

USING THE ARCS MODEL TO DESIGN MOTIVATING CURRICULUM

Cheryl McConnell, Rockhurst University

cheryl.mcconnell@rockhurst.edu

Gail Hoover, Rockhurst University

gail.hoover@rockhurst.edu

Craig Sasse, Rockhurst University

craig.sasse@rockhurst.edu

ABSTRACT

Most instructors recognize the correlation between student motivation and academic learning and achievement. John Keller (1983) developed the ARCS model (Attention, Relevance, Confidence, Satisfaction) to help instructors design motivating curriculum. The ARCS model provides a practical framework aimed to increase student effort toward instructional goals. This paper will describe how the ARCS model can be used to design and improve instruction. Multiple strategies are presented for increasing student perceptions in each of the four motivational constructs.

INTRODUCTION

Most university instructors recognize there is a direct correlation between motivation and academic learning and achievement. Instructors, however, often have no practical way to address student motivation in designing and delivering their instruction. John Keller (1983) developed the ARCS model to help instructors operationalize the important elements of motivation so that they could improve the motivational impact of their instruction. The ARCS model provides a practical framework for faculty to devise motivationally designed strategies to increase student effort toward instructional goals. This paper will describe how the ARCS model can be used to design and improve instruction.

THE ARCS MODEL

Based on the body of achievement motivation literature, Keller (1983) developed the ARCS model as both a tool to design motivating instruction and as a framework from which motivational perceptions of students could be assessed. ARCS is an acronym identifying the four constructs to achieving motivation: Attention, Relevance, Confidence, and Satisfaction. Keller identifies specific motivational objectives related to these constructs that can be met in any instructional sequence (see Table 1). Thus, the ARCS model serves as a tool for instructors to make specific instructional interventions in terms of increasing student interest and motivation in the courses they teach.

Specifically, this paper will describe how university professors can use the ARCS model to help them design — either at the first stages of a new course or as an intervention to an existing course — motivating and appealing instruction for their students.

Table 1 - Motivational Components and the Objectives Sought by Instruction*	
ARCS Component	Instructional Objectives
Attention	Capture learner interest; Stimulate curiosity; Maintain learner attention
Relevance	Address learner needs; Provide appropriate choices and responsibilities for learners; Tie instruction to learner's experiences
Confidence	Build positive expectation for success; Support students' beliefs in their competence; Communicate that success is based on effort and ability
Satisfaction	Provide meaningful opportunities for learners to use their newly acquired skills; Reinforce learner successes; Leave students with positive feeling for their success
* From Keller, 1987b	

USING THE ARCS MODEL

Motivation research suggests that an essential component of motivation is based on expectancy-value theory. That is, the expended amount and level of effort is dependent on the value the individual places on accomplishing the task and the individual's perception of their ability to successfully achieve the task. The ARCS model asserts that careful instructional design can influence and improve student perceptions of value and expectancy for success. Understanding each subscale and how it relates to student motivation is essential before designing instructional interventions to increase motivation.

This section of the paper will 1) describe each subscale as it relates to the university classroom, 2) identify primary design or improvement questions to address when evaluating or designing courses, and 3) provide supporting strategies to address the design questions.

ATTENTION SUBSCALE

The first ARCS subscale refers to capturing and sustaining student attention. Keller states, "In the learning process, a student's attention has to be directed to the appropriate cues, but before it can be directed, it has to be acquired. The motivational concern is for getting and sustaining attention. It is not usually too difficult to get attention, but sustaining it is often a challenge." (Keller 1987a, p. 1) In addition, the instruction should help stimulate an attitude of inquiry and generate interest in the particular topic and the subject in general.

At the university level, students have substantial responsibility to engage in the learning environment and remain attentive. However, the instruction can enhance students' ability and willingness to focus attention on the learning outcomes. That is, the instructor can design and deliver instruction that captures and maintains student attention. Attention strategies include using incongruity and conflict in presenting issues, using engaging instructional materials in text or video format, incorporating problem solving activities, and providing students the opportunity to select projects or topics that reflect their interests.

The following table provides classroom design questions an instructor might consider when addressing the attention subscale.

Design Questions	Examples of Supporting Strategies
How can I stimulate an attitude of inquiry?	Use exercises, activities or questioning techniques that generate unanswered questions or increase curiosity about a topic.
What can I do to capture student attention for this topic or content area?	Create student curiosity by using brief real or fictional case studies to introduce a topic.
Once I capture their attention, how can I maintain their interest?	Create connections by solving or helping students solve the unanswered questions generated about a topic. Vary styles and instructional methods. Allow student choice in selecting topics that interest them.

RELEVANCE SUBSCALE

The relevance subscale refers to how important students view the subject matter being learned. In terms of expectancy theory, if students perceive the material or exercises as relevant to their personal or educational needs, the level of effort expended will increase. Relevance answers the question, "Why or how is this material important to me?"

Relevance can be present or future oriented. In an instructional setting, present-oriented relevance can be achieved by linking course content or concepts to the students' existing frame of reference. Relevance is achieved by a student understanding how the content or concept relates to his or her prior experiences or knowledge base. Future-oriented relevance is achieved by linking course content or concepts to the students' future goals. Using job-related examples in the classroom or scheduling outside speakers from the students' profession are methods to increase future-oriented relevance. Table 3 provides design questions and supporting strategies related to the relevance subscale.

