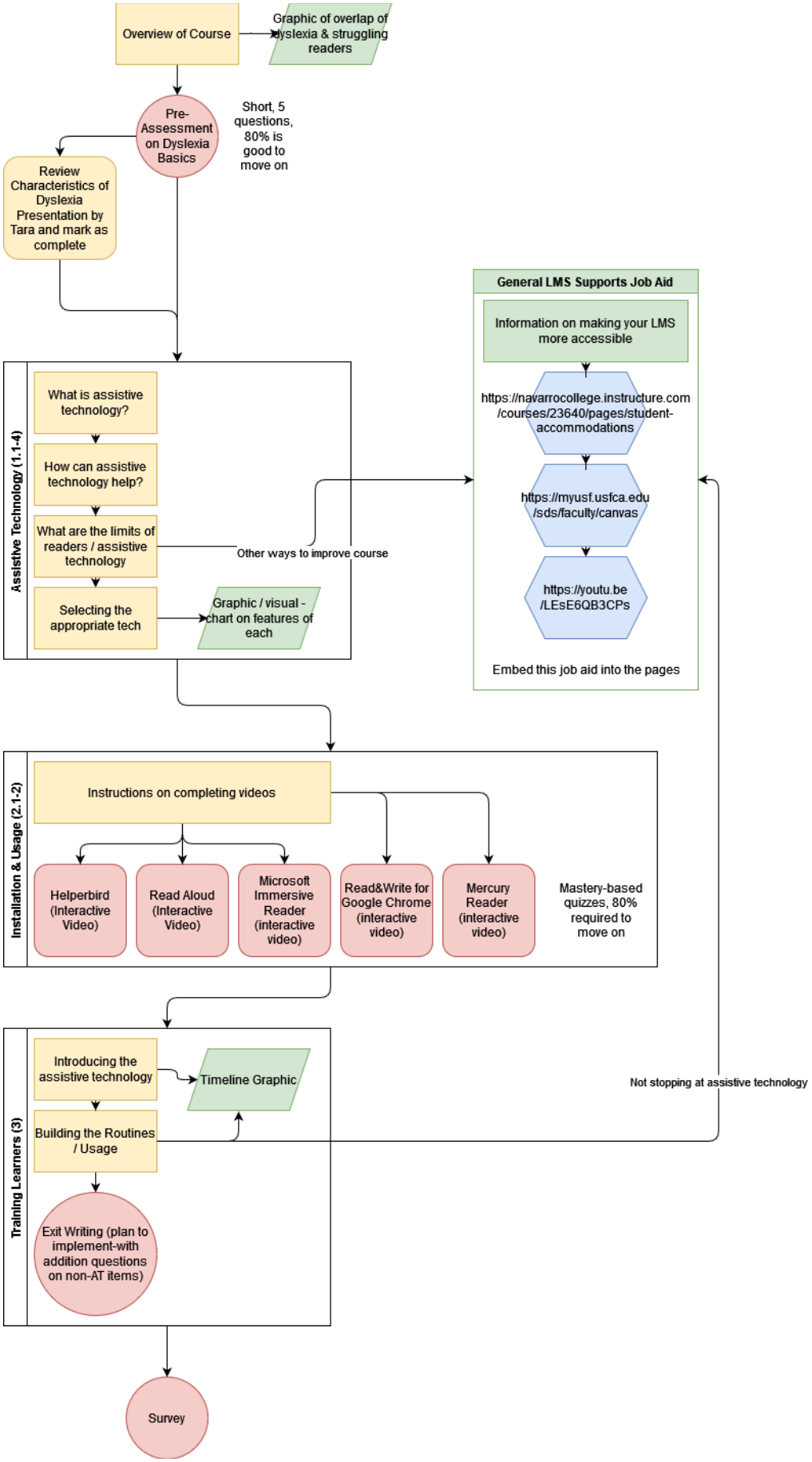
The final assessment item will come in the form of an essay question / written plan to implement the assistive tool (and any other items gained from the training such as making an LMS more accessible). This type of skill being assessed is conditional knowledge. This includes “cognitive strategies [that] guide learners in acquiring and applying other types of knowledge” (Cennamo 60-61). This assessment is intended to identify if participants are correctly able to apply their learning to their own classroom and learners along with monitoring and maintaining any implemented tools. According to early polling, the client largely agreed that a mix of approaches would be most appropriate through the training.



To ensure that the learning was successful over a long period of time, any Dyslexia 401 course developed by the district will need to open with a review or pre-assessment of this training. The client has specified that any follow-up assessment should not be given outside of these training sessions as staff are overburdened at the moment.

Content Organization

For each outcome, an item has been assigned. Additionally, the outcomes are clustered into corresponding modules as outlined in the description of the training outcomes. The delivery environment will be online through the Canvas LMS solely. The assessment is organized at the end of the second and third module. The assessment in the third module will cover all three modules while the assessment in the second module will instruct as much as it will assess. The pre-assessment will be located after a course overview. The content is organized on the graphic on the following page.



Content Sources & Media

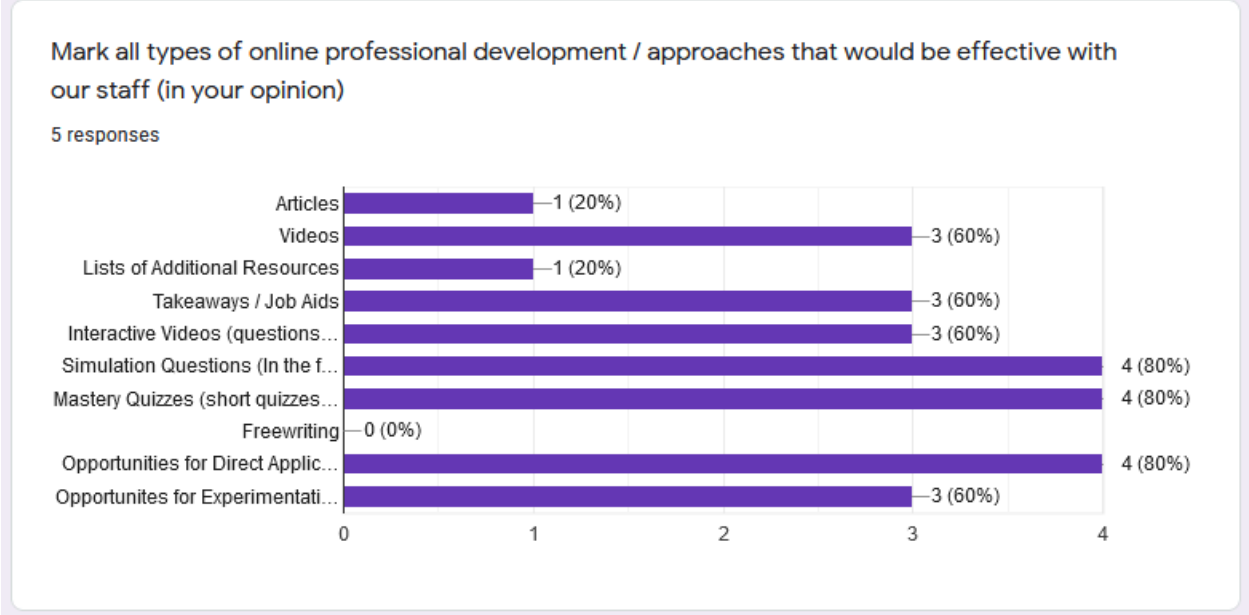
A majority of the course content will be created by the instructional designer with consultation from the client acting as a SME. Members of the Dyslexia Task Force will be able to provide additional information on the subject matter. Outside of the Prezi created on the “Characteristics of Dyslexia” for the Dyslexia 201 course, all materials will have to be created or found outside of the district.

Items to be created by the instructional designer include the pages (overview of the course, “what is assistive technology,” “how can assistive technology help,” “what are the limits of readers / assistive technology,” “selecting the appropriate tech,” “instructions on completing videos,” “building the routines / usage”), the graphics (“graphic of overlap of dyslexia & struggling readers,” “graphic / visual chart on features of each,” and “timeline graphic”), the videos (all five videos), and the assessments (“pre-assessment on dyslexia basics,” “interactive video” questions x5, “exit writing / plan to implement,” and the survey)

The job aid will be assembled by the instructional designer but a majority of the information for it will come from other sources on making LMSs more accessible. Graphics for it will come from the Canva library. Additional graphics may need to be made for the job aid as it is developed.

Instructional Strategies

According to early polling of the client (Dyslexia Task Force), the following items were identified as effective for staff: videos, job aids, simulation-based questions, mastery quizzes, opportunities for direct application, and opportunities for experimentation.



The first and third outcomes can be addressed through an opportunity of direct application with some opportunity of experimentation / critical thinking around their specific situation as both rely

on metacognitive knowledge or conditional knowledge as described above in the assessments section. The second outcome cluster can be best addressed through simulation, mastery-based interactive videos as the outcome requires learners to have specific procedural knowledge. For the first outcome and the third outcome, a combination of text-based informational pages, videos, and graphics will convey the general information needed. On each page, there will need to be opportunities for experimentation or direct application in the form of “think questions.” These questions will not need to be answered, but will provide avenues by which to begin brainstorming their answer to the final assessment around conditional knowledge. These think questions are intended to prompt problem-solving, leading to a final, meaningful task. This is in line with a constructivist approach to the training. The task is at the core with relevant data and resources shared throughout to build toward this task. This end task, the plan for implementation, will be identified early on in the overview to allow the participating staff to learn with a clear goal and purpose in mind.

Standards

No accessibility standards exist for the client district. However, the built-in Canvas LMS accessibility tool will be used to ensure that the training is accessible throughout. Additionally, all items discussed within the course as additional ways to make LMSs accessible will be modeled by the course. This means careful wording, reducing text, adding audio supports as available, and adding alternative descriptions for graphics. While teachers are assigned a computer, the course should be accessible on both mobile and desktop.

Evaluation Plans

The evaluation for this training will be done in four phases. First, early evaluation of the learning events and course sequence will be conducted through a survey with attached graphic and explanation of learning. This survey will be conducted by the instruction designer. Second, one interactive video will be tested with a pilot group at the next Dyslexia Task Force meeting. This will be led by the instructional designer and will consist of observed testing followed by a series of questions. Third, a copy of the near completed course will be piloted among staff at one of the high schools. This will be at Rapid City High School and will be composed of staff volunteers. Finally, the finished product will be presented again to the Dyslexia Task Force in full. After each evaluation, the client will be updated with the course progress. Additional emails will be sent out with further progress, composing at least one update per week over the allotted time.

E-Learning Considerations

Overall interface and navigation

Participating staff will need to be able to access all elements of the course from the “module” view, by proceeding through the items in a linear fashion, and by clicking on links to proceed where the course diverges (such as after the interactive videos). The basic navigation features will be taken from the default template course as established by RCAS. These features include a graphic link on the homepage to additional details about the course, instructor, and how to ask for help. Each page should also include instructions on how to complete the page, the goals of the page, and a short summary of the page at the end.

Development Tools

No software development languages will be used to produce this program. However, knowledge of Rich Text Editor and basic HTML will be helpful in arranging items within the platform. One benefit of lack of development languages is that the client will better be able to understand what is possible and not possible within the realm of development.

Delivery Platform

The platform required by the client district is the Canvas LMS. From a design perspective, a strength of this platform is the Studio plug-in. This allows videos to have created captions and embedded quizzes.

