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5P Guidelines/Rubric ©
for Assessing Provision of
Individual and Collaborative Learning Elements in a Learning Activity
Mapping Cognitive Science Against Learning Approaches
Analysis of Capstone: Adult Learning & Andragogy

This rubric may be used to assess learning approaches to learning a language or other discipline. If what the cognitive scientists are saying is valid, then we as teachers and designers and theorists should be informed by the findings of cognitive science and assess our teaching plans accordingly. These guidelines and rubric is derived from the work of John Schumann and Klaus Scherer as well as the findings of cognitive neuroscience. The Schumann/Scherer Model of the Five Planes of Stimulus Appraisal maintains that to motivate learners intrinsically material must be **relevant, support a positive self and social image, be novel, be pleasant, and be within the learner's ability to cope with the task.** These assessments are emotionally based and relate to what the brain does to keep the individual alive and well (homeostats), to allow social interaction (sociostats) and are based on the summative experiences of a life (somatics).

This rubric is a mapping of aspects of instruction against elements of the Schumann/Scherer Planes of Stimulus Appraisal.

The goal is to increase the probability of achieving intrinsic motivation with respect to what is being delivered to and required of the learner.

The assumption is that a well prepared learning environment and module/unit has a greater likelihood of triggering interest and intrinsic motivation.

Use this rubric to assess your training design.

Element of Motivation	Accounted For? Y = Yes N= No NA = Not Applicable ? = Cannot Determine	Comments
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Presentation		
Material appears relevant to the needs and goals of the learner	Y	<p>Course materials are applicable for the intended Independent Adult Center employee audience.</p> <p>As they prepare to and actively support adult education needs, Knowles' principles of andragogy are of great relevance.</p>
Material and/or presentation/stimulus is novel, should appear to be something new and interesting to the learner	Y/?	<p>It is difficult to say with complete certainty if the materials will be novel for every learner.</p> <p>This Canvas course was built to serve the East Side Adult Education Program in San Jose in response to a performance gap. As Manglicmot (2021) states, teachers in this program only require a K-12 teaching credential. While some have andragogy training, given the identified need for this training, it is likely that the materials/Knowles' principles will be new to many learners.</p> <p>However, the survey informing the gap was extremely limited (just one person). In the Capstone Proposal, Manglicmot (2021) supports the need to address a gap with the statement that, "A survey given to <i>one</i> of the new teachers (Appendix A) shows an interest of learning adult education standards and how to create lesson plans, illuminating the need for practical use of her time" [emphasis added] (p. 6)</p>
Presentation approach is intrinsically pleasant/interesting/stimulating/thought provoking	Y/N mostly	<p>Pros:</p> <p>The design is simple and approachable both visually and auditorily (generally; too much text on several slides)</p> <p>The layout is easy to follow (particularly if students are already familiar with Canvas courses), making navigation pleasant.</p> <p>The narration tone is cheerful and pleasant. On pausing after a section's completion, I looked forward to returning.</p> <p>The course included frequent opportunities to reflect on recently presented material, provoking thought.</p>

		<p>Cons:</p> <p>Too much text on several slides</p> <p>I did find it annoying that pausing/scrubbing through was prohibited.</p> <p>Inability to pause made course navigation more difficult and time consuming. As Manglicmot (2021) acknowledges, “Additionally, some teachers would have liked a pause button to enable them time to take notes throughout the course. Without the ability to pause or scroll the play bar forward or backward, teachers needed to restart the media from the beginning. This led to more time spent rewatching the content rather than replaying missed information” (p. 21). (On p. 26, she suggests the course could be converted to H5P format to accommodate pausing...this seems unnecessary, shouldn't it be fixable in Adobe Captivate??) (<i>This “pause” note is also included under Coping under Q6; plan to remove from one section or the other</i>)</p>
Wording, visuals, audio, language are manageable and usable to the receiving group or individual creating the impression that the group or individual can master the material to the extent desired.	Y	<p>The wording, visuals, audio, and language were presented in an approachable fashion, particularly for its adult professional audience. The layout provided frequent opportunities to revisit and test ideas in an environment that felt supportive.</p> <p>Too much text on several slides.</p>
Does the learning approach appear to provide for the elements of presentation? If not, why not?	Y	<p>After completing multiple choice scenario questions (exposing to the learners to example ideas) students are asked to write-up and post a scenario that would benefit from application of one Knowles' andragogy principles. Learners are then encouraged to respond to another colleague's post. Students are thus requested to engage in presentation themselves.</p> <p>Manglicmot (2021) states in the project's executive summary that “constructivism is the leading theory for this instructional design” (p. 4). This requirement for presentation falls in line with constructivism's meaning creation in the context</p>

