Verification of the Practical Uses of the ARCS-V Model

Koji Nakajima
nakajima@ogu.ac.jp
Osaka Gakuin University / Kumamoto University
Osaka / Kumamoto, Japan

Aya Watanabe
ayaw@kumamoto-u.ac.jp
Graduate School of Instructional Systems
Kumamoto University
Kumamoto, Japan

Hiroshi Nakano
nakano@cc.kumamoto-u.ac.jp
Graduate School of Instructional Systems
Kumamoto University
Kumamoto, Japan

Katsuaki Suzuki
ksuzuki@kumamoto-u.ac.jp
Graduate School of Instructional Systems
Kumamoto University
Kumamoto, Japan

ABSTRACT

In this paper, the authors describe the progress of their study about practical uses of the ARCS-V model. After more than twenty years of stable periods, the ARCS-V model has been expanded from one of the representative instructional design models, the ARCS model. The "V" factor is planned to assist instructors for having learners keep their motivation and volition for reaching their goals. The authors planned to verify the practical uses of the ARCS-V model to make clear if there is any situation where the ARCS-V model is more useful than the original ARCS model. Volition-related tools for the ARCS-V model were designed to follow the idea of the tools for the ARCS model, such as a hints list and a worksheet of motivational design steps. They were to be applied in this study to verify if these tools can assist instructors to prepare proper and useful strategies for learner's volition. The tools were reviewed by the instructional design experts to be improved regarding the validity and the intelligibility. Also, potential scenarios of a sample class which has motivational issues are going to be provided as a tool for the verification. The processes for the verification including the usage of the scenarios are described in detail and the future tasks are also discussed.

Keywords: the ARCS model, the ARCS-V Model, volition, design tools, learner motivation

INTRODUCTION

Recently, one of the representative instructional design (ID) models, the ARCS model, that deals with learner's motivation was expanded by adding the volition factor and was advocated as the ARCS-V model (Keller, 2008). On the other hand, there is the other expanded model called the ARCS+AT model with an additional factor of "Assistance and Tools (AT)" which is aimed to provide universities a framework for assisting university faculty for utilizing e-learning (Nakajima et al., 2011). In this paper, the ARCS-V model is focused on and a study about the verification of the practical uses of the model is described.

While the ARCS model classifies learner's motivation in four aspects of Attention, Relevance, Confidence and Satisfaction and provides instructors hints for motivating learners, the ARCS-V model focuses especially on the strategies for sustaining the motivation learners once get by adding a new factor of volition. "Volition" is defined as "a

concept of actions and attitudes regarding continuance of the effort to achieve a goal". "Motivation" is defined as "a meaning of what people want, select and act, and a meaning of what people devote all the strength to" (Suzuki, 2010).

The ARCS-V model has not been studied much when compared to the original ARCS model. The subcategories of volition factor of the ARCS-V model are not identified yet, while the subcategories of the original four factors are already defined. To deal with this, there is a study which has proposed the subcategories of volition factor (Nakajima et al, 2012a ; Nakajima et al, 2012b). The subcategories proposed in this study were applied directly to the ARCS model proponent, Keller. Then the differences between the applied ones and the ideas Keller had explained became clear (**Table 1**). So the authors continue discussions with Keller now to meet with the best conclusion. At the classification of the volition subcategories of the ARCS-V model, it is vital to clarify a domain concerned with volition in a macro model (MVP model; Keller, 2008) that expresses the cycle of learning activities and learner's psychological environment because it is the background of the ARCS-V model. The reason why the differences at the classification came out will be because of the differences of understandings of this domain in the cycle. Nakajima et al (2012) proposed that the domain will include also the area of "mental resource management" that connects between "motivation & volitional processing" and "information & psychomotor processing".

Table 1. Comparative table of the volition subcategories

	Keller's subcategories	Nakajima et al.'s subcategories
V-1	Strong Intentions (Commitment)	Implementation Intention
V-2	Taking the First Step (Action Initiation)	Appropriate Self-control
V-3	Self-Regulation (Action Control)	Self-monitoring

*Keller's subcategories are quoted from Keller (2012).

