eLearning Course Design and Development Guidelines

County of Santa Clara
Learning & Employee Development

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eLearning Course Design and Development Guidelines

The goals of these guidelines are to ensure:

- consistency in eLearning courses developed for/by the County

- similar experiences for customized eLearning courses

- eLearning courses will seamlessly interact with sccLearn

While the guidelines are very important, they allow the designer freedom to do what is best for the course and the experience for the learner. Ideally, the course will contain developmental content to educate the learners and an evaluative component to test the learner's knowledge.

There are several stages to launch an eLearning course in sccLearn. To view where the design and development of the course fits in to the process, view the [eLearning Development Flowchart](#).

1. Course Structure and Content

The course should be developed using Articulate Storyline 360. The overall structure of the course should contain the following elements:

Course Introduction – This should include a title page and a welcome message. The version number of the course should be included in the footer of the first page. The version number should preferably consist of the month and year that the version will launch, with an incremental number reflecting the published version as it is being tested in sccLearn, for example 062021.01. The course introduction should also include the course objectives and duration to let the learner know what they can expect to learn from this course and how much time they can expect to allocate. If the course has elements that may not be intuitive, then interface instructions should be provided.

Narration / Audio – Clear concise human narration with a consistent tone and voice is preferred to provide the maximum learner engagement. The narration should enhance the learning experience and not be used for simply reading the slide contents to the learner. Background audio should not distract from the learning experience. Courses developed without narration should only be developed when the recording of narration will result in an unacceptable delay to launch the eLearning. External eLearning vendors are available to provide professional narration services through the Work Order Procurement Request (WOPR) process with LED for an additional cost.

Foreign language translation services – The Procurement Department has a pre-qualified pool of language translation vendors which can be utilized to save time and money.

Course Navigation – The learner should have the ability to navigate through the course at their own pace. The course should be designed with a linear flow for the overall course design, with self-structured interaction within a slide as this provides a better user experience and causes less complications in sccLearn. The preference is for the learner to be restricted from moving to the next slide for the first 5 to 15 seconds of the slide narration, however this is based on content and for the content owner to determine. This is typically a setting within the software used to create the course.

Course Design – The course should be developed with either the 4:3 or 16:9 aspect ratio with a maximum of 720 pixels wide. The textual elements and narration should be designed to meet the 6th grade reading level.

Learner Engagement – The course should be engaging and utilize a variety of learner engagement strategies which are interactive and challenging to ensure that the content is being reinforced. The use of scenarios and gamification that allow the learner to leverage prior experience is preferred to enhance the learner's engagement and retention. When using selection boxes for interactions, using both color and a check mark to indicate a visited state helps reduce learner confusion if they are expected to select each item. Make the interactions engaging while being mindful of areas where learners could have difficulty completing the interaction, such as finding items across the training. Provide clear direction when learners must engage with all buttons on a slide.

Where there are several sections within the course, there should be some indication to the learner that they are entering a new section. The learner should be able to distinguish when a new objective/section is initiated. This could be using a title and objectives for the section and ending with a section summary, or review questions/quiz at the end of each section to allow learners the opportunity to reinforce what they have learned. While knowledge checks reinforce learning throughout the course, keeping the graded questions at the end of the course provides a more consistent experience for the learner, especially if they need to locate all of the embedded questions to repeat the assessment.

If an attestation page is required to be completed, integrate it into the quiz, or provide clear instructions on passing the quiz that an attestation is still required to be completed before course completion will be granted.

Images and Multimedia – Images, embedded multimedia, and video should be royalty free and permission should be obtained and provided with the source files. Video works best when embedded, however large video files need to be stored outside of the LMS with a link provided. If the eLearning consists of learners viewing a video (such as a recorded webinar or interview) followed by quiz questions to verify understanding, it is recommended to link to the external video in the sccLearn course description and create a quiz in sccLearn to verify understanding. Options for housing the video outside of sccLearn include Microsoft Stream, YouTube (if allowed by the department) or an internal SharePoint site. The County has a YouTube Channel and can host the video. To host the video on a department YouTube channel, generate a TSS Service Desk ticket to initiate this process and obtain guidance from TSS. Refer the [Social Media Application Policy](only available to County Employees through the County Intranet Network).