		of community. (This was, however, the only section that I felt included constructivism)
Practice		
Opportunities are provided to develop proficiency in application of the skill, knowledge, ability or concept	Y/?	Yes, there are several “knowledge checks” along the way to check for understanding. But in regards to “developing proficiency,” I’m not sure that there are opportunities to do that, necessarily.
Practice opportunities appropriate to the objective(s) are provided	Y	<p>Definitely. The objective seems to be to educate a person on how to develop instruction for adult audiences, and the knowledge checks do exactly that.</p> <p>However, there are several questions that seem to be asking for information that was not directly presented in the modules. I knew answers either from our coursework or from previous experiences, but I realized that there were some terms that weren’t really addressed (or too briefly for me to really learn, which I suppose has more to do with presentation).</p>
Practice activities, to include repetition and spiraling, are designed to develop automaticity in responses and execution if appropriate	N/?	Perhaps - the knowledge checks follow directly after the presentation stops and are immediately relevant, which is slightly related to automaticity.
Practice is relevant to needs and goals of the learner	Y/?	After learning about the four principles, there are, presumably, five scenarios provided with which to practice, but we don’t seem to have access, so I’m not sure how to assess the relevance. Additionally, there is an assignment at the end asking the learner to develop a scenario that could be solved with one of the principles (and also asks that learners respond to one another in the forum). That practice seems very relevant!
Activities are such that the Learner can see that skill/competency acquisition is taking place	Y	I’ll answer with the assumption that the scenarios are relevant, in which case it would be very easy to see competency acquisition taking place. Also, the extra activity of developing our own scenario and then evaluating a peer’s answer in the forum is further relevant practice that would make clear to the learner whether they understand the material or not.
Practice requirements are within or slightly above learner’s competency level	Y	As the audience is adult students who require a K-12 teaching credential we assume this course is within the learners’ competency level

Learners can perform practice requirements.	Y	Yes, I would assume that most learners could easily complete the practice requirements based on the information provided in the modules. Depending on how deep the course expects a learner to go with the practice activities, it may require more information in the learning modules.
Practice is designed to lead to the desired outcome.	Y/?	If the desired outcome for the learner is that they learn more about andragogy, then sure! It works. But if the desired outcome is that they are able to develop instructional courses for adults by applying the principles, then I'm not sure that practices would lead to that without seeing them for myself.
Practice activities, while not necessarily pleasant, would likely generate a feeling of accomplishment.	Y/?	I think they would. I always feel great after finishing an assignment, and I think that the forum-based assignment that involved replying to peers' contributions can be especially satisfying and feel like you were able to be successful.
Does the learning approach provide for practice? If not, why not?	Y	I THINK so. Again, it's hard to say without having access to the scenarios and being able to assess that myself.
Production and Posting		
What is produced is informed and scaffolded by practice—may even be concurrent with practice, i.e., repetitive practice may not be part of the learning task such as writing a paper, but the writing is both practice and production at the same time.	Y	I would say yes because we were informed with valuable information and at the same time got to practice and apply what was learned immediately.
Opportunity is provided to apply the skill, knowledge/ability or concept being learned	Y	The concepts being learned were related to the capstone project and there were multiple opportunities where we were able to apply what we learned directly after learning each lesson.
Production reinforces practice activities	Y	Throughout the course, we were given multiple practice aids. In the videos we were given questions and scenarios to answer along with a short follow up quiz,
Whatever is produced by the learner is posted or provided to group for peer view and learning	Y	There was a discussion forum in the course titled "Your Turn." We were able to participate in the discussion and comment under each other's posts.
Does the approach require production or evidence of skill,	Y	There was a pre-assessment given at the start of the course along with 4 quizzes to test our knowledge on the concepts.