PURPOSE OF THIS STUDY

After it was advocated in 1983, the ARCS model has been studied by many researches (Suzuki et al, 2010) and practiced in Japan in many situations, not only at school but also in business training. To realize why such a popular ID model was expanded recently, it must be significant to verify if the expanded model can be beneficial in practical situations. By this verification, the answers to questions such as "Does the ARCS model need to be expanded?" or "Isn't the ARCS model already enough for any situation?" will be guided clearly. The purpose of this study is to clarify if the ARCS-V model can provide instructors hints to solve motivational and volitional problems more properly than the ARCS model. The other purpose is to identify the situations in which the ARCS-V model can be useful. Then the method of using the ARCS-V model effectively will be suggested.

VERIFICATION OF THE PRACTICAL USES OF THE ARCS-V MODEL

To verify the practical uses of the ARCS-V model, the authors arranged some tools for checking how this model can guide strategies for solving motivational and volitional problems at practical situations. These tools are prepared to be used by instructors at universities and are going to be analyzed by checking the results of the uses.

Design of the Tools for the Verification

For the ARCS model, the hints list of each factor for practical uses is provided for instructors and learners (Suzuki, 2002). So the authors proposed additional hints for volitional factor and arranged it as the hints list for the ARCS-V model. At this preparation,

the authors supported the classification of volition subcategories by Nakajima et al (2012a). These theories such as "implementation intention (Gollwitzer, 1996)", "action control theory (Kuhl, 1984)", "self-regulated learning (Zimmerman, 1990)" were rationale for this classification. The hints for volition subcategories were picked up by presuming that the strategies supported by these theories will sustain learner's volition to reach the goal. Then the Design-Step for Motivational Strategies sheet (Design-Step sheet) were prepared so as to assist instructors to analyze learners and his/her own class and contrive strategies for the motivational and volitional problems. Design-Step sheet is based on the idea of 10 steps for the motivational design (Keller, 2010; **Table 2**) and was arranged in a simple format. Instructors will be able to find out the best strategies by taking steps of the sheet that reflects the concept of the ARCS model or the ARCS-V model.

Review by ID Experts

A review by two ID experts was done before the verification by these tools to evaluate the validity and the intelligibility of the hints list and the Design-Step sheet and improve them. The reviewers have considerable insight of ID through the experiences of ID research or practical implementations at ID experts institute. They tested the tools and answered the questionnaires and then they were involved in a meeting to explain the results of the review. They pointed out the lack of concreteness in the hints list and suggested how to show examples for the instructors, so that they will feel confidence to try for the actions. Then the hints list was revised and completed as the hints list for ARCS-V model (**Table 3**). The notation in Design-Step sheet was also revised and completed (**Table 4**).

Table 2. 10 Steps for Motivational Design (Keller, 2010)

Analyze	Design	Develop	Pilot Test
1. Obtain course information 2. Obtain audience information 3. Analyze audience 4. Analyze existing materials	5. List objectives and assessments 6. List potential tactics 7. Select and design tactics 8. Integrate with instruction	9. Select and develop materials	10. Evaluate and revise

Table 3. Hints list for the ARCS-V model (extracted) (Nakajima et al, 2013)

Attention

A-1: Perceptual Arousal

・Devise an opening and attract attention. (Illustration at the cover, Title naming etc.)

A-2: Inquiry Arousal

・Lock first and guide them to figure out in the textbook.

A-3: Variability

・Not with long explanation. Keep making changes at check-tests, exercises or summary.

Relevance

R-1: Familiarity

・Explain how it connects to the things they learned before or their premise skills.

R-2: Goal Orientation

・Explain how they can make the best use of what they learned.

R-3: Motive Matching

・Pay attention where to write advices or hints for learners who want to access to them.

Confidence

C-1: Learning Requirement

・Show clearly what must be done for reaching the goal. (conditions or standard)

C-2: Success Opportunities

・From easy ones to difficult ones. Give chances to experience small but steady success.

C-3: Personal Control

・Let learners decide when to finish. Let them keep trying as much as they wish.

Volition

V-1: Implementation Intention

・Let learners write down (1) why motivated? (2) why heading for the goal?, at the beginning. Let them realize that they will look back what they described later

・Let learners make clear of the goals and when and what to do in their schedule.

・Let learners realize that they will look back at the goals and the schedule of fixed internals.

V-2: Appropriate Self-control

・Let learners realize that there are things that may cause them to lose their motivation on the way to their goals.

・Let learners check if there are things with no relation for reaching the goals and let them exclude these things from their plan.

・Let learners check if there are things in their plan which will weaken or bother their motivation or distract them.