Usability

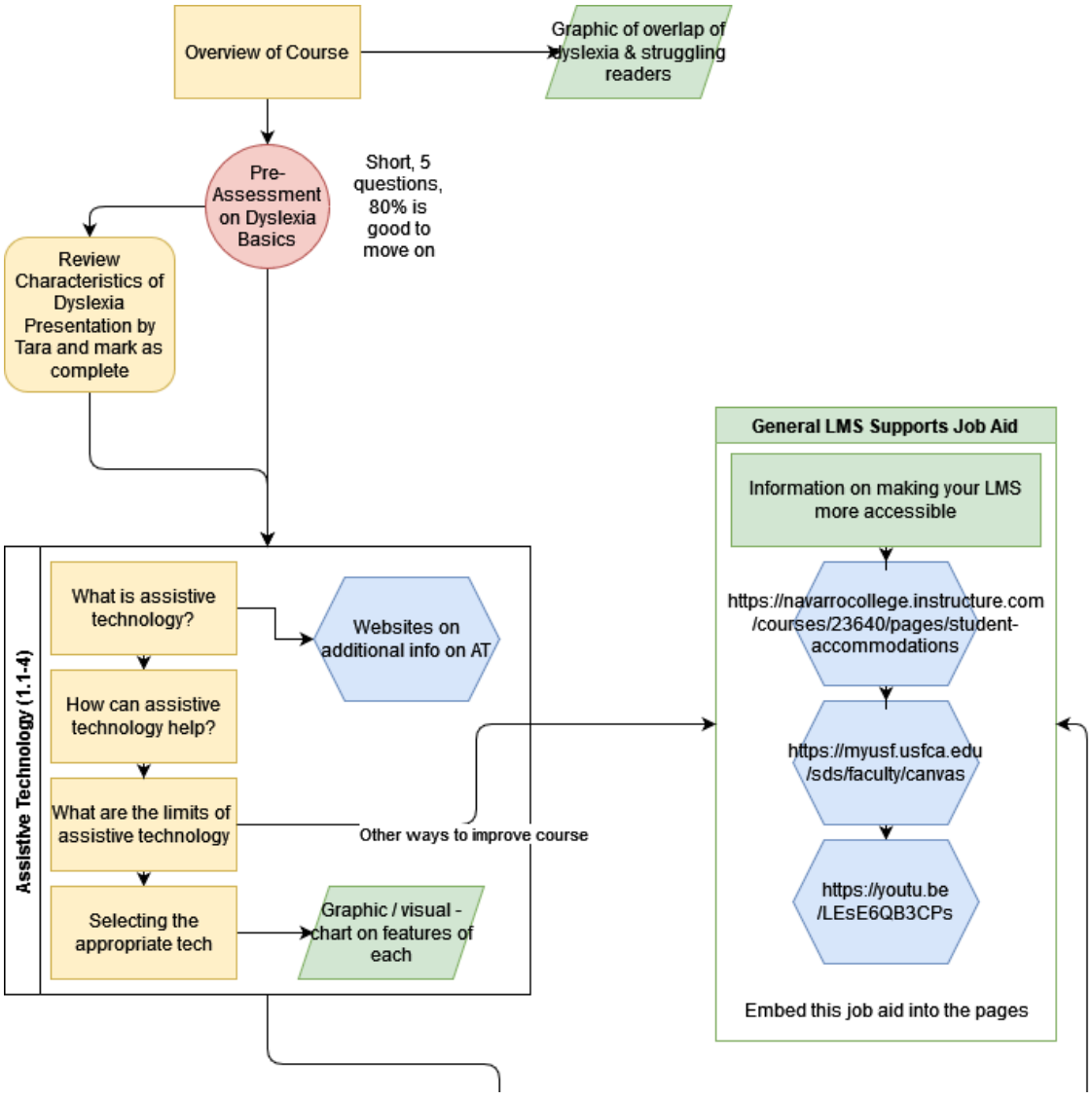
The usability will be tested during the second and third evaluation. A key component of this will be observing pilot groups as they engage with the material, noting areas of difficulty or confusion, and creating follow-up questions as needed.

