ARCS Model of Curiosity

Our understanding of curiosity has developed over time. In the 1980s, curiosity was understood as the optimal zone of interest, between boredom and anxiety. Curiosity is multifaceted and influenced by an individual's predispositions and the stimuli. The ARCS model of curiosity defines curiosity as a product of attention, relevance, confidence,and satisfaction. Each factor is a prerequisite for the following factors. For example, without sustained attention, students won't be able to understand the relevance of a subject to their lives. We can increase attention by introducing the subject and presenting the material in an engaging way. We can increase relevance by giving students choice, helping them understand how this knowledge is applicable in their lives, or by "introducing a curiosity-arousing situation which has at least some familiarity to the learner (that is, the learner already has some knowledge about it)" (Arnone & Small, 1995, p. 9). We can increase students' confidence that they can answer their questions or resolve the cognitive conflict by selecting appropriate challenges and building positive expectations. Finally, we can increase students' satisfaction by helping them recognize the feelings of accomplishment and pleasure that come from learning new things. Arnone & Small (1995) provide additional recommendations for fostering each factor of curiosity beyond what has been summarized here (p. 13-14).

The ARCS curiosity model has also been used to improve student motivation. Hattie and Zierer (2018) argue that it is the role of the teacher "to set the tone in the class and to motivate students, not vice versa" and that this can be accomplished using strategies from the

ARCS model (p.50). They provide strategies for generating motivation in each of the four categories: Attention, Relevance, Confidence, and Satisfaction. These strategies are illustrated in the table below.

Attention	Relevance	Confidence	Satisfaction
Perceptual arousal Provide novelty and surprise	**Goal orientation** Present objectives and useful purpose of instruction and specific methods for successful achievement	**Learning requirements** Inform students about learning and performance requirements and assessment criteria	**Intrinsic reinforcement** Encourage and support intrinsic enjoyment of the learning experience
Inquiry arousal Stimulate curiosity by posing questions or problems to solve	**Motive matching** Match objectives to student needs and motives	**Successful opportunities** Provide challenging and meaningful opportunities for successful learning	**Extrinsic rewards** Provide positive reinforcement and motivational feedback
Variability Incorporate a range of methods and media to meet students' varying needs	**Familiarity** Present content in ways that are understandable and that related to the learners' experiences and values	**Personal responsibility** Link learning success to students' personal effort and ability	**Equity** Maintain consistent standards and consequences for success

Source: Keller (2010)

Does it work?

Feng and Tuan (2005) assessed the effectiveness of integrating the ARCS model into chemistry lessons on high school students' motivation and engagement in the lessons. Fifty-one 11th grade students participated, half being assigned to the lessons using the ARCS model and the other half to a control group with traditional lecture-style lessons. Students in the ARCS model classroom reported higher levels of learning motivation following the intervention, as measured through a greater sense of self-efficacy and confidence, more frequent use of active learning strategies, and a deeper understanding of the value of science learning. Additionally, students reported an improved ability to pay attention and be engaged for the duration of the class period (Feng & Tuan, 2005). A meta-analysis of 38 controlled experiment studies of ARCs model use in classroom instruction, with a total effect size of over 8000 students from grades K-12 and higher education, also found that the ARCS model has a positive effect on both student motivation and academic achievement (Gosku & Islam Bolat, 2021).

References

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