Content Sequencing and Instructional Strategies

Computer Software Skills and Technology Integration Course for Elementary Teachers

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Introduction

A private elementary school in the Phoenix metro area plans to deploy Apple Macintosh laptops for each student in the intermediate elementary grades for the 2022-2023 school year. As a result, the intermediate-level elementary teachers at this school need technical skills and classroom technology integration training. Instructional designers conduct a needs assessment report when "the introduction or rollout of a new product (Morrison et al., 2019, p.31). The intermediate-level elementary teachers at this school need technical skills training on how to use the computer software on these laptops. Further, these teachers need additional technical skills training on how to teach computer software skills to their students and "how to integrate this technology into their curricula" (Morrison et al., 2019, p. 30). A prior task analysis addressed the instructional problem of computer software technical skills training. Additional training sessions will need to address screencast software training and teaching technology integration skills to elementary teachers. A prior task analysis contained topical and procedural methods and written objectives.

Priority of Sequencing Instruction

As stated by Dr. Brown in the lecture for week four, "Sequencing instructions is the efficient ordering of content in a way to help learners achieve the objectives in an effective manner" (Brown, 2022). Depending on the instructional topic or training problem, the designer "can select a sequencing strategy for each objective" (Morrison et al., 2019, p. 136). Next, the instructional designer will use the sequencing strategy to design the instructional strategies, which will serve "as input for developing the instructional materials (Morrison et al., 2019, p. 137). Several factors can affect the sequencing of instructions, such as complex content, the prior knowledge of the learner, and the quality of task analysis (Morrison et al., 2019). It is important

to remember that instruction sequencing does affect the quality of learning, which has been verified by research, so an instructional designer must include this step in the ID process (Morrison et al., 2019).

The instructional problem is "Computer Software Skills and Technology Integration Course for Elementary Teachers." A private elementary school in the Phoenix metro area plans to deploy Apple Macintosh laptops for each student in the intermediate elementary grades for the 2022-2023 school year. The intermediate-level elementary teachers at this school need technical skills training on how to use the computer software on these laptops. Further, these teachers need additional technical skills training on how to teach computer software skills to their students and "how to integrate this technology into their curricula" (Morrison et al., 2019, p. 30). My task analysis addresses the instructional problem of computer software technical skills training and includes both concept and procedural methods.

Our course textbook reviews several strategies for sequencing content, including learning-related sequencing. In this strategy, "guidelines prescribe teaching easier tasks first," which is also directly related to the "amount of cognitive processing required" (Morrison et al., 2019, p. 131). So, for example, my instructional problem involves teachers learning Microsoft Word and PowerPoint skills since their students will use these computer software. In my task analysis, the first lesson involved working conceptually and procedurally with fonts. Here, teachers will work with underlining fonts and changing the font appearance, color, and size. Working with fonts forms the basis for subsequent lessons, so the elementary teachers will be instructed on more manageable tasks that require less cognitive processing than in future lessons.

Priority of Sequencing Objectives

The task analysis focuses on teaching procedural objectives to teachers directly related to acquiring Microsoft Word and PowerPoint skills. Our course textbook highlighted some essential concepts when teaching a unit with its primary focus on teaching a procedure. The authors state that "you might use the same sequencing strategy for the total unit, such as arranging [content]...from simple to most difficult and then presenting the steps in temporal sequence" (Morrison et al., 2019, p. 136). As the instructional designer, this would imply that instruction starts with more simple concepts and then proceeds to more complex concepts in sequential and successive order.

An additional consideration occurs when teaching a mix of concepts and procedures. For example, one of my lessons involves teaching the concept of layering in Microsoft Word, a complex procedure comprising a mix of concepts and procedures. Our course textbook suggests that research has shown that "using an iterative approach is more effective than teaching the concepts first, followed by the procedures" (Morrison et al., 2019, p. 135). This approach means "teaching the first concept and the associated procedure, followed by the second concept and related procedure..." (Morrison et al., 2019, p. 135). In addition, a problem or mistake would involve teaching procedures and concepts simultaneously, confusing learners. Lastly, teachers receiving instruction in Microsoft Word and PowerPoint skills will experience confusion if more complex procedural tasks occur before less complex tasks.