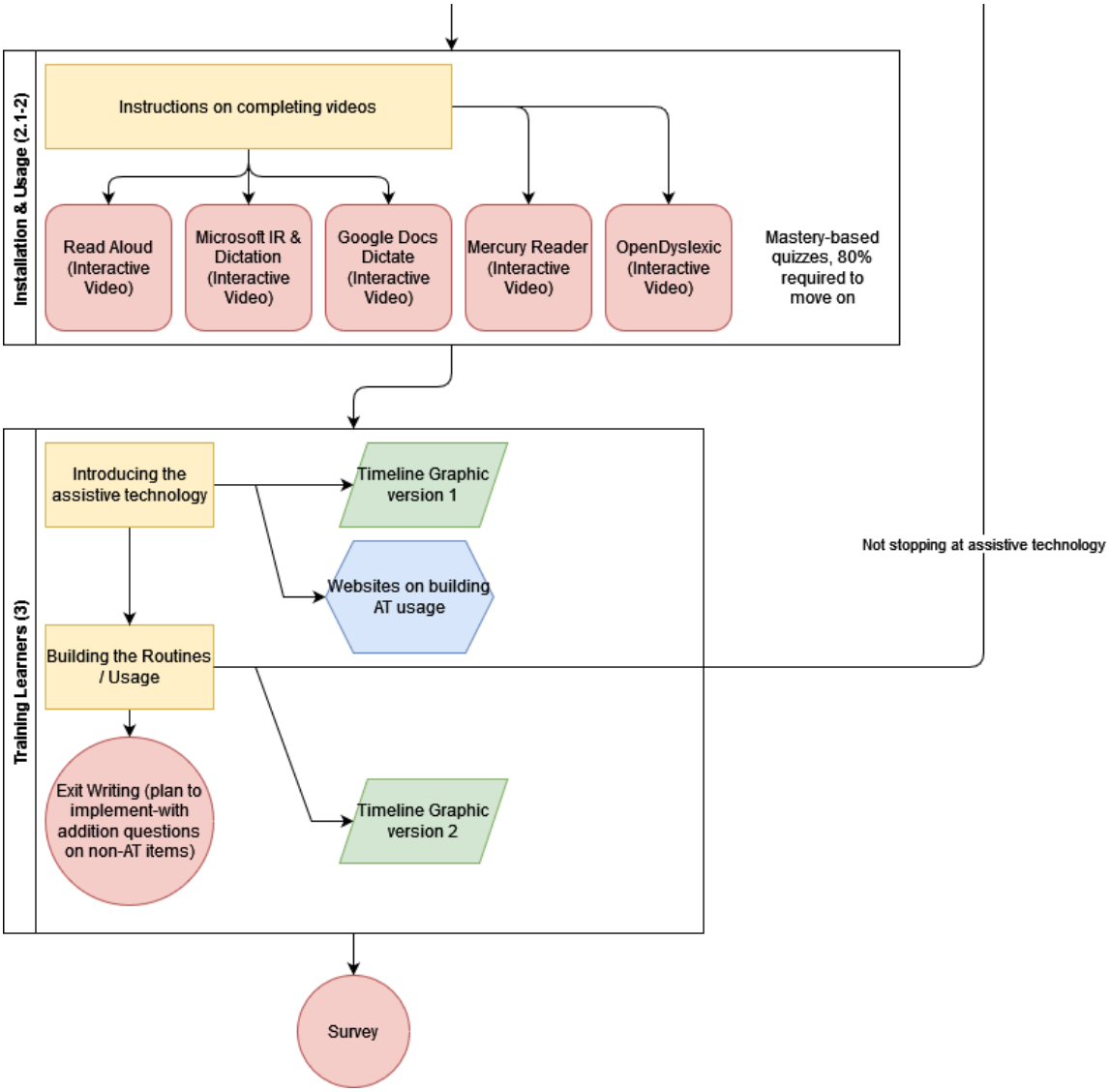
Demonstrate / Production Document

Pre-Prototyping

Treatment

The training is outlined in detail in the graphic below. This graphic has received minor changes and updates since the original and will likely undergo further changes after prototype evaluation.





The training is divided into three major chunks with a smaller chunk before and after the core three modules / chunks. Each chunk addresses one of the major outcomes listed as a part of this training. The first smaller chunk consists of a multiple choice pre-assessment and a review Prezi that has been carried over from the previous course, Dyslexia 201.

For the first chunk, the learning events include simple, text-based instruction with additional linked materials. This chunk will be assessed in conjunction with the third chunk is a direct application / written plan as an assessment.

For the second chunk, the learning events and assessments are integrated into one video-based experience. Learners will be presented with a series of steps and will have to answer a series of questions while watching the video. These questions are not intended to ensure that the learner is simply following the video but that they are able to complete the same steps on their own. As such, the questions are simulation-based.

The third chunk, the learning events match the learning events in the first chunk in that they are text-based instruction with additional linked materials and graphics. The assessment for this chunk ties the first and third chunks together by tasking the learners with writing a plan to implement the AT with one of their learners. This task requires basic knowledge about AT as well as knowledge around the stages of implementation.

User Scenario

From the user's perspective, the course will be navigated in a linear fashion through the Canvas LMS. Learners will first encounter an overview of the course that contains a description and outline of what will be covered. Following this, the learner will click "next" to advance into a short, five-question quiz. If the learner scores at least an 80%, they will be able to move on into module 2 by clicking on the "module" tab and selecting the second module or by clicking "next" twice. If they do not score at least a ⅘, the LMS will require them to view the page containing the Characteristics of Dyslexia Prezi created for the 201 course. It does not ask them to retake the quiz. They are simply expected to review it.

As they enter module 2, they will read in sequence through four pages. Each page will have information at the top explaining how to "complete" the page and move on. Learners will read through the page and click next. As they navigate through pages 1-3, optional links and documents will be listed for additional learning. These will not be required, but learners may choose to pursue investigating them. The fourth page of this module will outline which types of AT can be explored in the learning. Learners will then click next to move into module 3.

Module 3 opens with instructions on how to complete it. Rather than complete it in a linear fashion, learners click on one of five links. Each link goes to a video quiz for a selected AT. This video quiz will be roughly 3-5 minutes in length and will explain how to install and use the AT. As the video plays, it will stop briefly to ask the learner questions about what they just saw. These questions will be simulation-based in nature. Unlike the pre-assessment, learners will need to get an 80% to even move on to the next module. These videos can be rewatched as needed and the quizzes can be retaken as needed to reach these scores. Learners will then click on the link on their video page to hop into Module 4.

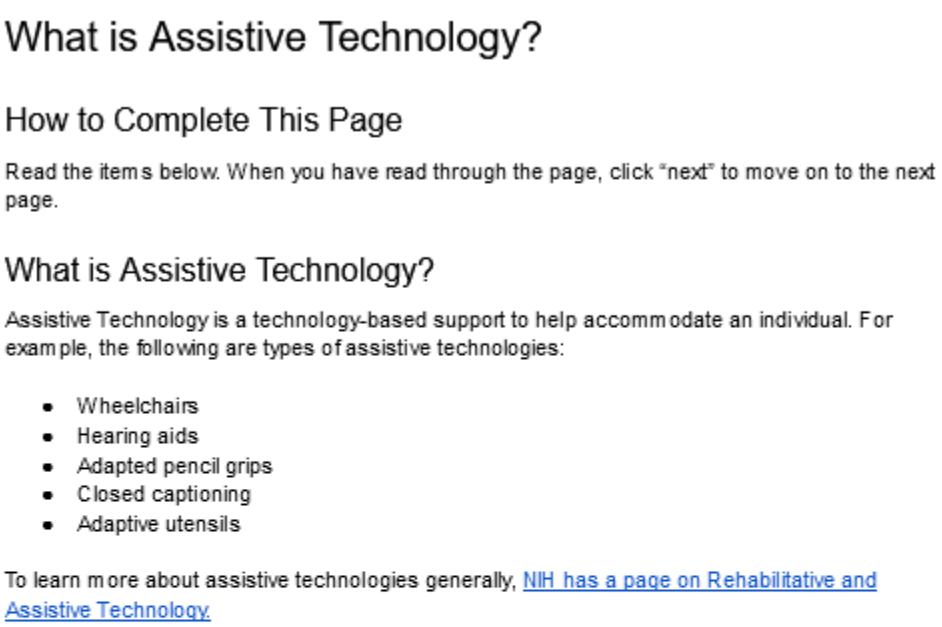
Module 4 will consist of two pages similar to module 2, but it will also contain a final assessment. This final assessment will task learners with articulating a plan to implement the AT in their classroom with at least one learner. This assessment will cover the materials in module 2 and 4, while also borrowing from the information covered in module 3. A job aid that was linked in module 2 will appear again on one of the pages to help reinforce how the job aid relates to the covered material.

Module 5 will consist of a survey. This survey will ask the learners to rank elements of the course on a scale from 1-5 and will consist of some open ended questions as well.

