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ARCS Model and Instructional Design for Adult Learners in Online Learning Environment

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Abstract: Many educators and researchers consider learner motivation as one of the most important factors leading to success in traditional learning environments. Learner motivation plays a similarly important role in online learning. However, very little consideration of motivation has been integrated into instructional design in general, especially in the design of online learning. Using the framework of Keller’s ARCS Motivation Model, this paper discusses and recommends course design strategies for adult learners in online learning environments.

Small and Gluck (2000) indicate that a learner’s motivation to learn is as important as the learner’s ability to learn in predicting learning achievement. Learners, especially adult learners, learn better when they are motivated to learn. This is especially true in an online learning environment, where learners do not have the commitment of physically “attending” a class scheduled for the whole semester. Learners communicate with instructors and peers primarily through asynchronous, text-based messages. Because of the lack of non-verbal cues that enrich face-to-face interaction, online communication and interaction may certainly lead to feelings of isolation if instructors do not provide sufficient feedback and support to compensate for these missing elements and to otherwise engage and motivate the learners. Furthermore, as Elvers, Polzella & Graetz (2003) point out, the self-directed nature of many online courses provides learners with more opportunities to procrastinate than do traditional lecture classes, and the procrastination affects both their motivation and satisfaction with the online courses. For all of these reasons, one of the most important and challenging tasks for both instructional designers and online instructors is to motivate learners in online learning processes. The main purpose of this paper is to analyze and present instructional design strategies, based on Keller’s ARCS Motivation Model, that will enhance the motivation of students in online courses.

In addressing the issues in the research on motivation, Keller and Litchfield (2002) indicate that some researchers consider motivation as a construct in the affective domain while others think it comprises both cognitive and affective elements. Smith and Ragan (1999) place motivation in the affective domain and suggest that the research on motivation has shifted from a focus on extrinsic motivation to a focus on intrinsic factors. They also point out that the shift in the motivation research accompanies the shift from a behaviorist view of learning to a more cognitive-centered view of learning. Keller and Litchfield (2002), noting the large body of literature on motivation from the field of psychology, comment that very little from this literature has been integrated into instructional design, with the exception of two major concepts: using reinforcements to shape and sustain desired behavior and the attention-gaining principle in Gagne’s conditions of learning.

According to Smith and Ragan (1999), almost all reinforcement-based techniques target only extrinsic motivation factors, while intrinsic motivation exists within the learner and the learning task. However, human learners are too complex for psychologists and educational researchers to understand what individual characteristics lead to what kinds of intrinsic motivation. Keller (1999) indicates that motivation is traditionally considered as an
"untouchable," "idiosyncratic," and "variable" construct, which makes it almost impossible to understand the construct by a systematic approach. However, he further proposes that some "stable" or "predictably unstable" elements in motivation make it possible for educators to stimulate and maintain learner motivation through the design of learning environments, even though some intrinsic motivational factors are too complex or individual to be controlled in the design.

Partly in reaction to research and theories on learning that focused almost exclusively on learners' cognitive abilities to account for differences in learning (Smith & Ragan, 1999), John Keller (1987a; 1987b) developed the ARCS model, which focused on learners' motivation to learn and the manipulation of the learning environment and instruction to influence learner motivation. Grounded in several motivation theories, Keller's model may be the most comprehensive model in instructional design with a focus on motivation. The ARCS model provides a four-dimensional framework to clarify the vague and general concept of motivation, suggesting specific strategies and tactics under each dimension to be used in the actual application or design. These dimensions are alternatively referred to by Keller as human characteristics, requirements for people to be motivated, or categories of motivating strategies. The following table draws on the literature to summarize the dimensions of Attention, Relevance, Confidence, and Satisfaction.

<table>
<thead>
<tr>
<th>Four Dimensions</th>
<th>Kinds of Strategies (Keller, 1987b)</th>
<th>Model Subcategories (Keller &amp; Litchfield, 2002)</th>
</tr>
</thead>
</table>
| Attention: arousing and maintaining learner's interest in the instruction or the learning process. | 1. incongruity/conflict  
2. concreteness  
3. variability  
4. humor  
5. inquiry  
6. participation | 1. perceptual arousal  
2. inquiry arousal  
3. variability |
| Relevance: relation of the instruction or the content to the learner's personal goals; importance to the learner. | 1. experience  
2. present worth  
3. future usefulness  
4. need matching  
5. modeling  
6. choice | 1. goal orientation  
2. motive matching  
3. familiarity |
| Confidence: learner's expectancy, feelings, control for success (e.g. ability to learn or perform a task as the result of learning). | 1. learning requirements  
2. difficulty  
3. expectations  
4. attributions  
5. self-confidence | 1. learning requirements  
2. success opportunities  
3. personal control |
| Satisfaction: learner's sense of achievement regarding the learning process or experiences reflected through extrinsic or intrinsic factors. | 1. natural consequences  
2. unexpected rewards  
3. positive outcomes  
4. avoidance of negative influences  
5. scheduling | 1. intrinsic reinforcement  
2. extrinsic rewards  
3. equity |