・Let learners look back at what they wrote; (1) why motivated? (2) why heading for the goal?, and remind them the motivation they had at the beginning.

・Let learners realize that they can avoid or ask others for help when they meet with things that they cannot deal with themselves.

・Let learners discuss with others about their plans and learning activities each other.

V-3: Self-monitoring

・Let each learner manage a learning-portfolio and collect their learning outcomes.

・Let learners check how much they progress and realize how much they have left for the goals.

・Let learners reflect what they have learned and let them modify the plan if it has not progressed properly when compared to the original plan.

Satisfaction

S-1: Natural Consequences

・Give chances to check how they accomplished on the basis of the goal.

S-2: Positive Consequences

・Emphasis the utility value or the importance of knowledge and skills they mastered.

S-3: Equity

・Keep consistency through goals, exercises and examinations in class.

* Hints for ARCS are extracted from Suzuki (2002). Hints for V are proposed additionally.

Table 4. Design-Step sheet (extracted) (Nakajima et al, 2013)

Step	Task
1	Type the basic information of your class.
2	Check if there is any motivational problem in your class.
3	· Analyze your learners (by the ARCS model or the ARCS-V model). · Analyze your lectures (by the ARCS model or the ARCS-V model).
4	· List up (1) goals for solving motivational and volitional problems, and (2) evaluation methods for each, based on the results from the previous step. · List up strategies for reaching the goals by referring to the hints list of the ARCS model or the ARCS-V model.
5	Design and develop your class and textbook by these strategies.
6	Implement the strategies and evaluate them.

IMPLEMENTATION PLAN FOR FORMATIVE EVALUATION

At the verification, the tools are prepared for both of the ARCS model and the ARCS-V model. Then potential scenarios of class situations were also prepared. It aims to save the results of the experiments from too much diffusion that must happen in the case that we ask the instructors to try the tools with their own classes. One of the scenarios is designed as the volitional aspects seem to work, and another one is designed as it will not work (**Table 5**).

Instructors at the verification will be divided into four groups by two factor design (**Table 6**) and be asked to contrive motivational strategies by using the tools. Then the sorts and numbers of the strategies from each group will be analyzed.

At the formative evaluation the authors are planning, ID experts will be asked for testing all the tools again to improve the quality. Then instructors from universities will be asked to join the one-to-one evaluation of the tools. Observing the way each one uses the tools and the interviews after he/she finish it will help the revisions of the experiment plan. And finally, the experiment for verification will be done with the four groups shown in **Table 6**. The results will make clear the situations the ARCS-V model is more useful than the ARCS model, if it is true.

Table 5. Comparison of the characteristic of two scenarios

Scenario designed for volition	Scenario designed not for volition
Each task is connected through class.	Each task is just for each lesson.
Cooperation with other learners.	No cooperation with other learners.
No problem with the difficulty of instructions.	Problems with the difficulty of instructions.
The ability of learners is enough for the class.	

Table 6. Grouping for the verification

	Tools for the ARCS model	Tools for the ARCS-V model
Scenario for volition	Group 1	Group 2
Scenario not for volition	Group 3	Group 4

DISCUSSION

The motivational or volitional strategies listed by the instructors in this verification will be analyzed among four groups to find out if there is any significant difference. Comparison indexes will be the results such as total numbers of strategies the instructors from each group listed, and numbers or percentage of volition related strategies within. In this case, we have to discuss if the assumption is valid; (1) there was no significant difference about volition related strategies between group 3 and 4, and (2) there was significant difference about volition related strategies between group 1 and 2, if both of (1) and (2) is true, it proves that there is a situation the ARCS-V model can be more useful than the ARCS model. At this point, the authors presume that it is valid because it is true the instructors succeeded in finding volitional solutions with the ARCS-V model more than with the ARCS model in that situation.

Another discussion is if the comparison indexes should include the outcomes from the learners such as the changes of motivation or learning results after the class with the strategies are done. We are going to work on this issue by taking time and planned steps.

CONCLUSION

In this study, we planned the verification of the practical uses of the ARCS-V model and arranged some tools. Through the review by ID experts, we improved the validity and intelligibility of the tools. We planned to move to the next step of formative evaluation and the final experiment. Also we discussed about the validity of the process of the verification. We will contribute to the ARCS-V model study and try to show how to use the model for solving the motivational and volitional problems in classes.

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