

Instructional Design Plan Portfolio

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Introduction

Instructional design frequently incorporates the use of various instructional models. Tenured instructional designers will use a combination of methods within a single design to fully meet the needs of the learner. Before theories can be combined it is essential to understand how they work individually. This instructional design plan portfolio will focus on three types of instructional strategies including behavior, cognitive, and cognitive developmental strategies. By focusing on each strategy individually it will be easier to understand why and how to use them cohesively to create beneficial instructional design projects.

Behavioral instructional design techniques focus on individuals learning practiced behaviors without an emotional connection. This includes classical conditioning as discovered by Ivan Pavlov and operant conditioning discovered by B.F. Skinner. The thought is that a person will learn an assigned task by following a teacher's example and receiving positive feedback when they have copied the teacher correctly (Martinez, 2010).

Cognitive instructional design techniques look at using the working memory to build new information into long term memory. The working memory process the new information into long term memory but it is important to understand that the space of working memory is limited. Overloading the working memory can cause the processing of new information into long term memory to fail. Cognitive instructional strategies also look at the physical environments that the learning takes place in and emotional state of the learner. Physical environments and emotional states help to create the unique situations the learner is learning in thus allowing for stronger memories to form (Martinez, 2010).

Cognitive developmental instructional design techniques look at getting learners to build on existing knowledge and to think about what they are learning. Methods of cognitive developmental instruction include problem solving activities where the learner has to find the solution rather than it being demonstrated by an instructor. Critical thinking is a second form of cognitive developmental instruction where the learner needs to understand the topic and determine if the topic is logical. The learner would then need to be able to identify or support why or why not the topic is logical. A third type of cognitive developmental instruction used inferential reasoning or inductive reasoning. In this learning the learner looks at the data provided and draws a conclusion about that data though the conclusion may not completely represent all data in the set but rather the majority of the data. Creativity can also be used in cognitive developmental instruction because it brings forth the unique thought processes of the learner and can add to their learning experience (Martinez, 2010).

Tool Overview

Geolink is a network mapping tool that has coverage and element overlays on two dimensional and satellite view maps. It is designed to identify possible localized network issues causing customer connectivity issues. If an issue is identified the representative can relay to the customer the expected time of repair completion.

Instructional Problem

The training for the Geolink tool for new employees is currently a self-exploratory learning process. This process works well for technologically savvy learners; however it leaves most learners in the dark to the functionality and advantages of the tool.

Behavioral Instructional Design Plan

Needed Learning

The Geolink tool needs to be introduced initially before learners can explore and learn on their own. Basic navigational directions are required to fully explore the tool. Locating the related resources is necessary in interpreting the results in the tool.

Learner Characteristics

The learners are new employees with a variety of back grounds in educational level, age, familiarity with using technology, and culturally related learning processes. Most learners have had little if any opportunity to learn and understand how a wireless network is constructed and run to achieve mobile connectivity. Learners usually have used existing mapping technology in one form or another in their personal life experiences to get directions or find locations.

Learning Goal

The goal of the instruction is to introduce the Geolink tool instructively to familiarize students with the functionality of the tool allowing for more confident exploration that will result in students identifying the value of the tool through self-discovery.

Learning Objectives

1. Learners will be able to resize and move the map with 100% confidence by the conclusion of the lesson.

2. Learners will be able to add and remove map layers to identify network coverage and locate network elements with 100% accuracy by the end of the lesson.
3. Learners will be able to locate and navigate Geolink help files with 100% confidence by the end of the lesson.

Instructional Strategies

Direct instruction will be used to demonstrate the functions of the tool including sizing and moving the map, adding and removing map layers, and locating and navigating the Geolink help files. Direct instruction according to Billingsley, Scheuermann, & Webber, J. (2009) is a method that is precise, easy to understand, reviews and builds off of learned concepts, and is practiced. In a study by Koziuff, et al. (2001) it was discovered that when the learners were instructed with the direct instructional process they were able to outperform other learners who did not learn with the direct instructional method. Using a direct instructional method allows for learners to start to process brand new information to create a platform from which additional learning can be completed. Learners struggle with understanding and retaining new information without a foundation from which to apply new learning to.

Students will be asked to repeat the steps the instructor completed as a demonstration to practice using the tool. The instructor will use this time to coach the students on techniques to make using the tool easier and to help learners understand how to navigate the help files for additional information. This coincides with Gagne's sixth and seventh levels of learning of requiring learner demonstration and providing feedback on the learners' performance (Hsiang, Lin & Lai, 2011).

