



## Integrating Motivation in Instructional Design

Shu Ling, WONG<sup>a\*</sup>, Su Luan, WONG<sup>b</sup>

<sup>a,b</sup>Faculty of Educational Studies, Universiti Putra Malaysia  
\*shulingjt@gmail.com

**Abstract** – This paper explores the construct of motivation from the perspective of the instructional designer or teacher. It describes the motivation to learn in the context of intrinsic motivation, Expectancy-value Theory, Self-efficacy Theory, and Attribution Theory. The ARCS motivational model is examined in detail before discussing how motivation can be integrated in instructional design to enhance learning. This paper also explicates Cheng and Yeh's (2009) framework in the context of classroom learning.

**Keywords:** Instructional design, motivation, motivational design, ARCS model, motivational learning, motivational adaptive instructions

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### Introduction

Motivation can be defined as the reason that moves people to strive for what they desire, or the willingness to do something to achieve their goals. Hence, motivation explains the magnitude and direction of people's behaviour (Keller, 2010). For more than two decades, the motivational theorist have been discussing the role of the motivation construct in the learning context and its application by the teacher or instructional designer to engage students in learning tasks so that learning can be more effective (Keller, 2010; Brophy, 2004; Ryan & Deci, 2000). This paper analyses contemporary motivation theories and related models from the perspective of the teacher or the instructional designer. It explores and discusses the adaptation of a motivational design model to an instructional design model to provide a pragmatic application of the motivation construct.

### Motivational theories and concepts

According to the Self-determination Theory (Deci & Ryan, 1985), the ideal state of motivation is intrinsic motivation. When students choose to engage in an activity for the sake of the activity itself rather than for extrinsic rewards, the result is high-quality learning (Ryan & Deci, 2000). However, school and classroom settings may not be always conducive for students to exercise autonomy for intrinsic motivation to occur. This is mainly because teachers are required to follow the curriculum that has been set by higher authorities. Moreover, it is difficult for teachers to individualise the lesson for a class of 20 or more students; neither are they able to evaluate each performance by their students all the time. There is also pressure from peers and family to ensure completion of the curriculum.

For students to be intrinsically motivated in classroom learning, the task or content of the lesson itself must be appealing or interesting. Unfortunately, not all school tasks or lessons fall in that category. Hence, teachers are urged not to always depend on intrinsic motivation to foster learning (Ryan & Deci, 2000). In addition, the focus on motivation should shift to the level, rather than the type of motivation. The level of motivation varies according to the degree that students are volitional or how much they have accepted the responsibility and sense of value for extrinsic goals (Ryan & Deci, 2000). In other words, motivation in the classroom setting can be enhanced by promoting more active learning; students should be made more aware of their role in the learning process and take responsibility for it regardless of whether or not the instructions or materials are interesting.

Brophy (2004) is of the view that teachers should put more effort into formulating teaching strategies that stimulate the motivation to learn. To ensure that students take the initiative to make sense of the information received and build on skills while being engaged in a learning activity, they should be involved in the learning activity with an intention (Brophy, 2004, 2008). This argument implies that teachers' instructional strategies play an important role in motivating students to learn. Brophy's arguments on the motivation to learn are based on the Expectancy-value Theory.

#### *Expectancy-value Theory*

Atkinson (1957) first introduced the Expectancy-value Theory in his discussion on how motivation is a product of the extent people expect from themselves to be successful in an activity, and how much they value the activity or the outcome from it. This theory has been studied further by Wigfield and Eccles (2000) in the context of the nature of the expectancy and value construct. In their model of achievement motivation, subjective task values include attainment value, intrinsic value, utility value, and cost. Attainment value refers to the significance of performing well on a given task, i.e. what one can gain by doing it well. Next, intrinsic value is similar to intrinsic motivation as expounded by Deci and Ryan (1985); it refers to how much one enjoys oneself when engaged in a task or participating in an activity. Utility value refers to how one can apply or use the knowledge or skills learned from an activity. Lastly, cost refers to how much effort is needed to be committed to the task at hand. In short, when a task is perceived as potentially beneficial and useful, as well as enjoyable, one would be committed to completing the task. This would result in a higher self-belief in one's ability, thus leading to a greater chance of success. Similarly, Wigfield and Eccles (2000) posit that their expectancy construct is focused on one's own expectations of success rather than expectation of the outcome, and they argue that it concurs with the self-efficacy construct by Bandura (1994).