Sequenced Objectives

Task	Objectives	Domain	Level	Content Structure	Performance
	Key	Psychomotor Affective Cognitive	(Imitation, Manipulation, Precision, and Articulation) (Receiving, Responding, Valuing, Organizing, and Characterizing) (Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating)	Fact Concept Rules/Principles Procedures Attitudes Interpersonal	Recall Application
1.1.1	The learner will display a willingness to learn the procedures and attributes associated with MS Word fonts	Affective	Receiving/ Responding	Attitude Concept	Application
1.1.2 1.1.3 1.1.4 1.1.5 1.1.6 1.1.7	Demonstrate how to modify font, size, and color in the MS Word template	Cognitive	Understanding Applying Creating	Procedure	Recall Application
1.2.1	The learner will display a willingness to learn the procedures and attributes associated with	Affective	Receiving/ Responding	Attitude Concept	Application

	MS Word pictures				
1.2.2 1.2.3 1.2.4 1.2.5 1.2.6	Demonstrate how to modify a picture in the MS Word template	Cognitive	Understanding Applying Creating	Procedure	Recall Application
1.3.1	The learner will display a willingness to learn the procedures and attributes associated with MS Word bullets and lists	Affective	Receiving/ Responding	Attitude Concept	Application
1.3.2 1.3.3 1.3.4 1.3.5 1.3.6 1.3.7 1.3.8	Demonstrate how to apply bullets and lists formatting in the MS Word template	Cognitive	Understanding Applying Creating	Procedure	Recall Application
1.4.1	The learner will display a willingness to learn the procedures and attributes associated with MS Word layering	Affective	Receiving/ Responding	Attitude Concept	Application

1.4.2 1.4.3 1.4.4 1.4.5 1.4.6 1.4.7 1.4.8 1.4.9 1.4.10 1.4.11 1.4.12	Demonstrate how to layer text and pictures in the MS Word template	Cognitive	Understanding Applying Creating	Procedure	Recall Application
1.5.1	The learner will display a willingness to learn the procedures and attributes associated with MS Word editing skills	Affective	Receiving/ Responding	Attitude Concept	Application
1.5.2 1.5.3 1.5.4 1.5.5 1.5.6 1.5.7 1.5.8 1.5.9 1.5.10 1.5.11 1.5.12	Demonstrate how to use editing skills in the MS Word template	Cognitive	Understanding Applying Creating	Procedure	Recall Application
2.1.1	The learner will display a willingness to learn the procedures and attributes associated with MS PowerPoint slide layouts	Affective	Receiving/ Responding	Attitude Concept	Application

2.1.1 2.1.2 2.1.3 2.1.4 2.1.5 2.1.6 2.1.7 2.1.8 2.1.9 2.1.10 2.1.11 2.1.12 2.1.13 2.1.14 2.1.15 2.1.16 2.1.17 2.1.18 2.1.19 2.1.20 2.1.21 2.1.22 2.1.23 2.1.24 2.1.25	Demonstrate how to edit slide layouts in the MS PowerPoint template	Cognitive	Understanding Applying Creating	Concept Procedure	Recall Application
2.2.1	The learner will display a willingness to learn the procedures and attributes associated with MS PowerPoint fonts and text	Affective	Receiving/ Responding	Attitude Concept	Application
2.2.1 2.2.2 2.2.3 2.2.4 2.2.5 2.2.6 2.2.7 2.2.8 2.2.9 2.2.10 2.2.11	Demonstrate how to modify font, size, and color in the MS PowerPoint template	Cognitive	Understanding Applying Creating	Concept Procedure	Recall Application

2.2.12 2.2.13 2.2.14 2.2.15 2.2.16					

Instructional Strategies

Several strategies exist based on my instructional problem, which requires teaching procedures. For example, in my task analysis, teachers will successfully learn the sequence of steps to perform a task in Microsoft Word and PowerPoint. The performance of a Microsoft Word and PowerPoint procedure will involve both recall and application.

Recall and Application:

Initial instruction will involve teachers memorizing and listing the correct steps of a procedure in Microsoft Word and PowerPoint. Next, the teacher will apply this knowledge by creating a digital artifact demonstrating the correct procedure. This process requires two steps, "which include the development of a mental model and then practice" (Morrison et al., 2019, p. 154).