To demonstrate understanding of the demonstrated material the students will locate their home address in the mapping tool, identify the nearest tower, what coverage level for is available for voice and data, and take a screen capture of their home with the satellite view in close enough proximity to identify any structures such as chimneys or air conditioning units on their roof. This information will be sent to the instructor via email to be reviewed for understanding of the material. This process would be completed to assess the learners as described in Gagne's eighth level of learning (Hsiung, Lin & Lai, 2011).

Using information that is relevant to the students such as their home address will help them to see how to view the tool. Students are familiar with the topography of their home thus will be able to interpret the satellite images easier. The coaching and feedback from the instructor will provide the learners with positive feedback from which they can gain confidence in knowing they are using the tool correctly.

Cognitive Instructional Design Plan

Needed Learning

The Geolink tool needs to be introduced initially before learners can explore and learn on their own. Basic navigational directions are required to fully explore the tool. Locating the related resources is necessary in interpreting the results in the tool.

Learner Characteristics

The learners are new employees with a variety of back grounds in educational level, age, familiarity with using technology, and culturally related learning processes. Most learners have had little if any opportunity to learn and understand how a wireless network is constructed and

run to achieve mobile connectivity. Learners usually have used existing mapping technology in one form or another in their personal life experiences to get directions or find locations.

Learning Goal

The goal of this instruction is to have students learn how to navigate the Geolink tool and discuss how it can be applied to their troubleshooting calls.

Learning Objectives

1. Learners will be able to share in group discussion various online mapping tools and how they navigate those tools with confidence.
2. Students will be able to open the help file while exploring the Geolink tool to identify what the symbols and colors stand for with 100% accuracy by the end of the lesson.
3. Students will be able to discuss the Geolink tool and identify how it is applicable for their troubleshooting calls with confidence.

Instructional Strategies

According Kalyuga (2012) the cognitive construction of the mind is composed of long term memory and short term memory. Long term memory provides a foundation to build new learning on. For this reason students will discuss at the beginning of class why, when, where, how they have used online mapping tools such as Google Maps, Bing Maps, or Garmin. This will set the foundation for learning to navigate the Geolink tool.

Students will then be directed to the tool and asked to explore the tool. When questions arise about symbols or color codes students will be directed to the Geolink help files to

understand what they mean. This will help them to build new knowledge on what they already know about online mapping tools. Because they will be looking at their computer screens while listening to directions on how to open and search the help files the students will be using both parts of their working memory (Kalyuga, 2012). Working memory is that which allows a person to convert new knowledge to long term memory (Tzou, 2008).

After exploring the Geolink tool the students will discuss how they can use their tool to assist their customers in troubleshooting their devices. The students will be required to provide specific examples of the problem, how they would use the tool to help resolve the problem, and why they chose that process. This discussion will help to transform the new navigation skills from working memory to long term memory. This is critical to the learning process because the working memory has a limited capacity for new information (Heather & Shisler, 2005).

In this process the learner is building off of what they already know about online mapping tools and help files located in many software programs. Though the learner does not know this specific tool the conversations will help the learner realize that they have the foundational skills needed to learn how to use and interpret the Geolink tool.

Cognitive Developmental Instructional Design Plan

Needed Learning

The Geolink tool needs to be introduced initially before learners can explore and learn on their own. Basic navigational directions are required to fully explore the tool. Locating the related resources is necessary in interpreting the results in the tool.

Learner Characteristics

The learners are new employees with a variety of back grounds in educational level, age, familiarity with using technology, and culturally related learning processes. Most learners have had little if any opportunity to learn and understand how a wireless network is constructed and run to achieve mobile connectivity. Learners usually have used existing mapping technology in one form or another in their personal life experiences to get directions or find locations.

Learning Goal

The goal of this instruction is for learners to build on past online mapping tool experiences to develop an understanding of how to navigate the Geolink tool, locate help file information, and demonstrate how to use the tool to assist a customer.

Learning Objectives

1. Learners will demonstrate basic navigation skills of the Geolink tool based off recalled use of other online mapping tools by the end of the session.
2. Learners will locate and navigate help files based off recalled use of software help files by the end of the session.
3. Learners will demonstrate through role play how to assist a customer using the Geolink tool and help files with 100% accuracy by the end of the session.