The table above shows different versions of strategies described by Keller (1987a) and Keller and Litchfield (2002). All these strategies or subcategories are specific aspects of Keller’s model intended to enhance the systematic application of motivational design in instructional planning. Keller (1999) points out that developing and implementing the full motivational design model, like any instructional design, can be very time-consuming and even confusing to people who are not trained for its applications. Suzuki and Keller (1996, cited in Keller, 1999) developed a simplified motivational design approach to ease this process, and this simplified version has been validated in two international contexts (Keller & Litchfield, 2002).

Instructional design plays a key role in integrating the elements of human touch that characterize face-to-face settings into the online learning environment. In addition to communication, other aspects of the online learning environment, such as assessment techniques and pedagogical considerations, are closely related to learner motivation, as well.
The ARCS model is considered as a sequential, problem-solving process (Keller & Litchfield, 2002; Driscoll, 2005), and has been applied to a variety of learning environments, including classroom instruction, self-paced printed-based instruction, computer-based instruction and multimedia based instruction (Keller, 1999). Bohlin and Milheim (1994, cited in Driscoll, 2005) suggest that the ARCS model can be used as the basis for determining the motivational factors of adult learners, and the best way to respond to them. There have been many studies investigating the effect of learner characteristics and motivation in traditional classrooms, but little research on learner characteristics and motivation in online learning (Lim & Kim, 2003). Chyung (2001) reported the use of Keller’s ARCS model and Kirkpatrick’s evaluation model in redesigning an online program for first-time adult learners and solving the serious learner attrition problem. The following table summarizes some of the considerations that we consider as the most important ones when designing online courses for adult learners based on Keller’s ARCS model:

<table>
<thead>
<tr>
<th>Adult Learners in Online Learning</th>
<th>Design Specifics from Keller’s ARCS Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attention</td>
</tr>
<tr>
<td><strong>Attitudes toward online learning / distance learning</strong></td>
<td>Send learners motivational messages in the beginning of the course, and during the course.</td>
</tr>
<tr>
<td><strong>Competency of using technology</strong></td>
<td>Provide a checklist for learners’ self-assessment of their comfort level with technology use.</td>
</tr>
<tr>
<td><strong>Role of experience</strong></td>
<td>Plan instructional activities for sharing prior experience, current learning experience.</td>
</tr>
<tr>
<td><strong>Self-direction</strong></td>
<td>Inform the learners of the learning goals, objectives, expectations, and evaluation criteria in the beginning of the instruction.</td>
</tr>
<tr>
<td><strong>Different learning styles</strong></td>
<td>Use a learning style inventory or May design and develop different</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Positive / negative emotions in learning</th>
<th>Personality type test in the beginning of the course.</th>
<th>Types of activities or assignments for the four types of learners.</th>
<th>Activities, assignments for learners to choose based on their interests or preferred methods.</th>
<th>Personal suggestions or feedback on the specific learning tasks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional activities (interpersonal interaction, group projects, community practices).</td>
<td>Make clear criteria for evaluating both quantity and quality of the messages posted on certain topics.</td>
<td>Confidence may wear off as the learners lose their curiosity about online learning or the course; need to establish good peer support, encouraging instructional activities, and/or evaluation criteria.</td>
<td>Provide in-time, positive, and specific feedback and support for the learners.</td>
<td></td>
</tr>
<tr>
<td>Instructor beliefs / assumptions</td>
<td>Initial curiosity about the course is only temporary; need to sustain their interest in the course.</td>
<td>Andragogical versus pedagogical considerations when planning and designing instruction; teaching philosophy and styles; different approaches to adult learning.</td>
<td>Teach by reflecting on how we learn, our philosophy, our beliefs, and how we teach in practice; constantly revising based on our role as facilitators.</td>
<td>The role of facilitator who shares the responsibility and growth in the learning process with the learners.</td>
</tr>
</tbody>
</table>

This paper has discussed the relevance of Keller’s ARCS model as the basis for instructional design of online learning, particularly for adults. The information provided should be helpful to both instructional designers and online instructors in identifying and understanding appropriate strategies to motivate online learners.

References:


