

EDTC 6323 Multimedia/Hypermedia Interactive Learning Object

Project Description

The EDTC 6323 Multimedia/Hypermedia project focused on the design, development, and evaluation of a self-paced Hand Hygiene Reusable Learning Object (RLO) for new healthcare staff and other healthcare learners. The module teaches when hand hygiene is required, why it is important for infection prevention and patient safety, and how to perform the procedure in the correct sequence. The online learning object combines concise text, images, audio with transcripts, a handwashing video, learner reflection, a four-question quiz, a drag-and-drop sequencing activity, feedback, and a completion certificate. Learner performance is recorded to support evaluation. A summative evaluation with two representative healthcare participants was also conducted to examine achievement, time on task, engagement, and areas requiring revision.

Standards Met

This project demonstrates proficiencies in the following AECT standards: Standard 1 – Content Knowledge, Standard 2 – Content Pedagogy, and Standard 3 – Learning Environments. The chart below illustrates the performances that fulfill the AECT standards.

AECT 2012 Standards	
Standard 1 – Content Knowledge: Candidates demonstrate the knowledge necessary to create, use, assess, and manage theoretical and practical applications of educational technologies and processes.	
Performance indicators:	Justification
1.1 Creating. Candidates demonstrate the ability to create instructional materials and learning environments using a variety of systems approaches.	<i>The project demonstrates the creation of an instructional learning environment through a complete reusable learning object organized into a sequence of introduction, content presentation, demonstration, reflection, practice, assessment, feedback, and completion. Multimedia and interactive components were integrated into one web-based instructional experience rather than presented as isolated resources.</i>
1.2 Using. Candidates demonstrate the ability to select and use technological resources and processes to support student learning and to enhance their pedagogy.	<i>The RLO selects and uses multiple technological resources to support learning, including web-based text and graphics, audio narration, transcripts, instructional video, a written reflection response, multiple-choice questions, drag-</i>

	<i>and-drop sequencing, automated scoring, learner tracking, and a downloadable completion certificate. These resources allow learners to receive information, observe a procedure, practice recall and sequencing, and demonstrate understanding.</i>
Standard 2 – Content Pedagogy: Candidates develop as reflective practitioners able to demonstrate effective implementation of educational technologies and processes based on contemporary content and pedagogy.	
Performance indicators:	Justification
2.1 Creating. Candidates apply content pedagogy to create appropriate applications of processes and technologies to improve learning and performance outcomes.	<i>The RLO applies content pedagogy by turning hand-hygiene procedures into an active multimedia learning experience. Learners do more than read information: they watch a procedure, explain what they understood, answer scenario-related knowledge questions, and arrange the handwashing steps in the correct order. The design therefore connects procedural healthcare content with practice and performance.</i>
2.2 Using. Candidates implement appropriate educational technologies and processes based on appropriate content pedagogy.	<i>Appropriate educational technologies are implemented according to the type of learning required. Audio and transcripts reinforce key explanations, images illustrate important concepts, video demonstrates the procedure, reflection encourages learners to process what they observed, and the drag-and-drop activity assesses procedural sequencing. Immediate quiz results and general feedback provide reinforcement after practice.</i>
2.4 Managing. Candidates manage appropriate technological processes and resources to provide supportive learning communities, create flexible and diverse learning environments, and develop and demonstrate appropriate content	<i>The project manages technological processes and learning resources through a structured self-paced interface. Learners move through the content in a defined sequence, enter their names for performance tracking, complete the</i>

pedagogy. 2.5 Ethics. Candidates design and select media, technology, and processes that emphasize the diversity of our society as a multicultural community.	<i>learning activities, receive quiz results, and access feedback and a certificate. The evaluation process also used a tracking spreadsheet to record attempts, scores, time on task, and observations for instructional decision-making.</i> <i>The module uses several forms of media and interaction to make the learning experience more accessible to learners with differing preferences and needs. Audio sections include transcripts, key concepts are reinforced through text and visuals, and learners can review material and interact with the content at their own pace. These design choices broaden access beyond a single presentation format.</i>
Standard 3 – Learning Environments: Candidates facilitate learning by creating, using, evaluating, and managing effective learning environments.	
Performance indicators:	Justification
3.1 Creating. Candidates create instructional design products based on learning principles and research-based best practices. 3.2 Using. Candidates make professionally sound decisions in selecting appropriate processes and resources to provide optimal conditions for learning based on principles, theories, and effective practices.	<i>The RLO is an instructional design product that integrates learning objectives, multimedia presentation, learner-content interaction, assessment, and evaluation. Its design moves from explaining the importance of hand hygiene to demonstrating the procedure and then asking learners to reflect, recall key information, and sequence the steps. The later summative evaluation provides evidence for continued improvement of the product</i> <i>The project makes purposeful decisions about resources and processes to support a self-paced professional learning environment. Short content segments, images, audio, transcripts, video, reflection, quiz questions, drag-and-drop sequencing, and feedback are combined to support both factual knowledge and procedural understanding. The evaluation results showed 100% success on the first three quiz domains across all attempts and identified sequencing as the area needing additional support.</i>

3.5 Ethics. Candidates foster a learning environment in which ethics guide practice that promotes health, safety, best practice and respect for copyright, Fair Use, and appropriate open access to resources. 3.6 Diversity of Learners. Candidates foster a learning community that empowers learners with diverse backgrounds, characteristics, and abilities.	<i>The learning environment promotes health and safety by teaching a clinical infection-control practice intended to protect patients and healthcare personnel. The module emphasizes correct hand-hygiene timing and procedural steps, and the evaluation led to a recommendation that online completion be reinforced with an in-person handwashing demonstration under supervision so that digital achievement is connected to safe real-world performance.</i> <i>The RLO supports learners with different backgrounds and learning preferences through concise text, pictures, audio, transcripts, video demonstration, reflection, interactive sequencing, and repeatable self-paced practice. The summative evaluation included healthcare participants with different professional experiences, providing feedback on how representative learners interact with the module.</i>
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Modifications Made

The Hand Hygiene RLO was refined as the project progressed from multimedia development to summative evaluation. The completed version incorporated short content sections, supporting images, audio narration with transcripts, a handwashing video, a learner reflection activity, a four-question quiz, drag-and-drop sequencing, performance tracking, general feedback, and a completion certificate. These additions strengthened the connection between content presentation, learner interaction, assessment, and accessibility.

The summative evaluation identified sequencing as the primary area for further improvement. Across three recorded attempts, the two participants averaged 3.67 out of 4 (91.7%); Questions 1-3 were answered correctly on every attempt, while the sequencing question had a 66.7% initial success rate. Based on these findings and learner feedback, the next revisions will include a review screen immediately before the sequencing assessment and tighter control of quiz attempts to discourage rushing or guessing. A more important long-term modification is to connect the online RLO to an in-person handwashing demonstration supervised by a training officer. The completion certificate can clearly state this requirement so that successful online performance is followed by demonstration of the procedure in a real clinical or training environment.

References

Dick, W., Carey, L., & Carey, J. O. (2005). The systematic design of instruction (6th ed.). Pearson.

Papas, C. (2011). Introduction to evaluation in eLearning. eFront Learning.