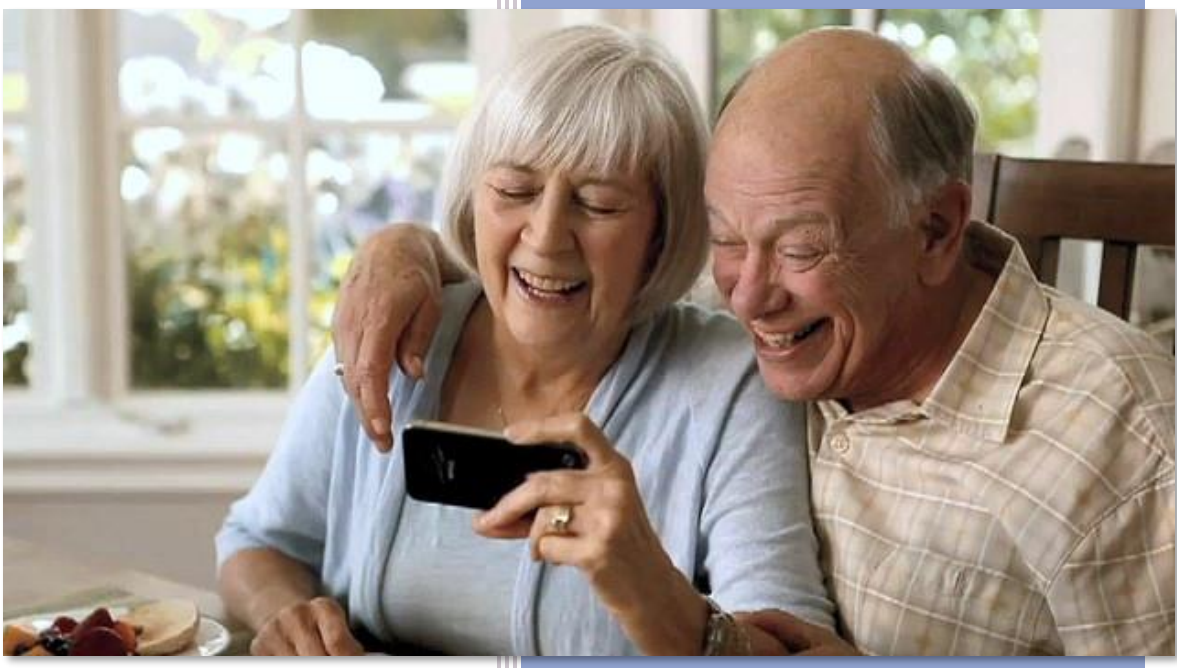
Golden Texting Tips for the Golden Years:
Basic iPhone Texting for Beginners



Prepared for the Knox Area Senior Centers

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IT 570

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Executive Summary

Instructional Designers, Karrianne McPheron and Juli Heaton, have developed this design plan proposal for *Golden Texting Tips for the Golden Years: Basic iPhone Texting for Beginners*. The designers are seeking approval of the project to pursue the project's affiliation with the Knox Area Senior Center as well as approval of content for the instruction. Stakeholders include the Knox Area Senior Center and the clients they serve, libraries, and families of seniors. Juli Heaton also serves as a subject matter expert (SME) on the project since she has years of experience with texting on iPhones.

Statement of Need

Locating free, publicly available training specific to iPhone text messaging (texting) is a difficult task, and the Knox Area Senior Center is on a mission to provide this service to adults in their golden years. As businesses, workplaces, and government agencies begin using multiple means of communication, people age 60 and older need to be able to read and respond to texts for personal or work purposes.

Target Learner Analysis

The target learners are individuals over age 60 who are adapting to smartphones. Some of the target learners experience mental or physical limitations including vision deficits or problems with dexterity. These target learners are not early adapters and may not embrace technology.

Performance and Learning Contexts

In the performance context, the learners will be texting for personal and business purposes on their own iPhones in a variety of settings. The main distinction between the performance and learning contexts is that the training will take place on the computer rather than on an iPhone. To more closely align the performance and learning contexts while still maintaining a web-based, asynchronous environment, the training will be presented on a web-based platform using an iPhone simulation made up of screencasts and screenshots of an actual iPhone.

Cultural Context

Learners will have generational differences from the designers. They may have different world views based on their age and experience and different frames of reference, including popular culture and slang. They may come from vastly different cultural, employment, and educational backgrounds with the only common traits being their age range, ability to speak English, and either ownership of an iPhone or interest in purchasing one.

Theoretical Basis for the Design and Foundational Assumptions about Learning

The design will apply an Instructivist approach, drawing from both Behaviorism and Cognitivism (Ertmer & Newby, 2013), because the target learners have a low tolerance for content ambiguity and have low levels of prior knowledge with the content. In applying the

Instructivist approach, our assumptions about learning include that learning occurs when there is a change in observable behavior or in knowledge connections (Larson & Lockee, 2014).

Summary of the Content and Progression of the Instruction

The asynchronous nine-module course will take place fully online with no facilitator. Learners can participate at their own pace and in their preferred settings.

Content

The objectives, strategies, and assessments align with the overall goal for learners to navigate an iPhone screen for usability and accessibility, communicate effectively with text messages, and respond appropriately and safely to authentic situations given a variety of scenarios.

Technology Plan

The modules will be housed together on a single website. The videos and scenarios that make up the modules will combine media that are familiar to the designers and possibly the learners in order to make the learners most comfortable in the online setting.

Accessibility

The instructional unit will use design elements, such as large navigation buttons and both written text and audio, that are necessary for some learners and beneficial to most.

Implementation Plan

The final completion date for the project is April 18, 2019 with a follow-up evaluation in October of 2019. The development will require 245 hours and take place over twenty-three weeks with a two-week break in December. The final version of training materials will be presented to Knox Area Senior Center on March 25, 2019. The instruction will be deployed from April 15th through 18th, 2019. Evaluation activities will resume in October of 2019 for one week.

Evaluation Plan

The evaluation plan includes a peer review, a SME review, a small-scale usability test, a focus group to evaluate the prototype, a focus group to evaluate the complete instruction, a brief online learner survey, assessment results, and data regarding the number of hits on the website and the percentage of instruction launched versus completed.

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I. Introduction

Instructional Designers, Karrianne McPheron and Juli Heaton, have developed this design plan proposal for Golden Texting Tips for the Golden Years: Basic iPhone Texting for Beginners. The designers are seeking approval of the project to pursue the project's affiliation with the Knox Area Senior Center as well as approval of content for the instruction. Stakeholders include the Knox Area Senior Center and the clients they serve. Additional stakeholders are libraries and the families of seniors. Juli Heaton also serves as a subject matter expert (SME) on the project since she has years of experience with texting on iPhones.