Templates

The only templates to be created for this course consist of the page template and the video quiz template.

The page template will consist of instructions at the top, followed by the items to read below. All pages will include the same formatting as captured below:



What is Assistive Technology?

How to Complete This Page

Read the items below. When you have read through the page, click "next" to move on to the next page.

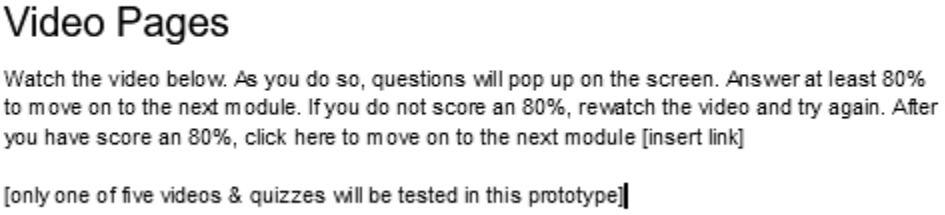
What is Assistive Technology?

Assistive Technology is a technology-based support to help accommodate an individual. For example, the following are types of assistive technologies:

- Wheelchairs
- Hearing aids
- Adapted pencil grips
- Closed captioning
- Adaptive utensils

To learn more about assistive technologies generally, NIH has a page on Rehabilitative and Assistive Technology.

The video quiz template will consist of the same basic instructions for all quiz pages. The information for each quiz before taking it will appear the same as below:



Video Pages

Watch the video below. As you do so, questions will pop up on the screen. Answer at least 80% to move on to the next module. If you do not score an 80%, rewatch the video and try again. After you have score an 80%, click here to move on to the next module [insert link]

[only one of five videos & quizzes will be tested in this prototype]

Requirement Specifications

To complete this training, the following will be required: a computer (chromebook, full laptop, or desktop) with internet access. The training will not fully function on mobile devices as the video quizzes do not run as well in that format. Users will need to have a Canvas account within the

Rapid City Area School District to access the training. This training will be assigned by IT/Canvas Administrators within the district. As such, it will appear automatically on each learners' Canvas Dashboard. Learners will also need to be in an environment where they can watch a video. This means that instructors will need headphones or will need to be allowed to work within their own rooms.

Description of Media Assets

A variety of media assets will need to be created for this training session: graphics, videos, charts, and job aids.

Three graphics will need to be created. The first graphic will be a simple venn diagram showing the overlap between struggling readers and learners with dyslexia. In the center of the diagram will be a line stating "struggles in an e-learning environment." This simple graphic will help convey that both groups are affected by e-learning environments in particular. The second and third graphic will show a timeline of implementing the AT. Both will show a rising slope with a series of events on the slope. There will be roughly 5-10 events across both graphics. The graphics will be the same but will highlight either the first phase of introducing the AT or the second phase of maintaining the AT. This will help connect the two pages together and allow the learner to view the events within sequence.

Five videos will need to be made. Each video will be 3-5 minutes long and will consist of a screen-recording with audio overlay. In the videos, an instructor will first explain how to install or add the AT and will then show how to use the basic features of the AT. One video will be made for each of the five ATs explored. A possible sixth video will be created to introduce the course. This is an idea that will need to be evaluated and explored with the client.

One chart will need to be created. This chart will outline the different features and strengths of the five ATs. The chart will include a simple color coding to help convey the difficulty or ease-of-use of each feature. Green will suggest that the AT is strong in that element. Yellow will suggest some difficulty. Red will indicate that the feature is not available or difficult to use.

One job aid will need to be made. This job aid will summarize and quote a number of other sources on making LMSs more accessible. The job aid will be arranged in a Q&A fashion to help quickly convey the information. The digital version of the job aide will have links embedded if possible. Small graphics may need to be created to help convey the information on the job aid.

Prototype

The full prototype of the training can be viewed by clicking on the link below:
https://docs.google.com/document/d/1a3CCzscgKP4wMXGphhfIMPApGgwA3zLrc5tKCCGgSDw/edit?usp=sharing

Learner Testing / Prototype Evaluation

The prototype was presented to the client (Dyslexia Task Force) on 11/9. This was presented by first laying out the aims of the training, explaining their role in the prototyping process, showing them what was available to be tested and what would be developed later. After this, they went through the prototype as the evaluator circled the room and observed. The evaluator frequently stopped participants one-on-one to inquire about their thinking, the navigation, and their initial reaction as they worked. After that, participants filled out a form (results linked below). After all forms were completed, the group were prompted to begin an open discussion and brainstorming session. This allowed for the evaluator to quickly follow up on ideas, proposals, and questions, saving evaluation time. The three-tiered evaluation proved effective in providing a wide array of input. Some of the big changes that came out of this evaluation will include **1)** creation a “why” video at the start of the course that outlines a bit more about how the AT will help and what it looks like in practice (possibly with animation / graphics in the video to help illustrate this), **2)** adding more information on the “select an AT” page to help learners make an informed decision. Items such as Canvas integration, chromebook accessibility, and suggested age ranges were floated. **3)** ...further thinking on the inclusion of font-changing extensions may end up reinforcing misunderstandings about dyslexia, **4)** and that the AT needs to be critically examined in an elementary context as learners are learning to read, not reading to learn. 3&4 may result in the removal of at least one font-based item in order to replace it with an elementary-friendly one such as Google Lens. Survey results are listed below:

Timestamp	1.1) Rate the clarity of the pages and instructions.	1.2) Elaborate - which pages / instructions (if any) were unclear?	2.1) Rate the ease of navigation / course layout.	2.2) Elaborate - what areas of the course (if any) are difficult to navigate / follow?	3) Should the assistive technology be limited to free options only or should it include some assistive technologies with features locked behind paywalls?	4) How effective will the video quizzes (simulation + mastery) be at training staff on use of the tool? If you are not able to watch the tool, feel free to skip this question.	5) What other thoughts or suggestions do you have at this time? These answers are anonymous.
11/9/2021 15:15:07	5		4		Keep it to free options only.	4	May need to pull some elementary teachers together to determine how/what/where to implement at the elementary level.
11/9/2021 15:16:31	5	I think the pages and instructions are clear and straight forward.	5	I was unable to watch any videos, but looks like they still needed to be imbedded into the document. Overall, this	AT with paywalled features can be added.		If AT with paywalls are added, it would be beneficial to separate the free options from the ones we have to pay for. I can tell you've put a lot of work, time, and effort into designing this course. It's well thought out and well done. Nice work!