Cognitive Procedures:

The initial instruction will involve the demonstration or modeling of the procedure. Then, the instructional designer will represent the procedure using "well-developed conceptual knowledge" (Morrison et al., 2019, p. 154), which is essential for effective learning cognitive procedures. Additionally, the learners will develop "worked examples" based on demonstrations and modeling, which will serve to teach and reinforce these cognitive processes. Lastly, these

"worked examples" depicting Microsoft Word and PowerPoint skills will help learners during the problem-solving process as they work through each step.

Designer-provided explanations:

As mentioned previously, the instructional process will involve teachers memorizing and listing the correct steps of a procedure in Microsoft Word and PowerPoint. Additionally, the instructional designer will provide real-time explanations to help the learners understand these procedures (conceptual knowledge). Therefore, learners will view models and demonstrations of performing these procedures, including real-time explanations, making this procedural learning active rather than passive.

Below are two objectives from this plan, one motivational strategy, initial presentations, teaching strategies, and generative strategies for teaching them.

Objective 1:

The learner will display a willingness to learn the procedures and attributes associated with MS Word fonts. (Attitude Concept/Application)

Motivational Strategy:

Ask the learners to predict what would happen if an entire Microsoft Word document used the Curlz MT font, 24 in font size, and the font color was yellow. (This scenario demonstrates the importance of font, size, and color for readability considerations).

Initial Presentation:

Display a three-paragraph document to the learners. Each paragraph within the document is a different font, size, and color. Highlight features unique to each paragraph (e.g., each paragraph

contains words in a different font, size, and color; some paragraphs are easier to read than others).

Instructional Strategy:

Instructional strategies include applying the performance by identifying new examples of the concepts. Additionally, learners practice recall strategies through repetition, rehearsal, and review (Morrison et al., 2019, pp. 150-152).

Generative Strategy:

Show several web pages from various sources and settings (e.g., online department store, elementary school, clothing store, and so on) and ask the learner to identify unique features of the web page font, size, and color. Then, have the learner consider the readability of each web page.

Objective 2:

Demonstrate how to modify font, size, and color in the Microsoft Word template. (Procedure/Application)

Initial Presentation:

Using a streaming screencast video created by the course facilitator, demonstrate how to access the Microsoft Word template for the exercises. Next, underline the word "font" anywhere in the template. Additionally, modify the font to Arial in line 2 of the template. Then, alter the font color to Red in line 3 of the template. Next, change the font size to 24 in line 4 of the template. Lastly, modify the font, color, and size to course facilitator specification in line 5 of the template.

Instructional Strategy:

The instructional strategy includes the learner viewing a training screencast video, developing a mental model, then applying this mental model by demonstrating the procedure using the Microsoft Word template (Morrison et al., 2019, pp. 154-155).

Generative Strategy:

First, the learner visualizes how he or she would modify the font, size, and color in a Microsoft Word template. Second, each learner practices changing the font, size, and color in a Microsoft Word template. Finally, the Microsoft Word template contains the learner directions embedded within the document.

Conclusion

This content sequencing and instructional strategies assignment for the Computer Software Skills and Technology Integration Course describes the priority of sequencing instruction and objectives in detail. All course objectives have been sequenced based on the stated criteria. Additionally, instruction involves both the affective and cognitive domains. Course objectives are written in the understanding, applying, and creating stages of Bloom's Taxonomy. The content structure is primarily procedural; however, instruction also has elements of learner attitude. Learner performance contains recall and application scenarios.

This paper gives the rationale and description for several instructional strategies, such as recall, application, cognitive procedures, and designer-provided explanations. The initial presentation, instructional strategy, and generative strategy for two specific course objectives are shown. One course objective includes a motivational strategy. The Computer Software Skills and Technology Integration Course will boost elementary teachers' confidence to instruct their students on Microsoft Word and PowerPoint skills effectively.

References

Morrison, G. R., Ross, S., Morrison, J.R., & Kalman, H.K. (2019). *Designing effective Instruction* (8th ed.). Hoboken, NJ: Wiley.