Instructional Strategies

Learners will be guided by the instructor through a class conversation to recall the online mapping tools they have used and how they navigated these tools (Martinez, 2010). Students will be questioned to bring to mind skills such as grabbing the map to reposition it, entering

addresses to locate a specific location, and using the scroll wheel to resize the map image.

Students will then be asked to use these techniques in the Geolink tool and demonstrate their ability to use these techniques to the instructor. The process of having the learners identify what they have learned and how they have completed tasks before is a metacognitive technique that will help them to understand the new concepts of the learning (Schmidt & Ford, 2003).

Learners will be guided by the instructor through a class conversation to recall when and how they have used software or application help files in understanding how to use a specific program (Martinez, 2010). Students will be questioned to bring to mind the ability to key word search and use accordion style menus. At the conclusion of the discussion students will be asked to demonstrate to the instructor how to locate information in the Geolink help files to identify what types of coverage different colors mean and how to locate cell towers on the map.

Learners will be paired up to role play using the Geolink tool to explain to a customer why they are having an issue with their service. The instructor will walk around the room to observe and confirm that each learner can apply the learning from the first two objectives by describing in language a customer understands why the problem is occurring. Learners will be coached immediately to ensure correct verbiage is being used and properly explains what is observed in the Geolink tool using the help files for clarification. This will be an assessment of the learners' ability to understand and relay new information (Kastberg, 2003).

This method builds off the learners' recall of already mastered skills in navigating online mapping tools and utilizing software help files. The role play will allow the learners to process their learning from working memory to long term memory by combining the skills they already have and applying them to the Geolink tool.

Summary

Looking at each type of instructional strategy helps to define the strategy and the unique characteristics of the strategy that help to foster learning. Behavioral, cognitive, and cognitive developmental all have benefits in the processes they set forth for learning. However, each of these processes is limited when used individually. To resolve this limitation it is best to combine the techniques to fit the needs of the learners and the learning situation.

Behaviorism includes positive reinforcement that helps to reward the learner for a job well done. It can include negative reinforcement but this does not necessarily produce the same results as positive reinforcement. Having a teacher centered instructional environment can be beneficial for learners who learn from observation or are confronted with new information they have little or no relationship to. For more experienced learners, though, a teacher centered environment can detract from the learning because of the slower pace (Martinez, 2010).

Cognitive learning uses the science behind learning to maximize the learning outcome. By using multiple input methods, audio and visual, then the working memory is tasked completely helping to form more sound long term memories. For more advanced learners this can be beneficial because they have more stimuli to keep them engaged. They can also relate their learning to their experiences thus forming more concrete long term memories. Cognitive instructional methods can leave learners who are seeing a topic for the first time lost and confused because they lack the experience to build new learning from (Martinez, 2010).

Cognitive developmental gets learners to think about their learning. This helps learners to develop a deeper understanding of what they know and what they do not know. Learners can then identify ways to increase their knowledge about what they do not know. Cognitive developmental also takes into consideration the learning environment which is a critical

component of the learning process when forming recallable memories. Learners can more easily recall information when it is connected to environmental factors such as where they were when they learned it and how they were feeling when they learned it. The environmental factors are beneficial for all learners regardless of prior knowledge of a topic. Learners new to a topic would not have the prior knowledge or experience to identify what they do not know about a topic or how to learn more about what they don't know (Martinez, 2010).

Reviewing the learning need of the instructional plans that the learners need to learn about a tool that is completely new to them would indicate that a behaviorist approach would be the most beneficial. Learners would be able to observe the instructor's demonstration and then copy the skill set. They would have the advantage of both visual and spoken instructions that would meet the needs of a variety of learners. The instructor's coaching as they practice the demonstrated skill set with positive reinforcement will also provide the learners with knowledge that they are using the tool correctly. The diversity of the class; however, could cause some learners who have more technological experience with digital mapping tools to become disengaged from the class because they do not need the step by step instructions of how to manipulate a digital mapping tool.

After reviewing the learning characteristics of a diverse learning population most of whom have used online mapping tools it can be determined that there is a small amount of prior knowledge that is applicable to the Geolink training. This knowledge could be used as the foundation for cognitive or cognitive developmental learning strategies. However, there is an assumption made about the learners' ability to use online mapping tools and their ability to manipulate them. Looking up and printing directions or entering an address and following the verbal directions on a device does not necessarily indicate that the learners would have the

foundational skills of moving and resizing digital maps.