				course flowed and was easy to navigate.			
11/9/2021 15:16:38	4	They weren't unclear, but depending on the layout of pages within a module, they may be redundant.	4	You may want to include the "Mark as Done" feature from within Canvas.	AT with paywalled features can be added.		Check with Jim (James) Leuthold on the "How to Canvas" module. They can just import it into your course so you don't have to take the time. If you insert the quiz into "New Quizzes" in Canvas, I believe you can make the Prezi pop up based on score.
11/9/2021 15:17:04	5	Nothing was unclear - I plan to return to review further and check out the rest of the AT readers and dig deeper into links provided	5	None - I can see how this will feed directly into the module system of Canvas	Keep it to free options only.	5	None - thank you for this. Glad you are using it for course credit and glad teachers will have easy access to this great information
11/9/2021 15:17:43	5	NA	4	I would like to see links that I would get me into the resources.	Keep it to free options only.	5	NA
11/9/2021 15:18:06	4	Maybe just a little more detail for our new teachers. A definition page for reference?	4		Keep it to free options only.	5	I like the funnel focus - starting big and going small. I also appreciate giving tools that can be used immediately.
11/9/2021 15:19:04	5	I didn't feel any of the pages or instructions were unclear. Everything was explained thoroughly, yet concisely.	5	I didn't have any difficulty navigating and/or following the course.	Keep it to free options only.		This course is laid out very nicely. It's clear, concise, and informative. I'm wondering how assistive technology would work at the elementary level. Elementary classrooms don't have specific content areas or textbooks. Some read-aloud features are available within the Wonders curriculum. Assistive technology may look very different at the elementary level.
11/9/2021 15:19:06	5		5		Keep it to free options only.	5	Looks good. I like how it is broken up.
11/9/2021 15:19:18	4	I thought the set up is very clear and instructions easy to follow. I would like to see it in Canvas next.	4	Again, I think this question would be better answered once we are in the Canvas course. On your layout, it	AT with paywalled features can be added.	5	The interactive nature of this course is very engaging and well done. Examples include: assessments, checkboxes, and a variety of learning. When explaining the definition of assistive technology, it may be good to include part of the definition from the website below, specifically, “assistive technology

				looks like it will be very easy to navigate.			refers to tools, equipment, or products that can help people with disabilities successfully complete activities at school, home, work, and in the community.“ • Non-examples? I like the option of choices for learners, so those that are interested in a specific free technology can choose that video to watch instead of something they aren’t interested in it or won’t use
11/9/2021 15:20:04	4	The text was relatively clear; there was only some terminology I'm not as familiar with that required me to read the descriptions twice in order to make sure I understood what you were saying.	5		Keep it to free options only.		My only concern is including the dyslexia font as an option for AT without any disclaimers about it. Inclusion might help to continue the myth that dyslexia is a visual concern. I have not been able to find any research that supports changing the fonts to help improve reading (it won't hurt and may anecdotally help, but it's not supported by research). Including an asterisk of some sort explaining this would be important.
11/9/2021 15:21:12	4		4	Hot linking the headings on the different assistive technology table would be helpful to navigate directly to them.	Keep it to free options only.		I really like the idea of a pre-assessment at the beginning so that teachers can review earlier content if they need. More research on best practices in using assistive technology would be helpful. I am not sure about the purpose of the 80% minimum on watching the videos and answering the questions before moving on if the videos are not sequential. Does 80% mastery help with understanding of subsequent videos.

Develop & Deliver

Development of All Instructional Materials

All materials needed are available in the linked Google Drive folder below:
https://drive.google.com/drive/folders/1lFwIh6VBgnu-zPsnwKmm_AzobcPWXav2?usp=sharing

All materials are available in the completed Canvas course below:
https://rcas.instructure.com/enroll/BEGEFT

Support Materials

No additional instructor guide, training guide, or instructions are necessary. Following how Dyslexia 101 and Dyslexia 201 were delivered, the all-digital course will be sent out with an email containing the following:

> **Dyslexia 301** - Complete the training in your Canvas platform labeled “Dyslexia 301.” Complete the training by ____

Assessment Materials

Assessment materials are listed in the Google Drive above in the pre-delivery document.

Delivery

This final element needed to deliver this course is to add it into the Canvas LMS account used by the District for training. All videos + quizzes are connected within the Canvas Studio platform. As such, the final phase is to simply copy items into pages, upload the job aid PDF, set module requirements, set the overview page as the front page / home page, and publish the course.

Reflective Journal

Define Phase

Journal Summary

The project proposal was started on 10/18. The primary issue at this point was providing enough context for the situation that later design choices would make sense. It was also a struggle to remain neutral in describing previous years' Dyslexia courses. In the "real world," the Dyslexia task force is planning to use this project. They offered to act as clients (in addition to the course-provided clients/peers). Because some of the issues with the previous course stemmed from decisions, organization, or lack of knowledge on the taskforce in the past, it was necessary to both acknowledge the issue without pointing blame or causing any potential division between the parties.

Feedback & Changes

The first bit of feedback was received on 10/25 from Stacy Bennet. The core of her feedback was that it is necessary to take time to consider how to efficiently develop resources. Specifically, she suggested that it may be necessary to consider finding resources and materials that have already been developed in order to cut down on the total development time. Entering the design phase, it will be necessary to review what is currently available from the RCAS Dyslexia Task Force and online. After reviewing the feedback from Stacy Bennet, a form was sent out to the RCAS Dyslexia Task Force asking for their early input. The questions sent out were based on the Kickoff Meeting discussion points on page 255 in *Real World Instructional Design* by Cennamo and Kalk.