Statement of Need & Project Background

Locating free, publicly available training specific to iPhone text messaging (texting) is a difficult task, and the Knox Area Senior Center is on a mission to provide this service to adults in their golden years. Barnes (2011) describes the golden years as "the span of time between retirement and the beginning of age-imposed physical, emotional, and cognitive limitations" (p. 1). As of 2017, there are over 50 million Americans ages 65 and over (U.S. Census Bureau, 2017), and in 2018, 46% of these individuals own a smartphone (Pew Research Center, 2018). Our training targets individuals ages 60 and over who have not adapted to the current communication technique. These learners are not able to text message (text) to communicate with others. They cannot send, reply, and perhaps even locate and read a text. As businesses, workplaces, and government agencies begin using multiple means of communication, people in their golden years need to be able to read and respond to texts for personal or work purposes. Many of these adults, who are continuing in their careers or reentering the work or volunteer services, are required to learn these skills for survival in their new environments.

Our client, Knox Area Senior Center, desires that the target learner be able to locate, read, reply to, and initiate text messages to promote or maintain effective communication with others. When they begin, these learners will not know how to use or will have limited knowledge of texting for communication. Instruction will provide them with the information they need to be able to use text messaging effectively and safely.

Statistics regarding texting show the importance of texting as a form of communication. Research indicates that Americans text five times as often as they make a telephone call (Shropshire, 2015). Peccollo (2015) states that over 80% of American adults text. Adults age 55 and under send and receive between 33 and 128 texts per day, with younger adults texting more (Burke, 2016). Adults 55 and older send and receive 16 texts per day (Burke, 2016). While some adults over 55 are proficient texters, others have not adopted the practice or are insecure with the technology. Since there is no easily located or accessed module or tutorial available to help these adults learn to text, Knox Area Senior Center has asked the designers to develop self-paced training which could be administered to the seniors they serve on computers available at the centers or on the seniors' home devices.

The primary constraints of this project involve the wide variability in geographic locations and the lack of budget. The design and implementation of the training is a voluntary endeavor by the

two graduate student designers for the Knox Area Senior Center. Stakeholders include Knox Area Senior Center and the seniors they serve. Additional stakeholders include libraries, the families of seniors, English-speaking seniors across the globe who are interested in texting on an iPhone, and individuals of any age who discover the training online and access the learning modules.

We anticipate that non-instructional needs may include the use of additional apps, software, or physical devices for accessibility (for example, the text Zoom widget on iPhones). Non-instructional needs also include access to a computer for training as well as an iPhone.

Target Learner Analysis

The target learners are individuals over age 60 who are not digital natives regarding smart phone use. Digital natives are defined as "learners who have grown up with the technology, are comfortable with it, and who typically use it productively in all aspects of their lives" (Larson & Lockee, 2014, p. 49). The target learners fall into one of two generations, "matures" or "baby boomers" (Larson & Lockee, 2014). Oblinger and Oblinger classify mature learners as those born before 1946, and "[t]hey tend to be dedicated to whatever job they take on, are respectful of authority, and frequently place duty before pleasure" (as cited in Larson & Lockee, 2014, ch. 3 resources). According to Oblinger and Oblinger, baby boomers, born between 1946 and 1964, "*live to work*, are generally optimistic, and have exercised a great deal of influence on today's policies and products" (as cited in Larson & Lockee 2014, ch. 3 resources).

Some of the target learners experience mental or physical limitations. A percentage of these users have decreased hand dexterity since hand function decreases with age, particularly with individuals over age 65 due to structural changes and changes in neural control (Carmeli, Patish, & Coleman, 2003). According to the American Foundation for the Blind (2013), 12.2% of Americans ages 65 to 74 have vision loss, trouble seeing even when wearing contact lenses or glasses.

These target learners are not early adapters and do not necessarily embrace technology. They have varying degrees of competence with smartphones, apps, and the internet. They are English speakers as that is the focus of the training, but cultural backgrounds vary. In 2014, this population of adults was comprised of 78% whites, nine percent blacks, four percent Asians, and eight percent Hispanics (Federal Interagency Forum on Aging Related Statistics, 2016). They have varied educational backgrounds ranging from those who did not graduate from high school to those with advanced degrees. Eighty-five percent of Americans age 65 and over have high school diplomas, and 32% of men and 23% of women have bachelor's degrees (Federal Interagency Forum on Aging Related Statistics, 2016). The learners have varied work backgrounds ranging from unskilled to professional to a history of working in the home. Some are motivated by a desire to learn to communicate, and others will pursue the training at the insistence of family or friends (McGaughey, Zeltmann, & Mcmurtrey, 2013). Some continue to work with forty percent of those age 55 and older working in 2014, and the number predicted to increase fastest for the oldest segments of the population (Tossi & Torpey, 2017). The full retirement age for Social Security benefits has been raised in recent years, and Americans must now work longer in order to receive full retirement benefits (Social Security Administration,

2018). The learners can be expected to have some anxiety related to the process of learning this new skill.

Though our target learners are adults age 60 and over, other learners may benefit from this training as well. Individuals who are transitioning from a flip phone or brand other than iPhone may find the training advantageous. Others may include digital immigrants, “those learners who grew up without the technology, have adopted it in later life…and who are frequently uncomfortable with it,” (Larson & Lockee, 2014, p. 49) or techno-phobic individuals who are finally diving into the technology.

Performance & Learning Contexts

In the performance context, the learners will be texting for personal and possibly business reasons on their own iPhone in a variety of settings. At times, they will be under pressure and have only a few minutes to execute the task. At other times, they will be texting at their leisure. They may be in a public or private setting. Learners may or may not have access to additional beneficial tools, such as a stylus or devices used for accessibility.

A greater percentage of Americans age 65 and over use computers than smartphones with 59% reporting that they go online (Smith, 2014). Because adults in their golden years may be more comfortable using a computer than a smartphone, we anticipate most learners will interact with the training using a computer or tablet. The learners will be in a variety of environments ranging from their home to public places, such as libraries, senior centers, or workplaces. Some learners will have their iPhones with them to refer to as needed while others may use our training to determine whether they want to purchase an iPhone or not.

The main distinction between the performance and learning contexts is that the training will take place on the computer rather than on an iPhone. We discussed options for programs that would enable learners to opt into an automated text message service which would prompt them with practice and assessment tasks (such as type "t" or type the phrase "I am @ home"); however, we identified reasons against that option:

- Asking learners to sign up for text messages from an unknown service goes against our instructions in the safety module to ignore unknown numbers and to avoid smishing scams.
- There may be legal implications to consider.
- Some learners may be viewing these modules to help them determine if they should purchase an iPhone, so we cannot rely on them having the technology at their fingertips.