In addition, materials developed should capture and display the multifaceted diversity of the communities that the County of Santa Clara serves. For example: ensuring that media comprises individuals who are of various ages, multi-ethnic, multi-culture, multi-ability (people with disabilities), and multi-gender (female, male, nonbinary, and trans) to highlight the broad array of ethnicities, cultures, abilities, and genders in order to foster an environment of visual inclusion which reflects representation for all individuals and scenarios.

Course Review and Completion – At the end of each section, there should be a mechanism for the learner to review and reinforce what they have learned. If using quiz type questions, the scoring of

the questions should not be reflected on the final quiz. While there are other methods to verify course completion, the best practice is to include a final scored quiz at the end of the course with a passing grade to verify course completion. The method to identify course completion, as determined by the Client Department should be programmed and communicated to sccLearn via the SCORM package. Certificates of completion should **not** be built into the course itself as they are available from sccLearn.

Course Resources – Any resources that would enhance the learner's retention should be hyperlink to a pdf file external to the course (if possible). Changes to embedded resources requires the course to be modified, republished, retested, and versioned in sccLearn, which causes disruptions for the learners. Additionally, a course glossary could be provided if there are terms that may be new to the learner. Resources that are hyperlinked to an intranet location should indicate to learners that they need to be connected to the County's network to view the resources. For all hyperlinks that will be opening in a new window, informing the learner will need to navigate back to the course window to complete the training is advised.

2.   Accessibility and 508 Compliance

Section 508 (as developed by the U.S. General Services Administration Government-wide IT Accessibility Program) and the World Wide Web Consortium (W3C) provide guidance on building accessible eContent to enhance the learning experience for all learners with differing learning styles. Design and develop the eLearning Courses to implement accessibility features including:

Closed Captions – All audio and video content should include closed captions so all learners can receive the same information. When adding text boxes, images, or animations, allow for both the captions and the overlays to be visible so that the captions do not cover important information.

Alternate Text – Images are inherently inaccessible to people who are unable to see them so including a description as an Alt Text Tag for any relevant images is beneficial. If the image is purely decorative, please label the image with a "".

Sufficient Color Contrast – The W3C Web Content Accessibility 2.0 guidelines recommend foreground and background color contrast to have a contrast ratio of at least 4.5:1 (or 3:1 for large text) to be compliant at Level AA. To check the contrast, use the WebAIM Color Contrast Checker.

Visual Characteristics – Avoid using color to communicate information as some learners are unable to perceive color differences. Interactions should clearly indicate when the learner has visited/interacted with the activity. Using a check mark or other symbol is preferred over color alone. Ensure there is distinct differentiation between hyperlinks and regular text**.** In addition, the link text should be meaningful when read out of context and should help learners know something about their destination if they click on it. Link text such as "Click here" and "More" should be avoided. Spatial references, such as "Click the button on the right" is meaningless to a screen reader, instead be more specific and use "Click the more info button in the side bar".

Tab Order – Ensure the tab order follows a logical order moving sequentially from left to right and top to bottom through the focusable elements mirroring the visual order of navigation and controls on the page.

3. Quiz Questions

The goal is to confirm learners understood the material and learned what they need to effectively do their jobs. Trying to fail or trick learners is NEVER acceptable. Always let learners know how many questions to expect and what the passing score is. Adding unnecessary pressure and stress by using timed tests is not recommended. Remember, learners are trying to focus and do their best. Test for actual knowledge, not reading comprehension. Do not include long, complex questions that take extra time and attention to comprehend which could impact the final score for the learner.

The test's difficulty level should be easy if the learners understand the material. Using theoretical situations and scenarios that mimic expectations post training are better than rote memorization. Below are best practices and preferred techniques for creating optimal quiz questions.

Avoiding Confusion

Problem – Question or answer choices that require an extra moment for the learner to understand what is being asked can cause confusion. Avoid:
- Using negative phrasing or double negatives.
- Inconsistent tense as it presents problems for being difficult to decipher and the question is often misunderstood leading to failed responses.
- Answers with "All of the above" or "Only B+C" which can cause confusion for the learner or make it really easy to answer. Learners can be rewarded for incomplete understanding or be punished unfairly. Learners might know that A and C are correct, but be unsure about B. If they mark "All of the above," they may have answered a question correctly without fully understanding the concept.
- Question and answer choices using different grammatical structure, switching between persons, tenses, and phrasing.