Design Phase

Journal Summary

Going into it with a clearer picture from an early learner analysis and polling discussions with the client (Dyslexia Task Force) has helped lay a clear groundwork. However, some of the questions are still a bit of a struggle: during the learner analysis, it was necessary to dig back into an older ed tech textbook to articulate some of the groups within blended learning. In a "real situation," this may not be fully applicable. While the client intends to actually use the training "in the real world," they have been approaching the project with a hands-off approach and seem willing to rubber stamp any yes/no decisions. It is hard to determine if this is because of the designer's past reputation with building dyslexia resources for the team before or just a lack of time / interest. Given some of the strain on the general employee base (see the learner analysis), it may be a lack of time. Ideally, this product would be allowed the full amount of development time (all the way leading up to September 2022) rather than the current constraints. This

additional time would allow for more pollings and discussion. Especially as the Dyslexia Task for identified that they would prefer to meet in person to discuss these items. However, the task force only meets once per month. The next meeting is about a third of the way into November. Hopefully, the design project beyond the design phase and there are some early prototypes for them to review. At this point, there is still no feedback from other group members than Stacy Bennet. A follow-up was sent out to other group members, but it should have been sent out earlier.

Feedback & Changes

Based on the data on the questions sent out on 10/25, learning events and sequences that would need to take place were drafted. One takeaway from this early polling showed that the following items were the preferred course elements: videos, job aids, simulation questions, mastery questions, opportunities for direct application, opportunities for experimentation. I did initial drafting within the diagram.net program. Based on reflection, the installation and usage were to be combined into one activity as both could be covered in the same event. Early polling showed that the best way to reach the goals 2.1 & 2.2 (originally outlined at 2 & 3.1 in the proposal) would be by creating an interactive video. The Canvas LMS allows for videos to be made that require answering questions as the video plays. Certain scores on these videos will be required to move on. Additionally, another change occurred in the overall time frame of the course. Looking at the data from 101 and 201, both courses took the average participant around 45 minutes with the longest participants taking around 1 hour and the quickest participants taking only 20 minutes. To keep the course within this time frame, it is necessary to adjust the scope to cover only one of the pieces of assistive technology rather than two.

Production Phase

Journal Summary

While working on the chart explaining the pros and cons of each item, it was decided to remove Helperbird and Read&Write due to pricing and premium features. Assuming that it may come across as pressuring the district into buying a new tool, two different tools were added as replacements. These new items also add a bit more variety to the pieces of assistive technology that they can pick from. They are Google Docs dictate and OpenDyslexic extension. A website was also found that would provide a great deal of info for outcome 3. Webpage was included as an item to be completed at the end of the course. Initial contact was made with all members except Jason. The other groups members have yet to finish their design document so feedback has been limited, but the feedback that has been received has largely been praise without too much critical examination. This is not concerning as there will be an opportunity to present this prototype to the actual client (the Dyslexia Task Force) on Tuesday next week (11/9). Before that occurs, specific questions will need to be planned with areas of potential feedback.

Feedback & Changes

Received some feedback from Stacy Bennet and Amanda Helt on the Design Document on 11/6. Amanda commented that “This is awesome! I would love to know how you made this!” Stacy seconded Amanda’s comment on the use of visuals (in reference to the diagram). Stacy also commented that the use of additional headers helped present the information, that a timeline was a smart addition, and that the format overall was clean. She felt that the term “laggards” carried a negative connotation. While I agree that the connotation is there, I will likely keep it as I am using the technical term used by Rogers in the *Diffusions of Innovations*.

Prototype was presented to the client. Overall, the feedback was precise and informative. I presented by first laying out the aims of the training, explaining their role in the prototyping process, showing them what was available to be tested and what would be developed later. After this, I had them go through the prototype as I observed their actions. I frequently stopped participants one-on-one to inquire about their thinking, the navigation, and their initial reaction as they worked. After that, participants filled out a form (results linked below). After all forms were completed, we began an open discussion and brainstorming session. This allowed for me to quickly follow up on ideas, proposals, and questions, saving evaluation time. The three-tiered evaluation proved effective in giving me a wide array of input. Some of the big changes that I will make include 1) create a “why” video at the start of the course that outlines a bit more about how the AT will help and what it looks like in practice (possibly with animation / graphics in the video to help illustrate this), 2) include more information on the “select an AT” page to help learners make an informed decision. Items such as Canvas integration, chromebook accessibility, and suggested age ranges were floated. 3) the inclusion of font-changing extensions may end up reinforcing misunderstandings about dyslexia, 4) the AT needs to be critically examined in an elementary context as learners are learning to read, not reading to learn. 3&4 may result in the removal of at least one font-based item in order to replace it with an elementary-friendly one such as Google Lens? I will not make any changes this evening, but will review the notes at a later date and begin refining the prototype.

Timestamp	1.1) Rate the clarity of the pages and instructions.	1.2) Elaborate - which pages / instructions (if any) were unclear?	2.1) Rate the ease of navigation / course layout.	2.2) Elaborate - what areas of the course (if any) are difficult to navigate / follow?	3) Should the assistive technology be limited to free options only or should it include some assistive technologies with features locked behind paywalls?	4) How effective will the video quizzes (simulation + mastery) be at training staff on use of the tool? If you are not able to watch the tool, feel free to skip this question.	5) What other thoughts or suggestions do you have at this time? These answers are anonymous.
11/9/2021 15:15:07	5		4		Keep it to free options only.	4	May need to pull some elementary teachers together to determine how/what/where to implement at the elementary level.
11/9/2021 15:16:31	5	I think the pages and instructions are clear and straight forward.	5	I was unable to watch any videos, but looks like they still needed to be imbedded into the document. Overall, this course flowed and was easy to navigate.	AT with paywalled features can be added.		If AT with paywalls are added, it would be beneficial to separate the free options from the ones we have to pay for. I can tell you've put a lot of work, time, and effort into designing this course. It's well thought out and well done. Nice work!