To more closely align the performance and learning contexts while still maintaining a web-based, asynchronous environment, the training will be presented on a web-based platform using an iPhone simulation made up of screencasts and screenshots of an actual iPhone. Practice examples will be built into the modules prompting users with the option to practice certain tasks using their iPhones or using the simulated practice sections. Because learners will be assessed on their cognitive skills of navigating an iPhone screen rather than their psychomotor skills, such as dexterity, the simulated modules should prove a balance between the two contexts.

Cultural Context

These senior citizens will have generational differences from the designers. They may have different world views based on their age and experience. They may be from various English-speaking nations, including the U.S. They may be more conservative in certain areas of thought than younger learners. In addition, there may be diversity among the learners regarding religion and cultural norms.

They may have different frames of reference, including popular culture and slang. For our etiquette section, we are using a reference to Miss Manners, an etiquette authority and advice-column author, who started her column in 1978 (Martin, 2018). We are also avoiding slang and assumptions about learner knowledge of technology terms by defining terms carefully or providing guided examples and visuals rather than passing references to these terms.

Theoretical Basis for the Design & Foundational Assumptions about Learning

Learning will be accomplished using the Instructivist theoretical context, "organizing and presenting information in a way to facilitate effective and efficient learner encoding, storage, and retrieval" (Larson & Lockee, 2014, p. 78). The target learners have a low tolerance for content ambiguity and have low levels of prior knowledge/experience with the content. According to Larson and Lockee (2014), these factors call for the Instructivist approach (p. 80).

In applying the Instructivist approach, our assumptions about learning include that learning "[i]s a change in either the form or frequency of observable behavior, and/or discrete changes in internal mental associations and states of knowledge" (Larson & Lockee, 2014, p. 80). Instructivism draws from Behaviorism and Cognitivism (Ertmer & Newby, 2013). According to Bedner et al. (1991), Behaviorism and Cognitivism have the same actual goal of instruction, "to communicate or transfer knowledge to the students in the most efficient, effective manner possible" (as cited in Ertmer & Newby, 2013, p. 59). Behaviorism and Cognitivism also focus on simplification and standardization (Ertmer & Newby, 2013, p. 59). Because learners are not in a central location, need to access the information remotely, and will move at various speeds through the materials, a self-paced module under the Instructivist approach is the best choice for instruction.

The learning module includes Behaviorist elements, including:

a) Encouraging active participation in the training,
b) Positive reinforcement,
c) And corrective feedback (Alessi & Trollip, 2001).

The learning module's Cognitivist elements include:

a) Encouraging active involvement of the learner (to the degree allowed by the format and the learner characteristics);
b) Structuring, organizing, and sequencing information to facilitate optimal processing;

c) Encouraging students to make connections with previously learned material;
d) And arranging practice and feedback (Ertmer & Newby, 2013, pp. 60-61).

The training will facilitate learning through an Instructivist approach, with techniques informed by Gagné's theories and Bloom's Taxonomy. In determining which approach or combination of approaches to use, we have followed Larson and Lockee's (2014) recommendation to consider the nature of the content and proposed instruction, the contexts, and "whether different approaches are needed at different points in the learner's development" (p. 81). The Cognitivist and Behaviorist strategies detailed in this plan best serve learner encoding, storage, and retrieval based on the nature of the skills to be taught, the context, and the stage of the target learner's development.

This Instructivist training also applies Gagné's Nine Events of Instruction "to support internal processes such as attention, encoding, and retrieval" (Driscoll 2018, p. 56). The course development emphasized Gagné's Events of Instruction as seen in Appendix A. By presenting the stimulus in small, digestible chunks in an order directed by the sequence of steps to be performed, the learning module facilitates learning through the "stage-like progression from sensory registration to long-term storage and learner performance" (Gagné, 1984).

The training focuses on the lower-order thinking skills from Bloom's Taxonomy for Cognitive Objectives. The purpose of the instruction is to convey the steps necessary for basic texting. Thus, the training focuses on:

a) Remember
b) Understand
c) Apply

II. Instructional Treatment

Summary of the Content & Progression of the Instruction

Instruction will take place fully online in an asynchronous setting. Learners will discover the training module from searching a web browser; reading an ad at a library, senior center, or other public setting; or prompting from a family member, friend, or employer. Once they learn of the training, they will navigate to a website and click to begin the module, which they can stop and return to at any time. Learners will likely complete the training module either alone or with the assistance of a friend, family member, or colleague. They will not be grouped with other learners, and there is no opportunity for learner-to-learner interaction due to the nature of the training, the particular needs of these learners, and the geographic diversity of learners.

The instruction should take less than one hour to complete with each learner moving at their own pace. Learners will not be assessed for prior knowledge due to the constraints of the training modality. Instead, these differences will be addressed by allowing the learner to proceed through

the training at their own speed and to view additional optional resources if they choose based on their skill level and needs. Assessing prior knowledge in this group of learners could be frustrating as they may struggle with the iPhone technology and the training modality technology. The risk of undermining their confidence through a pretest is too great.

The instructional unit features an introduction and nine modules. The full scope and sequence can be seen in the outline below. For the purposes of this project, we will focus instructional descriptions only on the bolded sections.

Introduction
1.1 Which icon do I choose?
1.1.1 Use Messages
1.1.2 Go to Settings
1.2 How do I click the small buttons?
1.2.1 Use a stylus, thumbs, or fingers (dexterity tips)
1.2.2 Change the orientation
1.3 How do I see the message better?
1.3.1 Increase text size
1.3.2 Zoom in
1.3.3 Make text bold
1.4 How do I start a text?
1.4.1 Enter phone number
1.4.2 Select a contact
1.5 How do I type a message?
1.5.1 Use the keyboard
1.5.1.1 Letters
1.5.1.2 Numbers & symbols
1.5.1.3 Other symbols
1.5.1.4 Emojis
1.5.2 Correcting mistakes
1.5.2.1 Autocorrect
1.5.2.2 Spellcheck
1.5.2.3 One-word corrections
1.6 How do I add a picture?
1.7 How do I find my messages?
1.7.1 Recognize a notification
1.7.2 Open Messages
1.8 What would Miss Manners say about etiquette?
1.8.1 DON'T SHOUT!
1.8.2 Texting multiple people
1.8.3 Consider the time
1.9 Are there safety concerns?
1.9.1 Recognize the sender
1.9.2 Don't send personal/financial information

Content

The content for the training is based on the typical use of an iPhone and the sequential steps for initiating, sending, and reading text messages. A graphic organizer of the instructional unit can be found in Appendix B. Because learners may not have much prior knowledge of iPhones or text messaging, modules 1.1 through 1.3 describe where to find messages on an iPhone, ways to use an iPhone screen, and how to change accessibility functions. Now that learners have established a basic understanding of navigating an iPhone, modules 1.4 through 1.7 explain how to initiate, send, and read text messages. It is important to note that text messaging is a form of communication, and it encompasses more than just the learner using the instruction. That learner needs to understand how to communicate effectively and safely with other people; therefore, modules 1.8 and 1.9 focus on etiquette and safe communication specific to text messaging.