knowledge, ability or concept acquisition? If not, why not?		
Participation/Collaboration		
There is opportunity for synchronous or asynchronous review of posted products	Y	Discussion forum Job aid was useful for review after completing modules.
Teacher and peer feedback promote a Community of Practice/Wisdom/Knowledge	Y	Aside from audio cutting out in the feedback, the voice provides a sense of community; teacher feedback mostly, until someone replies to forum post. I agree that the instructor was responsible for creating a sense of community for this training. I can't say that I really felt it. I think I was looking for more feedback/knowledge when selecting a right or wrong answer. Maybe an example or a deeper "why."
Teacher and cohort can see who is contributing and how they are contributing to knowledge sharing	N	I say no for this one since there's just the one opportunity in the discussion forum at the very end. <i>This setting in the discussion forum prevents this element "Replies are only visible to those who have posted at least one reply."</i>
Variation in task readiness and ability to contribute is dealt with by providing group activities and effort to meet goals	N	Reading on-screen text; interactive flash cards require user engagement; activities/quizzes are mostly individual
Virtual opportunities to meet and collaborate are provided for if face to face meetings are not feasible and the instruction is online or blended	N	not provided Aside from the final Canvas Discussion, there are no opportunities for collaboration within the Canvas course.
Does the learning approach provide for collaboration? If not, why not?	N	Unless we want to argue that we're collaborating with the online agent, then the bulk of the training is individual Discussion forum - solve each other's problems I would say no on this one. I don't think the one discussion forum at the end speaks to a collaborative approach for the entire training.

Suggestions to the user:

From p. 12 of Capstone Paper, student's assessment of learning theory application:

"Learning Theory

The following shows the *constructivist* nature of this instructional design:

- Teachers will be asked to reflect on their own experiences so far as an adult teacher.
- Teachers will be asked to reflect on the activity and how they can apply it in their daily lesson planning." [emphasis added] (Manglicmot, 2021, p. 12)

1. Consider Behaviorist elements in the learning activity or that could enhance it if included.

Behaviorist learning theories suggest that learning happens through a stimulus/response engagement and that learning is purely environmental (Harasim, 2017). The first bit of evidence that aligns with this school of thought are the knowledge checks following each module focusing on a Knowles principle. The course required the learner to simply take in the information and regurgitate it through a simple quiz to demonstrate competency (very behaviorist).

But it pretty much stops there, it seems. The rest of the course branches out into more "deeper thinking" opportunities with the scenarios and the discussion forums. These would not qualify as behaviorist...way too much thinking going on for that.

2. Consider Cognitivist elements in the learning activity or that could enhance it if included.

Manglicmot (2021) states in the project's executive summary that, "constructivism is the leading theory for this instructional design" (p. 4). However, elements of cognitivism are present throughout, and, I would argue, more readily identifiable than constructivist ones.

Cognitivism grew out of behaviorism's inability to explain social behaviors (Harasim, 2017). It sees the brain as a computer, connecting prior knowledge with new, and is concerned with meaning construction through active engagement (Deubel, 2003).

As constructivism is built upon the assumption that "knowledge is essentially subjective in nature, constructed from our perceptions and usually agreed upon conventions" (Harasim, 2017, p. 7), I would argue that this course is largely NOT built on this learning theory. I believe it aims to *prepare* teachers to approach their students from a more constructivist stance, but the actual course presents facts (e.g., "Knowles' first principle is...") (i.e., behaviorism) and requests that the learner find the correct answer to application of these facts (i.e., cognitivism).

As evidenced by the “right” and “wrong” quiz questions, this course falls in line with the objectivist learning theories of behaviorism and cognitivism more than the subjective constructivist theory of learning (Harasim, 2017). This course still presents us with a stimulus and expects a response (behaviorism), but acknowledges our mental experience, calling on us to relate this new information within the context of known ideas (cognitivism).

Gagne’s Nine Events, which Manglicmot (2021) uses as a framework for the course’s design, was born from Gagne’s later orientation to cognitive (vs. behavioral) psychology (Deubel, 2003). Cognitivism thus provides the structure around which this course is built.