Solution – The solution will vary, but techniques to minimize confusion include:
- Rephrasing the question and answer choices in a positive manner.
- Keeping the questions and answers short.
- Using the multiple response question type and asking learners to "Select all that apply". To make it a little easier, and/or to avoid confusion, indicate how many answers to select by rephrasing the question as "Select **two** true …" and adding "Select **two** that apply".

Providing Clues

Problem – Questions where it is easy to deduce the correct answer by process of elimination.
- Similar wording used in the question and choices make them easy to guess or eliminate.
- True/false questions are easy to guess if learners do not know the answer. It is a 50/50 chance learners will pass the question, vs a 25% chance if learners need to pick 1 out of 4, or lower if using a select all that apply question type. A few true/false questions are acceptable, but the recommendation would not be to include too many for the validity of the quiz.

- Question and answer choices use words like "always", "only" and "never" provide clues to the correct answer.
- The correct answer choice provides specific/exact details and uses the most words making it the longest answer vs the incorrect answer choices providing vague details.
- One question could provide an answer to another question.

Solution – The solution will vary. Avoid providing clues and make the quiz challenging but fair by:
- Rephrasing the question and answer choices to make them clearer and consistent.
- Rewriting true/false questions as a multiple choice or multiple answer question.
- Reviewing the wording used and ensure the distractors are meaningful.
- Reviewing all questions and checking for redundancies and places where other questions may provide hints.

Sample Questions:

Instead of …	Use …	Why …
1. What is the sum of 5+3? **A 7+1** **B 8** C 10*2-3 D 15 E Ten F **Only A+B** G All of the above	1. What is the sum of 5+3? A 7 **B 8** C 10 D 15	There is only one correct answer. All answer choices are consistent.
2. True or false: 5+3=8? **T** F	2. Select the correctly solved math problems. Select all that apply. **A 5+5=10** B 5X2+3=15 **C 5-3=2** D 10+2=15	Question does not provide the answer for the first question. The problem is now harder to guess and takes a little more thought to answer.

Additional Considerations

Shuffling of the answer keys is typically recommended for most questions unless the answers consist of dates or numbers which should be presented in order.

Drag and drop style questions should be avoided as they are not accessible.

Consistency should be used if allowing learners multiple attempts to answer the question.

A **Review Quiz** button placed on the results slide often confuses the learners as it allows them to review their answers but does not allow them to correct answers, so should be avoided. It may also provide the correct answers, making it easier to pass the quiz when reattempted.

A **Print Quiz** button placed on the results slide often provides the correct answers, making it easier to pass the quiz when reattempted.

A **Print Certificate** button is not needed as sccLearn allows the learner to print their own certificates.

4. Review, Testing and Publishing

At a minimum, the eLearning course should be reviewed and tested multiple times throughout the design and development cycle. Refer to the [eLearning Development Flowchart](#) to view the complete process. Completing these phases of reviews and testing will ensure the eLearning course will function as expected within sccLearn and should not cause any unnecessary complications once the eLearning has been launched. Errors identified after the course is published can cause learner confusion, course incompletions, and service desk tickets. Review and testing phases include:
1. Course outline, Storyboard and script reviews prior to beginning development
2. Functionality testing outside of sccLearn during development
3. Integration testing in the sccLearn sandbox system and various browsers after development
4. Verification checking and approval in the production sccLearn system after integration testing

The best practice is to have multiple people complete the first 3 levels of testing; the verification checking and approval would only be completed by the project lead. If an issue prevents the testing from moving forward, it should be fixed before continuing with the review or testing. The recommendation is to include Subject Matter Experts (SME's) who know the subject inside out, some who have a vague idea of the subject and others who have no idea of the subject. SMEs typically concentrate on the subject but may miss the finer points as they understand the message, the people who have a vague idea provide feedback on the understanding of the content, while those with no idea of the subject usually concentrate on the navigation or the look and feel of the course and discover unexpected errors.