This project focuses on four modules. *Table 1* identifies the outcomes, strategies, and assessments for those modules.

Terminal Goal		
Given a variety of scenarios, the learner will navigate an iPhone screen for usability and accessibility, communicate effectively with text messages, and respond appropriately and safely to authentic situations.		
Learning Outcomes	**Teaching/Learning Strategies**	**Assessments**
1.1 Given the home screen of an interactive iPhone representation, the learner will select the appropriate icon for a series of tasks three out of four times. *(Cognitive/Rule Application)*	Students will watch a simulation that demonstrates which icon to select for the tasks that will be outlined in instruction (Messages and Settings). Students will practice choosing the appropriate icon. *(Learner-to-content; learner-to-context)*	Click the appropriate icon in order to: a) Send a text message (Message) b) Change the phone's font size (Settings) c) Choose a contact for your message (Message) d) Zoom into the phone's display screen (Settings)
1.4.2 Given the Message screen of an interactive iPhone representation, the learner will search for and add a contact name to a text message. *(Cognitive/Rule Application)*	Students will watch a simulation that demonstrates how to find the contact search bar, type the beginning of a name, and find a contact's name. Students will practice entering contact names. *(Learner-to-content; learner-to-context)*	a) Search for and select the contact "Dave" to start a message. b) Search for and select the contact "Joyce" to start a message.

1.5.1 Given the Message screen of an interactive iPhone representation, the learner will use the keyboard to type a message with letters, numbers, and symbols. *(Cognitive/Rule Application)*	Students will watch a simulation that demonstrates how to type a letter, capitalize a letter, navigate to the number keyboard, and navigate to the symbol keyboard. Students will practice typing letters, numbers, and symbols using the simulation. *(Learner-to-content; learner-to-context)*	a) Type the letter "h" using the keyboard. b) Type a capital letter "A." c) Navigate to the number keyboard and type the "!." d) Navigate to the symbols keyboard and type the "#" symbol.
1.8.2 Given an authentic scenario, the learner will choose an appropriate course of action for texting multiple people. *(Cognitive/Rule Application; Interpersonal/ Communication)*	Students will watch a slideshow that explains the consequences of texting multiple and the proper and improper situations to send a text to multiple people. Students will respond to situational examples as practice. *(Learner-to-content; learner-to-context)*	1. Margaret wants to share an adorable picture with her friends. "Look at Austin helping in the kitchen this weekend! Isn't he just the cutest?" What should Margaret do in this situation? a) Margaret should send her message to her 5 close friends in one text message. b) Margaret should send the same text to her 5 close friends in individual text messages. 2. Susan's doctor's appointment ran late, and her book club should be arriving at her house in five minutes. How should she communicate that she will be late? a) Susan should send a text to the book club group message to alert all of the members at once. b) Susan should send individual messages to each book club member.

Table 1. Learning Outcomes, Strategies, and Assessments. Heaton and McPheron align the learning outcomes, strategies, and assessments.

To determine the priority of instruction, DIF scores are calculated, based on the difficulty, importance/criticality, and frequency of the required skills (see Appendix C). After establishing the essential, or need-to-know, information, nice-to-know information that fits the same themes of the instruction is added. Though instructional sections are provided to teach both the essential and nice-to-know information, only the essential information will be assessed. Nice-to-know

information that does not fit the themes of the essential information will be provided as suggestions at the end of the training course.

The instructional unit uses Gagné's Nine Events of Instruction (Larson & Lockee, 2014) as a framework. Table 1Appendix A shows how the training's instructional strategies align with Gagné's instructional framework.

To make the instruction accessible to all learners, text or closed caption will be provided on all simulations where applicable, and downloadable written transcripts will also be available. Though the instruction will not be differentiated for learners, learners will be able to move through the modules at their own pace, stop the training, and return at any time.

The content of the training will provide learners with the steps they need to navigate the messaging and accessibility portions of the iPhone; to initiate, send, and respond to text messages; and to communicate appropriately and effectively with others. The outcomes, strategies, and assessments will guide learners through authentic scenarios to give them confidence in their communication.

Technology Plan

Golden Texting Tips for the Golden Years will be a self-paced, asynchronous, online training with multiple modules housed together on a website. Learners will be able to access the training via the website. We have chosen Wix based on the designers' familiarity with the web-authoring tool. Offering the instruction in this way ensures that learners from various geographical locations can access the instruction in their preferred settings and times and without the need for a facilitator.

Modes of technology were first chosen based on their alignment with the instruction's objectives, strategies, and assessments. Technologies were either modified or additional technologies were chosen to accommodate the learners' various needs, especially in regards to limited technology experience and physical limitations. Because learners may be unfamiliar with iPhones or may not have access to an iPhone while completing the training, we will create an iPhone simulation using multiple technologies in order to align the learning and performance contexts while maintaining online instruction. Appendix D demonstrates how the chosen technologies align with the instruction.

This project proposal focuses on modules 1.1, 1.4.2, 1.5.1, and 1.8.2. Table 1*Table 2* outlines the technologies we have chosen to develop these modules.

Technology Elements				
Module	1.1, 1.4.2, 1.5.1	1.8.2	Glossary of Terms (job aid)	Evaluation
Production	• Simulation with iPhone screencast, video editor, audio, on-screen written transcript, written transcripts (instruction) • Screenshots with interactive buttons that provide feedback (practice & assessment)	• Slideshow, written transcript (instruction) • Slideshow with interactive feedback (practice & assessment) • Images	• Document writer • Document viewer • Images	• Survey generator with analyzing capabilities
Software	• IOS Screen Recording • WeVideo • Audacity • Microsoft Word • Adobe Acrobat • Microsoft PowerPoint	• Microsoft PowerPoint • Creative Commons images • Personal images	• Microsoft Word • Adobe Acrobat • Creative Commons images • Personal images	• Survey Monkey

Table 2. Technology Elements. Heaton and McPheron outline the modes of technology used in the instructional unit.

Larson and Lockee (2014) recommend that the development of instructional media be sustainable, optimized, redundant, right-sized, and continuously improving. For sustainability and optimization, we chose technologies that have powerful free versions or are already purchased by our graduate school program or places of employment. To accommodate our learners' needs, we are not only providing audio and written text in the instructional simulations, we are also increasing redundancy by providing written transcripts that can be read by screen readers. These technologies are right-sized for this project because they will be simple to use and to combine for the best instruction. Additionally, based on our learners' ages, Microsoft and Adobe products will likely be most familiar to them. We have also chosen these technologies because we are familiar with them and understand their capabilities and limitations. Because we continuously improve our designs based on experience, we would choose other technologies if these failed us in previous designs.