Advantages and disadvantages for each of the three instructional methods are apparent. To provide the learners with the best experience it would be better to combine components of the different learning methods rather than apply a single instructional strategy. Using a variety of components would help to provide a well-rounded instruction that would be suitable for a diverse classroom. The combination of multiple instructional strategies will allow for the advantages of one strategy to make up for the disadvantage of another strategy. The following instructional plan would provide the learners with a better learning experience than using a single instructional method.

Combination Instructional Design Plan

Needed Learning

The Geolink tool needs to be introduced initially before learners can explore and learn on their own. Basic navigational directions are required to fully explore the tool. Locating the related resources is necessary in interpreting the results in the tool.

Learner Characteristics

The learners are new employees with a variety of back grounds in educational level, age, familiarity with using technology, and culturally related learning processes. Most learners have had little if any opportunity to learn and understand how a wireless network is constructed and run to achieve mobile connectivity. Learners usually have used existing mapping technology in one form or another in their personal life experiences to get directions or find locations.

Learning Goal

The goal of the instruction is to have learners be able to navigate and understand when to use the Geolink tool and its help files using previous experiences from the use of online mapping tools, demonstrated instruction, coaching and discussion.

Learning Objectives

1. Learners will be able to manipulate the Geolink tool by resizing, moving, adding and removing informational layers with 100% accuracy by the end of the lesson.
2. Learners will be able to locate and use the Geolink help files to define and explain to customers what network coverage and outage issues are displayed with 100% accuracy by the end of the lesson.
3. Learners will be able to address customer concerns regarding coverage issues by using the Geolink tool 100% correctly within the course of a troubleshooting call by the end of the lesson.

Instructional Strategies

Group discussion will be used at the beginning instruction. This is a cognitive element that will help the learners identify when, how, and why they have used online mapping tools for personal reasons. They will discuss how they have resized and moved online mapping tools, how they have performed this task and why they have performed the task. They will also discuss their use of software help files. How the help files are accessed, what the help files contain, how the help files are navigated, and why the help files were used will be part of the discussion (Martinez, 2010).

Using a behavior process the instructor will demonstrate the tasks of navigating the Geolink tool. The instructor will demonstrate how to resize, move, access the help files, and add and remove informational layers. After the demonstration the learners will be instructed to locate their home address in the Geolink tool and will be assigned a list of tasks to complete in the tool. Using the learners home address is a cognitive developmental process because it is connecting something familiar with physical and emotional connections to the learning. The practicing of the tasks the instructor has demonstrated is a continuation of the behavioral instructional process because the learners are repeating the tasks to understand them (Martinez, 2010).

While the learners are completing the tasks in the Geolink tool the instructor will move around the room to provide coaching. The coaching will consist of constructive feedback to help the learners correct any incorrect behaviors. Positive verbal recognition will be provided when the learner is observed completing a task correctly. This is a behavioral instructional process by helping the learner develop the correct behaviors through positive recognition and direct instruction (Martinez, 2010).

Once the class has completed the tasks assigned by the instructor in the Geolink tool the instructor will conclude the session with a group discussion. The instructor will be using cognitive developmental instructional methods by guiding the conversation through why the tool is beneficial, when the learners can use the tool, why they would use the tool, and how they would present the information in the tool. This conversation will require the learners to think about what they have learned and how they will apply that knowledge in their daily tasks (Martinez, 2010).

Summary for Combined Method

In this instructional design plan the three types of instructional methods complement each other to create an instruction that will provide the learners with the best experience. Starting with the cognitive reflective discussion will help all of the learners identify that they do have some knowledge base on how to use the tool thus, preventing them becoming overwhelmed from the new information; this prevents cognitive overload. Using the behavior strategies of demonstration and coaching will allow learners to learn at their own pace. More technological learners will be able to continue to explore other geographical areas once they have completed the initial tasks while their peers who need more assistance complete the tasks. This prevents the learners from becoming disengaged from too little or too much activity. Using the learners home address brings in a cognitive developmental emotional and physical connection that will help the learner understand what they are applying. Having the class complete a final discussion on the merits and uses of the tool will help the learners process the information from their working memory to their long term memory as they complete the cognitive developmental process of thinking about what they have learned.

Using the combinational approach will ensure that the instruction is suitable for the diversity of the learners who will be participating in the instruction. It also allows for some flexibility in the learning process so learners do not feel overwhelmed or under challenged in the learning process. Several instructional methods exist each with its own benefits and limitations, combining elements of them allows them to complement each other and provide the best possible instruction.

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