Additional examples of cognitivism:

- The real life scenarios allowed learners to apply principles and gain a better understanding of how to help adult learners. Also challenged us at the same time.
- There are multiple means of engagement from flashcards to quizzes.
- On the scenario video, when trying to apply our knowledge, it gave us feedback if we got the answer right or wrong. It would also give hints.
- The pre-assessment questions (warm up) allowed learners to elicit prior knowledge.

3. Consider Constructivist elements in the learning activity or that could enhance it if included.

There is one Constructivist elements in the course... “Knowledge is constructed by learners as they try to make sense of their learning experiences.” (Driscoll, 2005)

- Manglicmot states that “constructivism is the leading theory for this lesson,” however, the Discussion forum may be the only instance of constructivist practices. The discussion forum provided learners the opportunity to construct their own meanings and develop new knowledge.

4. Consider Connectivist elements in the learning activity or that could enhance it if included.

There are several Connectivist elements in this lesson (Harasim, 2017; Western, 2021).

- Technology is utilized to enhance the learning process via Adobe Captivate authoring tool to permit greater user engagement and interaction.
 - The flash cards allow learners to make choices within the lesson - deciding which card to flip over first, and the opportunity to practice.
 - The interactive quiz within the lesson prompts users to identify the pertinent adult learning principle in several scenarios - requires the learner to think and connect the theory to a useful scenario (adult learning).
- The Canvas discussion board facilitates collaboration by providing solutions to each other’s scenarios, offering different viewpoints and perspectives.

5. Consider Collaborativist (Community of Practice/Wisdom/Inquiry) elements in the learning activity or that could enhance it if included.

The bulk of this training was mostly using behavioral and cognitivist elements. There was a single example of a discussion forum being used at the very end. We feel that this training could be enhanced by taking a look at the possibility of using collaborative elements like the ones below:

Encouraging discussion: Including opportunities for participants to discuss the training material can promote critical thinking and help participants better understand the concepts presented. Group discussions can also help participants learn from each other and gain new perspectives. There was only one instance but it could have been beneficial to have a discussion after some of the sections. This could have helped learning through seeing others' perspectives and thoughts at the same point in the training.

Providing feedback: Collaborative learning allows participants to receive feedback from peers and trainers, which can help them identify areas of improvement and strengthen their skills. Same idea as above. Creating the community for giving and receiving feedback could have possibly been used.

Fostering a sense of community: Collaborative learning can help create a sense of community among participants, which can improve motivation and engagement. Participants may feel more connected to the training program and more invested in their own learning. Seeing where others are in the same training gives you motivation that you are on the right track or to make adjustments. In using this element you feel as if you are not alone in your thoughts.

6. Assess whether Schumann/Scherer Planes of Stimulus Appraisal (relevance, self and social status, novelty, pleasantness, and coping) are addressed/not addressed.

Relevance: The audience are teachers at an adult education facility. The relevance of awareness of adult learning principles is readily apparent.

- target audience = professional development instructors that want to help adult learners succeed in their courses. Learners may not know these terms and not see the relevance of course objectives: define andragogy, Knowles' 4 principles

Self and Social Status: Completion of this course might lead to some employer-provided accolades. If application of these principles results in higher student engagement and retention, social status will benefit.

- community building with classroom background image

Novelty: Course created in recognition of a gap in knowledge. Content assumed to be novel for many.

- Each principle's video follows the same general pattern: Slide (1) has image, text, & narration, (2) has image & text, very little narration, (3) has interactive flashcards - words without narration, then (4) move to next lesson. While the pattern may be comfortable, the mind may get bored with the lack of variety/novelty in presentation style. Varying the engagement slide would be helpful - instead of flashcards with words, use images or narration.

Pleasantness: The narrator's tone was pleasant, navigation was straightforward, and the overall

experience was acceptable/satisfactory. However, the layout of text/cut-off words detracted somewhat from the “pleasantness” of the experience.

- friendly bitmoji & classroom background; concerned, polite corrective feedback; encouraging confirming feedback; Text without speech is less pleasant/engaging

Coping: Many testing opportunities integrated throughout. Easy to navigate forward and backwards for review if necessary. Supportive and constructive feedback provided in response to quiz answers.