Accessibility

The design elements of this instructional unit were chosen based on principles of the universal design for learning (UDL) framework, which emphasizes that technologies and design choices

that are used to help some learners are beneficial to most learners (CAST, 2010). These elements are included in the design from inception so they are perceived as part of the original design.

All learners will experience the following design elements throughout the instruction:

- Large command and navigation buttons
- Text descriptions of command buttons
- Written text and audio embedded in videos and simulations

Some learners may choose to take advantage of additional design elements:

- Written transcripts of videos and simulations that can be downloaded and read by screen readers
- Alternate text for photos used outside of videos and simulations
- Full-screen viewing option
- Glossary of common terms
- "Frequently-asked questions" section that provides information about using the instructional unit

III. Implementation & Evaluation Plan

Implementation Plan

The final completion date for the project is April 18, 2019 with a follow-up evaluation in October of 2019. The proposed project person hours and schedule follow.

Project person hours:

Project Tasks	Estimate of Project Person Hours
Project planning/meetings	40 hours
Outlines/scripts/prototypes	40 hours
Training and Training Materials Development for Client on Articulate Storyline	80 hours
Images/iPhone Screenshots 1. Images of seniors texting 2. iPhone Screenshots a) icons b) texting screens c) keyboards d) text notifications e) accessibility setting screens f) screen for selecting a photo to attach	5 hours

Project Tasks	Estimate of Project Person Hours
Videos 1. screencast of text messages being sent and received 2. screencast of photo being attached and sent	20 hours
Product Testing, Evaluation, Revisions (hours spread across several people)	40 hours
Total person hour estimate	245 hours (over 23 weeks with 2 weeks off in December)

Table 3. Project person hours. Heaton and McPheron outline the person hours required to develop the training.

Project Schedule:

Milestone/Deliverable	Responsible Party	Proposed Due Date
Draft design plan	Designers	Nov.26, 2018
Design plan reviewed	Knox Area Senior Center	Dec. 3, 2018
Sample prototype slides prepared	Designers	Dec. 3, 2018
Images complete for prototype.	Designers	Dec. 5, 2018
Prototype ready for review. 1. How do I start a text? 2. How do I type a message? (using the keyboard and letters sections only)	Designers	Dec. 12, 2018
Programmer review of prototype for usability.	UT Programming Student	Dec. 13-14, 2018
Designers adjust prototype to incorporate programmer feedback.	Designers	Dec. 15-17, 2018
Prototype usability test performed.	Designers/Focus Group 1	Dec. 18-20, 2018
Prototype formative assessment for transfer of learning performed.	Designers/Focus Group 1	January 2, 2019
Revised prototype completed based on feedback from usability test and Focus Group 1. (includes module 1.1 and part of module 1.5.1	Designers	January 3
Presentation of Prototype to Client.	Designers/Knox Area Senior Center	January 7
Feedback on prototype.	Knox Area Senior Center	January 7
Prototype portions finalized.	Designers	January 11
Screenshots completed.	Designers	January 15

Milestone/Deliverable	Responsible Party	Proposed Due Date
Image selection completed.	Designers	January 15
Scripts completed for screencast videos.	Designers	January 17
Screencast videos completed.	Designers	January 23
Module 1.2 completed	Designers	January 28
Module 1.3 completed	Designers	January 30
Remainder of Module 1.5.1 completed.	Designers	February 12
Module 1.5.2 completed.	Designers	February 15
Module 1.6 completed.	Designers	February 20
Module 1.7 completed.	Designers	February 22
Module 1.8 completed.	Designers	February 27
Module 1.9 completed.	Designers	March 1
Internal review of modules for “look and feel” and design/functionality, usability, accessibility, and quality control	Designers	March 4
Evaluation through Focus Group 2.	Designers/Focus Group 2	March 4-8
Revisions to modules based on feedback completed.	Designers	March 22
Presentation of final version of training materials to the Client.	Designers/Knox Area Senior Center	March 25
Evaluative feedback concerning the training materials.	Knox Area Senior Center	March 28

Milestone/Deliverable	Responsible Party	Proposed Due Date
Final revision complete.	Designers	April 12
Deployment	Designers	April 15-18
Evaluation of Kirkpatrick Level 3 (six month follow-up)	Designers/Focus Group 2	October 18-25

Table 4. Project schedule. Heaton and McPheron describe the implementation schedule.

Evaluation Plan

Several factors make the evaluation of the instruction a complex task. This self-paced, asynchronous, online instruction targets learners with limited technological capability who are processing the instruction and using an unfamiliar mode of delivery of the instruction. Thus, significant additional data collection must take into account the learner limitations including frustration with additional questions upon completion of the training. The learners are geographically diverse, completing the instruction over time, and unavailable for observation or extensive follow-up after completing the instruction. In addition, the instruction will not utilize a learning management system, in part due to the limitations of the learners and the designers' concerns about overwhelming the learners with additional technology learning curves. The training is being developed for wide-spread distribution and does not include a budget for evaluation.

We have developed several methods to accomplish evaluation of the instruction despite these limitations. Our evaluation plan includes peer review, SME review, a small-scale usability test, a focus group to evaluate the prototype, a focus group to evaluate the complete instruction, a short, online survey upon completion of the instruction for all learners, assessment results, and data regarding the number of hits on the website and the percentage of instruction launched versus completed.

Because we are targeting learners who are unlikely to be technologically savvy, we are conducting a small-scale, informal usability test on the prototype design. Rubin and Chisnell (2008) stated that, "[t]o be usable, a product or service should be useful, efficient, effective, satisfying, learnable, and accessible" (p. 4). Krug (2006) stressed that it is important to "[k]now the main things people want to do and make them obvious and easy" (p. 166) to increase goodwill. Our goal is to make the instruction delivery as usable as possible since the instruction targets a different type of technology. Prior to conducting the usability test with seniors, a UT Programming student will review the prototype design for any problems. In addition to the usability test, we will enlist peer review and SME review of the prototype and completed instruction. By ensuring the usability of the delivery of instruction, we will be addressing Kirkpatrick's levels of reaction and learning.

We will be convening two focus groups of the same five seniors who have and currently use iPhones but who are not proficient texters. The seniors will be a convenience sample consisting of family and friends of the designers. The first focus group will be used to evaluate the short prototype. The second focus group will be used to evaluate the completed instruction. The sample size is not ideal; however, the feedback will be valuable to the design despite the small size.