11/9/2021 15:16:38	4	They weren't unclear, but depending on the layout of pages within a module, they may be redundant.	4	You may want to include the "Mark as Done" feature from within Canvas.	AT with paywalled features can be added.		Check with Jim (James) Leuthold on the "How to Canvas" module. They can just import it into your course so you don't have to take the time. If you insert the quiz into "New Quizzes" in Canvas, I believe you can make the Prezi pop up based on score.
11/9/2021 15:17:04	5	Nothing was unclear - I plan to return to review further and check out the rest of the AT readers and dig deeper into links provided	5	None - I can see how this will feed directly into the module system of Canvas	Keep it to free options only.	5	None - thank you for this. Glad you are using it for course credit and glad teachers will have easy access to this great information
11/9/2021 15:17:43	5	NA	4	I would like to see links that I would get me into the resources.	Keep it to free options only.	5	NA
11/9/2021 15:18:06	4	Maybe just a little more detail for our new teachers. A definition page for reference?	4		Keep it to free options only.	5	I like the funnel focus - starting big and going small. I also appreciate giving tools that can be used immediately.
11/9/2021 15:19:04	5	I didn't feel any of the pages or instructions were unclear. Everything was explained thoroughly, yet concisely.	5	I didn't have any difficulty navigating and/or following the course.	Keep it to free options only.		This course is laid out very nicely. It's clear, concise, and informative. I'm wondering how assistive technology would work at the elementary level. Elementary classrooms don't have specific content areas or textbooks. Some read-aloud features are available within the Wonders curriculum. Assistive technology may look very different at the elementary level.
11/9/2021 15:19:06	5		5		Keep it to free options only.	5	Looks good. I like how it is broken up.
11/9/2021 15:19:18	4	I thought the set up is very clear and instructions easy to follow. I would like to see it in Canvas next.	4	Again, I think this question would be better answered once we are in the Canvas course. On your layout, it looks like it will be very easy to navigate.	AT with paywalled features can be added.	5	The interactive nature of this course is very engaging and well done. Examples include: assessments, checkboxes, and a variety of learning. When explaining the definition of assistive technology, it may be good to include part of the definition from the website below, specifically, “assistive technology refers to tools, equipment, or products that can help people with disabilities successfully complete activities at school, home, work, and in the community.“ • Non-examples? I like the option of choices for learners, so those that are interested in a specific free technology can choose that video to watch instead of something they aren’t interested in it or won’t use
11/9/2021 15:20:04	4	The text was relatively clear; there was only some terminology I'm not as familiar with that required me to read the descriptions twice in order to make sure I understood what you were saying.	5		Keep it to free options only.		My only concern is including the dyslexia font as an option for AT without any disclaimers about it. Inclusion might help to continue the myth that dyslexia is a visual concern. I have not been able to find any research that supports changing the fonts to help improve reading (it won't hurt and may anecdotally help, but it's not supported by research). Including an asterisk of some sort explaining this would be important.
11/9/2021 15:21:12	4		4	Hot linking the headings on the different assistive technology table would be helpful to navigate directly to them.	Keep it to free options only.		I really like the idea of a pre-assessment at the beginning so that teachers can review earlier content if they need. More research on best practices in using assistive technology would be helpful. I am not sure about the purpose of the 80% minimum on watching the videos and answering the questions before moving on if the videos are

							not sequential. Does 80% mastery help with understanding of subsequent videos.

Journal Summary

Individual items were documented and created along the set schedule. No changes outside of the feedback-based changes were made. No issues occured.

Feedback & Changes

On 11/12 the following feedback was received from Stacy Bennet: “"I am beyond impressed how much you have done on this project and that you have been able to get through all of the stages on this. Wish I had more constructive feedback, but I'm not finding anything you need to improve on!” No changes necessary. Feedback from Rachael Fode came in on 11/12 across a number of items. On the proposal document, she asked “Do you know how you will evaluate learners?” As I do have a plan for this, I feel it is already addressed. She also asked “Love that this is only 1 hour, since one of the problems is that teachers don't have enough time! Will 1 hour be sufficient, and will you have any left-over time for learners to explore the other 3 areas?” but 1 hour is the time set by the district. On the design document, she asked “Will you incorporate any training taken from the previous courses? Will anything be reviewed? If so, will you have a test-out option?” This is addressed later on by the pre-assessment + review prezi component. She asked “Will 301 replace the 201 course? Sounds like 201 is already out-of-date as it doesn't use LMS - will you eventually be able to replace it completely? And if so, are there 201 elements that will need to be added to 301?” It is out of date. This is a question up to the client in terms of implementation as both 201 and 301 can be completed in any order. The client may choose to replace it OR offer it as another 201 options OR have it be the continuation. She also remarked on the usage of laggards (along with the other two active group members). Once again, this term is relegated to the design document and is a technical term from research on implementing technology. In the design document, she also mentioned “There might be more 'laggard' teachers than we think....definitely overworked, under-paid, and not enough time to plan! Love that you're trying to address this problem by offering easy-to-implement technologies. How much of a priority is this?” It is a priority, but the effort put towards these priorities has shifted with recent changes in the school board. Once again, no change is necessary. Finally, Rachael commented on the production document. She asked “Will learners have to watch the entire video again or just the portion that they missed?” This question is answered in the final delivery draft of the document. They can rewatch all of it or just a portion of it. She also asked “Love the survey! Feedback - how will you monitor this?” The feedback will be reviewed with the client a week after implementing the training. Lastly, she asked “I like that you have made it clear that this is able to be revised. I see mastery of 80% must be completed in order to move on through training. Will there be a quiz on each instructional video? If they get them wrong, will it take them back to their missed question's video?” There is a quiz on each video. The course will not allow them to move on without it. Again, no changes necessary at this point. Amanda H shared on 11/16 that “It might help for you to type out exactly what the email might look like when you send it out.” I responded with “I agree! I'll have to think about that. In the past, these

trainings were usually sent out in the "yearly training to-do" list without too much additional info, but giving the district a pre-typed intro may win them over. Good advice!” This is something that would have to be discussed with the client. Stacy B. shared on 11/20 that “As always, you nailed this and gave a great example of how this should be done well.” No changes necessary. On 11/21 Rachael F. shared “Wonderful! Great organization! Excited to see your project!”

References

Cennamo, K., & Kalk, D. (2018). *Real World Instructional Design: An Iterative Approach to Designing Learning Experiences*. Routledge.

Spector, J. M. (2015). *Foundations of Educational Technology: Integrative Approaches and Interdisciplinary Perspectives*. Routledge.