- Inability to **pause** made course navigation more difficult and time consuming. As Manglicmot (2021) acknowledges, “Additionally, some teachers would have liked a pause button to enable them time to take notes throughout the course. Without the ability to pause or scroll the play bar forward or backward, teachers needed to restart the media from the beginning. This led to more time spent rewatching the content rather than replaying missed information” (p. 21).
- (On p. 26, she suggests the course could be converted to H5P format to accommodate pausing...this seems unnecessary, shouldn't it be fixable in Adobe Captivate??)
- felt supported by the online agent - welcome video provides instructions for navigating content; opportunity to make and correct mistakes

7. Assess your application of learning theories to include enhancements you think may be necessary. (all)

If the desire is to make the course more “constructivist” could include more critical thinking/opportunities to implement and come back with personal insights that may or may not support the presented principles. Encourage learners to construct their own meaning.

If we want to create more community (Vygotskian social constructivism), further assessment of existing social structures (staff meetings, team building activities, work social media engagement) may support integration.

Based on the limited findings reflected in the paper, it does appear that it is quite difficult to gather teachers for different subjects, let alone for the same subject (Manglicmot, 2021). Capitalizing on online community boards that allow for asynchronous engagement might be the way forward.

The proposal cites constructivism and Gagne’s Nine Events of Instruction as the instructional/learning theories.

Welcome video

1 - Gain attention = “Did you know that adults learn differently from children?” Does this actually draw your attention? What would be a better way to do this?

2 - Objectives shown as on-screen text without narration, “here’s what’s in the course”... “and here are the objectives for this course.”

Narrator could read the more complete objectives to include condition, audience, behavior, & accuracy

3 - Prior knowledge - application to what learners know about pedagogy

Videos on principles/scenarios

4 - Present content - Knowles' intro, principles, and suggestions for application; flashcards with specific examples

5 - Learning guidance - proposal says the scenarios are meant to provide guidance, but I didn't pick up on explicit strategies for identifying a principle in a given scenario. It would have been useful to provide the job aid before the scenarios.

6 - Practice/performance - low-stakes knowledge checks - Canvas quizzes; application of principles to scenarios (drag & drop in Captivate)

7 - Feedback included in Canvas quizzes & Captivate scenarios

Final components

8 - Assessment = exit quiz

9 - Retention/transfer = scenarios and job aid

8. Take a meta-look at the learning and design theories and strategies you are applying to see that they are complementary and supportive of what it takes to increase the probability of emotional commitment.

Behaviorism and cognitivism: the predictability of the outcomes from these objectivist learning theories provide a solid foundation for learner accomplishment that supports motivation. If learners can come to the "correct" conclusions, as assessed by their instructors/courses, they may feel empowered to then take that knowledge and apply it in a "constructivist" fashion.

Clark and Mayer's (2016) coherence and personalization/embodiment principles of multimedia learning are utilized by Manglicmot (2021) in the Captivate tutorials.

Manglicmot's (2021) take on inclusion of multimedia principles:

"For the e-Learning course, the following multimedia principles were applied:

Coherence principle: all audio, written text, and images supported the instructional goal and excluded extraneous embellishments.

Personalization principle: rather than lecture-style commentary, audio was conversational. "A character leads the teachers through the course." (p. 14)

Emotional connection to the material could be improved by implementing the following principles:

- Contiguity (use text and speech instead of text alone): the sense of camaraderie was diminished when lengthy on-screen text was presented without narration. This was surprising after the warm engagement with the narrator on previous slides, then felt a disconnection when I was prompted to read a wordy slide.
- Redundancy (use graphics and narration without lengthy on-screen text): A few slides were heavy with text and images along with narration, causing cognitive overload. The lengthy text could be replaced by key terms to reduce the load on the visual processing channel.

- Personalization and embodiment are utilized well with the Bitmoji and the friendly, conversational tone of the human voice. Instead of using the same feedback for each question, greater emotional connection could be elicited with unique corrective and confirming feedback that is relevant to the quiz.

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Summary

This rubric was developed to relate elements of instruction to the Schumann/Scherer Planes of Stimulus Appraisal. The basic thesis is that the individual makes conscious and unconscious choices that are emotional with respect to learning. The assumption and hypothesis are that providing for presentation, practice, production, posting and participation will lead to a higher probability that learning will occur. You are invited to apply this rubric to your learning and training activity.