Course Outline, Storyboard / Script Reviews – These reviews are to ensure the eLearning course will contain the correct information for the learner. These reviews are looking at the flow of information and to ensure it makes sense as it will be presented to the learner. A best practice is to have the content also reviewed by policy, legal, and human resources experts (as needed) to make sure the course is compliant. Based on the developer's preference, course outline, storyboard and script reviews may be completed using PowerPoint presentations to represent the visual elements, Word documents to provide the course outline, screen visuals and narration scripts or a combination of file types to ensure the reviewer can follow the design idea. The reviews are typically completed by several independent reviewers using redlines or may be completed within a group meeting.

Functionality Testing – Functionality testing is important and completed outside of sccLearn (using sites such as the Articulate 360 review site or SCORM cloud) to make sure the eLearning course is programmed correctly, makes sense and will function and behave as expected. Functionality testing is typically completed by several independent testers or may be completed within a group meeting. During this phase, testing is also completed to make sure the eLearning course is created as outlined in the storyboard. Some typical issues to look for include:
- Spelling errors, text that is difficult to read or unclear/ambiguous to understand

- Closed captions not aligned with/reflecting the narration, or covering important onscreen text, images or animation
- Graphics with the wrong aspect ratio (people look like a reflection in a fun house mirror)
- Graphics with the wrong resolution (they look pixelated or fuzzy)
- Graphics that are misaligned or don't represent the topic
- Errors in labelling or hyperlinks and resources not going where expected
- Messages that pop up at the wrong time or feedback not appropriate for the selection made
- Interactions not working properly
- Navigation goes to the wrong screen or Next/Previous buttons not going where expected
- Test is not scoring correctly
- Course not capturing the multifaceted diversity of the communities that the County of Santa Clara serves

Functionality testing may also be known as Alpha testing.
Upon successful completion of the Functionality testing phase, the eLearning course would be uploaded to the sandbox sccLearn system.

Integration Testing – Integration testing is completed from within the sccLearn sandbox to make sure the integration with sccLearn is working correctly and the eLearning course behaves as expected. To initiate integration testing, submit an eLearning [Upload Form](#) (along with the published files in Zip format), course source files, transcripts, and approvals for using media (if obtained) to LED.
- The eLearning course should be published as SCORM 1.2, HTML 5 with the reported status as Completed/Incomplete or Passed/Incomplete. Do not use Fail as a reporting status.
- The filename used for the published eLearning course upload files (typically Zip file) should reflect the title of the eLearning course along with the version number as placed on the first slide of the eLearning course , for example eLearningTitle-062021.01. If revisions are made to the eLearning course, subsequent versions submitted for upload to sccLearn should be numbered incrementally to reduce the confusion between the versions.

Once this upload request has been received, LED will generate a [test script](#) containing various scenarios to test the eLearning in the sccLearn sandbox. Integration testing is typically completed by several independent testers with the most commonly used browsers being used at the County (Microsoft Edge and Chrome). While all of the content was reviewed and tested during the previous phases, this testing would not be looking for (or finding) any issues such as typo's or alignment but would be testing the components as they apply to sccLearn. Items tested during this phase will include:
- Verifying sccLearn recognizes that the eLearning course was exited without completing it
- Ensuring the learner has the option to restart the eLearning course or continue from where it was exited the next time it is launched
- Confirming sccLearn shows a failed quiz as incomplete or failed, and the eLearning course provides the option to retake the quiz
- Checking that the quiz scored correctly, and the quiz be passed (completed successfully)

In addition to verifying the integration with scclearn, as we are completing the whole eLearning Course, we are also retesting some components, to ensure that:

- there are no messages that pop up at the wrong time or feedback not appropriate for the selection made
- the interactions are working properly,
- Navigation goes to the correct screen and Next/Previous buttons go where expected
- Hyperlinks and resources work as expected
- Closed captions reflect narration and work correctly

Integration testing may also be known as User Acceptance Testing or UAT.

Upon successful completion of the integration testing phase, the eLearning would be approved for uploading to the production sccLearn system. As the eLearning course development has been approved for launch and all final tweaks have been completed, please submit the course source files, transcripts, and approvals for using media (if obtained) for the eLearning course to led@ceo.sccgov.org for backup storage.

Verification Checking and Approval – This final verification phase confirms the version uploaded to sccLearn is the correct version and works as expected. In addition, any assignments and notification configurations are also verified. This phase is typically completed by the project lead.

If you have any questions during the eLearning development process, don't hesitate to contact LED at led@ceo.sccgov.org.