Design Questions	Examples of Supporting Strategies
What existing knowledge or experiences do students have related to the topic?	Survey students on the first day of class as to their prior courses, job experiences and career goals.
How can I relate the topic to students' present knowledge or experiences?	Create intentional connections between experiences of <i>this</i> student group to the topic. The closer the connections, the greater the perceived relevance.
How can I relate the topic to students' future profession or goals?	During class discussions or exercises, create situations in which students are responding in the role of their future profession. Use alumni as guest lecturers.

CONFIDENCE SUBSCALE

The confidence subscale measures the students' perception of their ability to successfully learn or perform the required concept or task. Experiences that are challenging enough to require thought and effort to succeed facilitate learning. Experiences that are *unnecessarily* vague or unstructured,

or that are challenging to the degree of serious anxiety do not facilitate learning and are not motivating to students. High confidence leads to students maintaining effort associated with performing a task. Low confidence leads to blocks that prevent students from beginning or engaging in learning activities. (Smith and Ragan, 1993).

Designing classroom experiences that increase student confidence depends on the student level and course objectives. Logically, a sophomore introductory course with unfamiliar material would lend itself to moderately challenging exercises that are clear, relatively structured, and have early and frequent feedback. Advanced courses within a major would lend themselves to a higher level of uncertainty in the exercises or experiences, as well as a higher level of challenge. A successful instructor will read the classroom and make the adjustments necessary to challenge students to meet and exceed objectives, and he or she will also recognize indicators of unnecessary anxiety that can lead to lower confidence and student efforts.

Table 4 provides design questions and supporting strategies related to the confidence subscale.

Table 4 - Confidence Subscale Design Questions and Supporting Strategies	
Design Questions	Examples of Supporting Strategies
Do students fully understand my expectations and course requirements?	When assigning student projects or activities, give explicit guidance on the expected outcomes as well as how the activity will be evaluated. Let students know the likelihood of success given varying amounts of effort.
Did I consider student composition and course level when designing the classroom activities?	Evaluate classroom assignments in introductory versus advanced courses. Assess the level of instructor support required at each level. Evaluate whether your assignments are not challenging enough or too challenging for the course level.
Do I appropriately support students in unstructured activities so that they are challenged to achieve the objective, but are not overwhelmed by the activity?	If asking students to perform a novel or unfamiliar task or activity, model the expectations. Give enough guidance to remove unnecessary anxiety, but yet achieve challenging learning objectives.

SATISFACTION SUBSCALE

Satisfaction is achieved when students connect the achievement of learning goals with their individual effort. The connections can be made as the course progresses as well as when the course is completed. Satisfaction is also achieved when students are stimulated to maintain or increase efforts because of feelings of challenge or accomplishment.

To connect learning goals with effort as the course progresses, students should be able to compare their performance with stated expectations and see how their efforts have led to achievement of course goals. Implicit in this subscale is an element of equity. Students need to perceive that their efforts are being evaluated equitably as compared to the efforts of other students. At the end of the course, satisfaction can be enhanced when students see how they are now able to perform significant or comprehensive activities that they did not have the skills for at the beginning of the course. This summative confidence helps students feel a continued motivation to learn. If they are close to graduation, it can also help promote their transfer of new skills to their first professional work environment. To increase feelings of positive challenge or accomplishment, instructors can focus on personal attention, consistent feedback and the avoidance of negative comparisons.

Table 5 provides design questions and supporting strategies related to the satisfaction subscale.

Table 5 - Satisfaction Subscale Design Questions and Supporting Strategies	
Design Questions	Examples of Supporting Strategies
Have I provided sufficient and appropriate opportunities for students to demonstrate their achievement of course objectives?	Review your course evaluation structure; Reflect on the quantity of exams, exercises and projects; Discuss course evaluation strategies with colleagues in your area.
Have I recognized student achievement in ways other than course grades?	Use verbal praise when appropriate; Recognize student achievement in front of others; Showcase quality student work in your classroom and office.
Have I considered a culminating exercise to help students understand how their course experience relates to other courses or their work environment?	Reserve all or part of the final class session for reflection and application exercises.
Are course requirements and policies applied consistently throughout the semester? Are exceptions rare and justified?	Review the syllabus to ensure that course policies are included and are presented clearly; Compare your course syllabus with those of other colleagues you respect to assure you have considered other class policies

CONCLUSION

When thoughtfully implemented, instructional activities often affect several motivational subscales. For example, a late-semester project could increase student perceptions of relevance as well as satisfaction. A targeted case study could improve student attention and relevance. A more comprehensive case study at the end of the semester could increase student confidence and satisfaction. A thorough understanding of the subscales and strategies allows an instructor to design interventions that can potentially increase motivation in several areas.

Designing motivational instruction can enhance learning outcomes. As students increase their expended amount and level of effort, classroom objectives can be more easily met. Instructors interested in intentional improvement of their existing courses can design interventions to increase one or more of the motivational constructs in the ARCS model. Used as a design strategy, an instructor can intentionally structure each topic while attending to the ARCS subscales.

REFERENCES

- Cushing, B. (1997) Christy's Lemonade Stand: An Introduction to Accrual Accounting. *Issues in Accounting Education*, 12(1), 161-163.
- Keller, J.M. (1987). Strategies for stimulating the motivation to learn. *Performance & Instruction*, 26(8), 1-7.
- Keller, J.M. (1987). The systematic process of motivational design. *Performance & Instruction*, 26(8), 1-8.
- Smith, P.L., & Ragan, T.J. (1993). *Instructional Design*. New York: Merrill.
- Small, R.V., & Gluck, M. (1994, Oct.). The relationship of motivational conditions to effective instructional attributes: A magnitude scaling approach. *Educational Technology*, 33-40.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.