For the prototype portion, the focus group will be interviewed for reaction to the instruction. Learning will also be assessed on the portion of the instruction covered in the prototype with the prototype's assessment.

A qualitative open-ended interview with the second focus group will provide feedback about reaction to the whole instruction. An additional assessment exercise involving actual texting with

the interviewer will also be completed. The focus group will be contacted six months after completing the training for a short assessment, via actual texting, to ascertain retention of learning. In addition, data will be gathered from the focus group regarding their texting habits over the six months since training to determine whether the learning transferred to behavior in the performance context, Kirkpatrick's third level.

Royse, Thyer, and Padgett (2016) recommend a combination of qualitative and quantitative data collection procedures for program evaluation (p. 135). We will attempt to collect quantitative data from all learners completing the instruction. A seven-question survey will follow the online instruction for all learners using an online survey collection tool (see Appendix E). We have chosen SurveyMonkey for survey administration because it is free and easy to use and has powerful data analysis. Information will be gathered regarding:

- prior texting experience,
- whether a prior learner had referred them to the instruction,
- whether they perceived themselves to have learned something new from the training,
- whether they planned to text after having completed the training,
- whether they would recommend the training to a friend, and whether they found the training software to be usable.

These questions will address the first three levels of Kirkpatrick's evaluation model as indicated in Table 5Table 5. Kirkpatrick's levels. Heaton and McPheron propose a four-level evaluation plan based on Kirkpatrick's evaluation levels.

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Kirkpatrick's Levels

	Measure	**When**	**Formative**	**Summative**
Reaction	1. Usability study of technology format	1. After focus group completes prototype session	x	
	2. Interview of prototype focus group	2. After focus group completes prototype session	x	x
	3. Short survey of all online learners	3. Post instruction online		
	4. Survey of focus group	4. Post instruction		x
	5. Number of trainings completed on the website vs. Number started on website	5. At three and six months after instruction posted online		x
Learning	1. Focus group prototype assessment	1. After focus group completes prototype	x	x

	Measure	When	Formative	Summative
	2. Online assessment results for all learners 3. Additional assessment for focus group with actual texting	2. Upon completion of instruction. 3. Upon completion of instruction.		x
Behavior	1. Interview regarding if the focus group is texting after 6 months 2. Short assessment as to whether focus group retained the ability to text	1. Six months after instruction 2. Six months after instruction		x x
Results	Not addressed			

Table 5. Kirkpatrick's levels. Heaton and McPheron propose a four-level evaluation plan based on Kirkpatrick's evaluation levels.

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Appendices

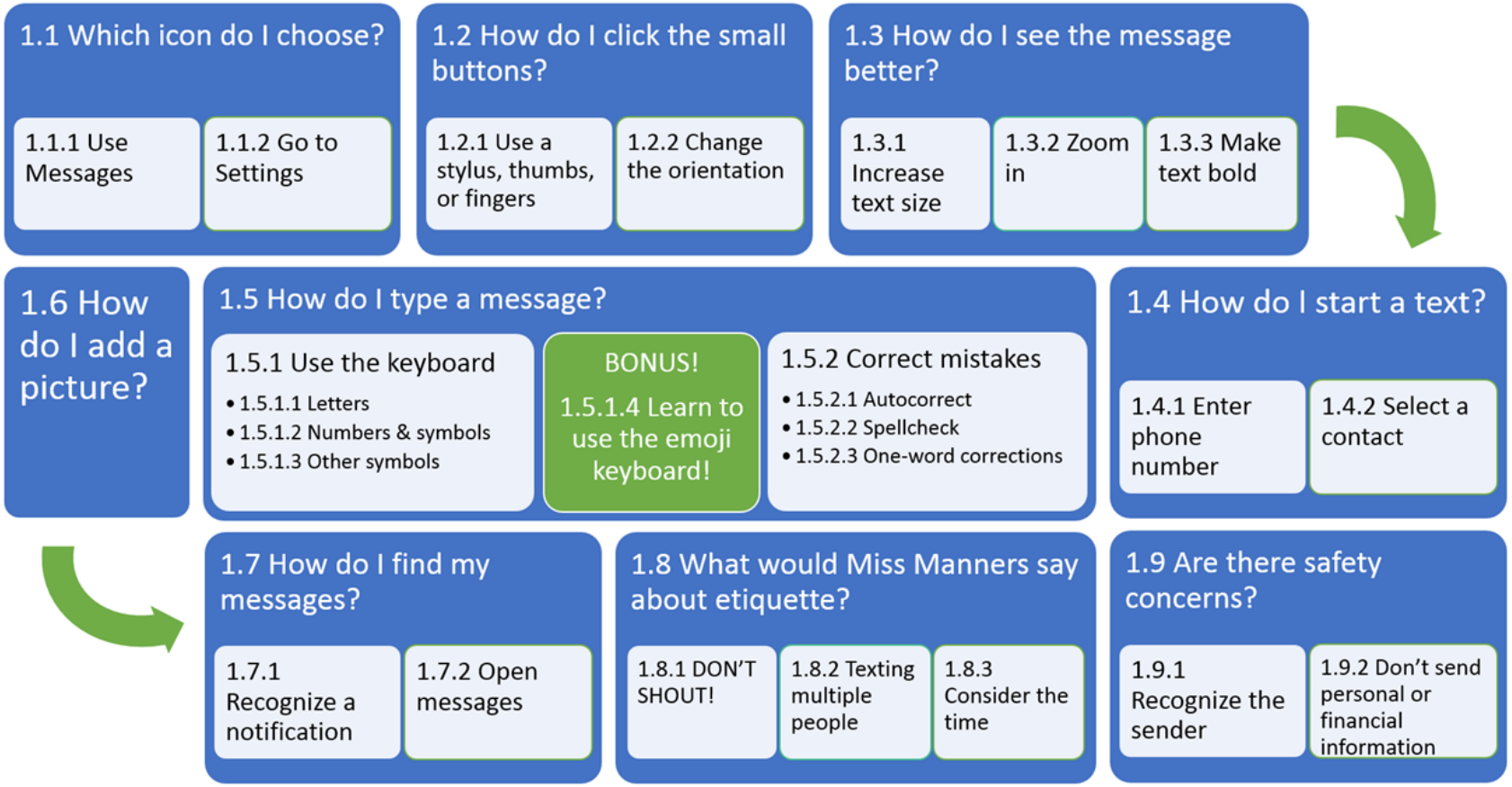
Appendix A – Gagné's Nine Events of Instruction

Gagné's Events of Instruction	Theory/Reason Behind Planning for the Event	Guiding Question for Planning	Instructional Strategies
1. Gain Attention	Reception	How will you get and keep the students' attention?	Image of a senior man and woman with an iPhone with a thought bubble asking, "I just got my iPhone...now how do I send a text?" (Images continued at beginning of each module to maintain attention; images throughout will alternate between men and women)
2. Inform Learners of the Objectives	Expectancy	How will you inform your students of the lesson objectives?	Outline of lesson with main question stems to the side of the screen.
3. Stimulate Recall of Prior Knowledge/ Learning	Retrieval	How will you remind students of the applicable knowledge that they learned in the past, or their previous related experiences?	The question stems will be informal and activate the prior knowledge they have of familiar "texting terms," such as text, message, contact, keyboard, etc. A pretest will not be given; however, a glossary of both familiar and unfamiliar terms will be provided as a job aid accessible throughout the training.
4. Present the Stimulus (content or learning activity)	Selective Perception	How will you teach the information or what type of learning activity or environment will you create to foster learning?	Seniors will visit a website that houses the learning modules. Each module will consist of a video or set of slides and an online simulated assessment if applicable. Seniors will also have access to unassessed modules with nice-to-know information.
5. Provide Guidance to the Learners	Semantic Encoding	How will you provide guidance (scaffolding, support) to the learners?	In the assessed modules, a practice segment will come between the instructional video or slides and the assessment. The practice segment will provide

Gagné's Events of Instruction	Theory/Reason Behind Planning for the Event	Guiding Question for Planning	Instructional Strategies
			feedback ("Correct!" or "Remember…") and brief animation showing the proper action that should have been taken. Modules can be repeated as necessary.
6. Elicit Performance from the Learners	Responding (also Retrieval)	What type of homework, practice, or learning activities will you provide to help the students learn?	See above (#5)
7. Provide Feedback to the Learners	Reinforcement	What will you do to let the learners know how they're doing? How will you correct, affirm, or encourage them?	See above (#5)
8. Assess the Performance of the Learners	Retrieval	How will you know that the students have learned the material or can do the desired tasks?	Seniors will use an interactive iPhone simulation on the computer to perform assessment tasks aligned to the objectives. (See performance and learning context section for justification for not using actual iPhone technology.)
9. Enhance the Retention & Transfer of the New Skills, Knowledge, and/or Attitudes	Generalization	What will you do to enhance the retention & transfer of the new skills, knowledge, and/or attitudes?	The modules are related to a life skill and can be repeated as necessary. The glossary of terms job aid will be in a downloadable, printable format for learners to keep. The etiquette module (1.8) will include authentic problems to enhance skill transfer. In addition to nice-to-know bonus lessons, links to suggested additional skills to acquire will be provided at the end of the training course.

Adapted from: Gagné, R. (1985). The conditions of learning *(4th ed.). New York: Holt, Rinehart & Winston.*

Appendix B – Instructional Sequence



Appendix C – Priority of Instruction

Domains of Learning: Cognitive; Interpersonal

Prerequisites: Reading, writing, basic iPhone knowledge of contacts and settings.

Skills	Difficulty	Frequency	Importance / Criticality	DIF Score	Priority
1. Select icon to use for messages and settings (Rule application)	1	3	5	9	Essential
2. Click the buttons using stylus, finger, or thumbs (Rule application)	1	5	5	11	Essential
3. Adjust settings for accessibility for vision. (Rule application)	3	1	3	7	Essential
4. Start a text with a phone number or contact. (Rule application)	1	4	5	10	Essential
5. Type a message using the keyboard. (Rule application)	4	5	5	14	Essential
6. Use emojis. (Rule application)	3	1	1	5	Nice-to-Know
7. Correct spelling mistakes. (Rule application)	3	1	1	5	Nice-to-Know
8. Add a picture. (Rule application)	3	3	3	9	Essential
9. Find the messages by opening messages or recognizing a notification. (Rule application)	3	4	5	12	Essential
10. Send texts using proper etiquette regarding timing, texting multiple people, and use of capital letters. (Rule application; Interpersonal communication)	3	4	3	10	Essential
11. Practice safe texting to avoid scams. (Rule application; Interpersonal communication)	4	4	4	16	Essential

Difficulty	
5	Extremely difficult
4	Difficult
3	Moderately difficult
2	Somewhat easy
1	Easy

Frequency	
5	Multiple times per text
4	Every text
3	Most users will want to execute the task at times
2	Some users will want to execute the task on a regular basis
1	Some users will want to perform the tasks at times

Importance/Criticality	
5	Task fails without this step. Basic text cannot be sent
4	Essential to safety
3	Significant frustration is possible as additional resources would need to be consulted, but basic text can be sent
2	Basic text can be sent but time lost of up to an hour
1	Minor frustration for user, but basic text can be sent without the task; time lost of fifteen minutes or less

DIF Score	Decision on Instructional Development for the Topic/Task
1-4	Extraneous information: Do not develop instruction. Consider links to job aids/checklists/outside resources.
5-6	Nice to know: Instruction developed for these aspects, but links to the instruction are optional.
7-15	Need to know: Essential to the basic task (sending a basic text). Develop instruction and guide learners through it step-by-step.

Appendix D – Technology Aligns with Instruction

Terminal Goal			
Given a variety of scenarios, the learner will navigate an iPhone screen for usability and accessibility, communicate effectively with text messages, and respond appropriately and safely to authentic situations.			
Learning Outcomes	**Teaching/Learning Strategies**	**Assessments**	**Technologies**
1.1 Given the home screen of an interactive iPhone representation, the learner will select the appropriate icon for a series of tasks three out of four times. *(Cognitive/Rule Application)*	Students will watch a simulation that demonstrates which icon to select for the tasks that will be outlined in instruction (Messages and Settings). Students will practice choosing the appropriate icon. *(Learner-to-content; learner-to-context)*	Click the appropriate icon in order to: a) Send a text message (Message) b) Change the phone's font size (Settings) c) Choose a contact for your message (Message) d) Zoom into the phone's display screen (Settings)	• iPhone screencast • Video editing with audio • Written transcripts or closed captions • Screenshots with interactive buttons that provide feedback
1.4.2 Given the Message screen of an interactive iPhone representation, the learner will search for and add a contact name to a text message. *(Cognitive/Rule Application)*	Students will watch a simulation that demonstrates how to find the contact search bar, type the beginning of a name, and find a contact's name. Students will practice entering contact names. *(Learner-to-content; learner-to-context)*	a) Search for and select the contact "Dave" to start a message. b) Search for and select the contact "Joyce" to start a message.	• iPhone screencast • Video editing with audio • Written transcripts or closed captions • Screenshots with interactive buttons that provide feedback
1.5.1 Given the Message screen of an interactive iPhone representation, the learner will use the keyboard to type a message with letters,	Students will watch a simulation that demonstrates how to type a letter, capitalize a letter, navigate to the number keyboard, and navigate to the symbol keyboard. Students will practice typing letters,	a) Type the letter "h" using the keyboard. b) Type a capital letter "A." c) Navigate to the number keyboard and type the "!." d) Navigate to the symbols keyboard	• iPhone screencast • Video editing with audio • Written transcripts or closed captions • Screenshots with interactive buttons that provide feedback

numbers, and symbols. *(Cognitive/Rule Application)*	numbers, and symbols using the simulation. *(Learner-to-content; learner-to-context)*	and type the "#" symbol.	
1.8.2 Given an authentic scenario, the learner will choose an appropriate course of action for texting multiple people. *(Cognitive/Rule Application; Interpersonal/ Communication)*	Students will watch a slideshow that explains the consequences of texting multiple and the proper and improper situations to send a text to multiple people. Students will respond to situational examples as practice. *(Learner-to-content; learner-to-context)*	1. Margaret wants to share an adorable picture with her friends. "Look at Austin helping in the kitchen this weekend! Isn't he just the cutest?" What should Margaret do in this situation? a) Margaret should send her message to her 5 close friends in one text message. b) Margaret should send the same text to her 5 close friends in individual text messages. 2. Susan's doctor's appointment ran late, and her book club should be arriving at her house in five minutes. How should she communicate that she will be late? a) Susan should send a text to the book club group message to alert all of the members at once. b) Susan should send individual messages to each book club member.	• Slides of instruction • Slides of practice scenarios with feedback • Slides of assessment scenarios with feedback • Pictures that match scenarios

Appendix E – User Exit Survey

Exit Survey administered by SurveyMonkey:

Please take a moment to answer these 7 short questions.

1. How many text messages had you sent prior to this training?
    a. 1-5
    b. 6-10
    c. 11-20
    d. Many
2. How did you hear about the training?
    a. An internet search
    b. From someone who found it through an internet search
    c. From someone who has taken the training
    d. Other
3. Did you learn something new from this training?
    a. Yes
    b. No
4. After completing the training, do you know how to send a text message on an iPhone?
    a. Yes
    b. No
    c. I'm not sure
5. After completing this training, do you plan to send a text message?
    a. Yes
    b. No
    c. I'm not sure
6. Would you recommend this training to a friend?
    a. Yes
    b. No
    c. I'm not sure
7. Did you have trouble navigating through this training?
    a. Yes. Some.
    b. Yes. A lot.
    c. No

Appendix F – Feedback from Reviewers

Peer Feedback

Recommendation	Action
Statement of Need: define digital immigrant	Accepted
Statement of Need: describe constraints and address stakeholders	Accepted
Target Learner Analysis: address motivational characteristics	Accepted

Instructor Feedback

Recommendation	Action
Cover: Cite image in references	Accepted
Cover: Check contrast ratio and increase readability of names Justification: The background color was darkened slightly, and a shadow was added behind the white text. Changing the color ratio completely would take away from the overall design.	Partially accepted
TOC: add appendix for peer and instructor feedback item	Accepted
State the title, name the stakeholders, name the SME, indicate design plan proposal by IDs to stakeholders	Accepted
Refer to text as text message the first time and texting as text messaging the first time	Accepted
Formatting: insert line between paragraphs rather than first line indent	Accepted
Learner analysis: omit paragraph about dementia, etc.	Accepted
Learner analysis: add about Social Security benefits for those who work until 70 and need to keep up with technology Justification: Current seniors do not work until age 70. The information on age is a generalization, and it is not necessary in this instruction to break down the ages further.	Partially accepted
Color issue: fix the two colors of text in Cultural Context section	Accepted
Theoretical basis: close parenthesis under second a) statement	Accepted

Recommendation	Action
Theoretical basis: move last paragraph up to provide clearer logic flow	Accepted
Content summary: move first paragraph and outline to the end of section	Accepted
Content summary: refer to table by same title in text	Accepted
Content summary: tables, change colors for ease of reading	Accepted
Content summary: make tables horizontal	Accepted
Content summary: move Gagné table to appendices	Accepted
Review and consider Jarche prioritization Justification: The initial DIF calculations appeared to work well for our particular instruction and design plan. We spent a day working on the DIF calculations and discovered that two items we had classified as "nice to know" were actually "need to know." Our design plan and instruction greatly benefited from the DIF analysis we conducted.	Reviewed but not adopted
Accessibility information: Add a header and add to TOC	Accepted
References: Capitalize and italicize volume numbers per APA	Accepted
Put tables in italic	Accepted
Technology section: address deployment and accessibility	Accepted
Change implementation chart to horizontal.	Accepted
Consider programming testing prior to usability testing.	Accepted
Evaluation: fix APA cite; break into bullet points for clarity	Accepted
Evaluation: move items to level one and omit level four	Accepted

Appendix G – Designer Responsibilities

Project Responsibility	Designer
Subject Matter Expert (SME)	J. Heaton
Cover Page	K. McPheron
Cover Page Image	J. Heaton
Executive Summary	J. Heaton & K. McPheron*
Statement of Need & Project Background	J. Heaton
Target Learner Analysis	J. Heaton
Performance & Learning Contexts	J. Heaton & K. McPheron
Cultural Context	J. Heaton
Theoretical Basis for the Design & Foundational Assumptions about Learning	J. Heaton
Appendix A: Gagné's Nine Events of Instruction	J. Heaton & K. McPheron
Summary of the Content & Progression of the Instruction	K. McPheron
Content	K. McPheron
Outline of Instruction	J. Heaton & K. McPheron
Appendix B: Graphic Organizer of Instructional Sequence	K. McPheron
Appendix C: Priority of Instruction	J. Heaton
Technology Plan	K. McPheron
Appendix D: Technology Aligns with Instruction	K. McPheron
Accessibility	K. McPheron
Implementation Plan	J. Heaton
Evaluation Plan	J. Heaton
Appendix E: User Exit Survey	J. Heaton
References	J. Heaton & K. McPheron*
Appendix F: Compile Feedback from Reviewers	J. Heaton
Appendix G: Designer Responsibilities Table	K. McPheron

Document Formatting	K. McPheron
Document Editing & Proofreading	J. Heaton & K. McPheron
Prototype: Concept	K. McPheron
Prototype: Outline & Navigation Template	K. McPheron
Prototype: Objectives & Principles	J. Heaton
Prototype: Images	J. Heaton
Prototype: Animation	K. McPheron
Prototype: Introductory Slides (1-2)	K. McPheron
Prototype: Module 1 (3)	J. Heaton
Prototype: Glossary (4)	J. Heaton
Prototype: Module 4 (5)	J. Heaton
Prototype: Module 5 (6)	J. Heaton
Prototype: Module 8 (7)	K. McPheron
Prototype: Formatting & Consistency	K. McPheron

*Contributed from individual sections