#### *Self-efficacy*

Bandura (1994) states that self-efficacy is the perception of oneself with regard to his or her competency to accomplish a task or achieve a goal. He believes that one's motivation is generated in conscious forethought. In other words, motivation is generated cognitively. Cognitivists posit that motivation reflects the choice of action, degree of intensity, and the level of persistence in carrying out a task (Bandura, 1994; Wigfield & Eccles, 2000). Students who are more self-efficacious have higher expectations of success in upcoming tasks, and thus are predicted to perform better (Bandura, 1994; Wigfield & Eccles, 2000; Hodges, 2004). As such, beliefs and perceptions about one's own ability is a significant factor in several motivational theories. In the Attribution Theory (Weiner, 1985), students who are high self-efficacious will attribute their success to ability and attribute their failure to lack of effort; these attributions lead to positive motivation. On the other hand, students who attribute their failure to lack of ability due to their perception of the nature of ability as a stable characteristic over which they have minimal autonomy to change, then they are said to be low efficacious and not motivated (Bandura, 1994; Weiner, 1985; Wigfield & Eccles, 2000; Hodges, 2004). In other words, students are more motivated to get involved with activities or tasks where changes are perceived as possible. Therefore, the teacher or instructional designer should stimulate students' motivation to learn by making them perceive effort as an unstable construct which is amenable to change.

#### **Motivation in instructional design**

Instructional design is defined as a systematic process for designing instructions based on what is known about "learning theories, information technology, systematic analysis, educational research, and management methods" (Morrison, Ross, & Kemp, 2004, p. 6). Instructional design is a challenging process as the designer has to take into account all related learning elements in order to make a change (Colakoglu & Akdemir, 2010). Keller (2010) stresses the importance of systematic instructional design of tactics and strategies to improve motivation in learning. In addition, teachers' perception of students' motivation in learning can affect their instructional planning of classroom activities as well (Middleton, 1995), and subsequently affect students' performance (Hattie, 2009). Hence, teachers are urged to improve their instructional strategies to enhance students' motivation and self-efficacy in learning (Thien & Ong, 2015).

According to Cheng and Yeh (2009), designing instructional materials with motivational elements can support meaningful learning as learners enjoy gaining knowledge and getting the most out of it. Moreover, the quality of instructional design is improved by integrating the motivation construct with the instructional design process (Colakoglu & Akdemir, 2010). Keller (1987) proposes a motivational design model which facilitates the process of arranging resources and identifies a series of steps aimed at improving motivation. The instructional designer could consider incorporating motivation in the instructional design process by referring to the motivational design model, ARCS (Attention, Relevance, Confidence, and Satisfaction) model, to make better pedagogical decisions.

### **ARCS model of motivational design**

Keller's (1987) ARCS model was constructed based on the framework provided by the Expectancy-value Theory (Wigfield & Eccles, 2000). The model provides a systematic motivational design with strategies that can be adapted for instructional planning to provide a pragmatic application of the Expectancy-value Theory. The theory makes the assumption that people will be motivated to learn or choose to engage in activity if they have positive expectations of the possibilities of success and believe that the activity has value for them. The ARCS model consists of three features, namely a set of four motivational elements, a set of motivational strategies supporting the four motivational elements, and lastly, a systematic motivational design. The following section discusses the four main motivational elements in the ARCS model (Keller, 2010).

#### *ARCS motivational concept and motivational strategies*

The first motivational element is attention. Before students engage in any activity, their attention needs to be captured and sustained. There are three sub-categories that come with this element, namely perceptual arousal, inquiry arousal, and variability. Perceptual arousal refers to the arousal of curiosity by providing an uncertain situation and provoking students to abandon existing perceptions based on their prior knowledge. If their curiosity is aroused, then students will enter the stage of inquiry arousal; they begin seeking answers for the problem. Lastly, variability is required to sustain attention by offering various ways to present information, e.g. using technology to show real-life examples by playing a video or showing pictures.

The next motivational element is relevance. Providing relevance is about helping students to see how the learning content is relevant to them personally. This is important so that the gap between the learning content and students' needs can be narrowed or even closed (Keller, 2010). Learning becomes more effective when students are able to make sense of what they have learnt. There are three sub-categories related to relevance, namely goal orientation, motive matching, and familiarity. Teachers can explain the utility value of the learning content by showing examples or getting students to define the connection between the lesson and real-life situations. However, this might not always be possible. In situations when the learning content is perceived as having little or no relevance to students, an alternative approach is required to provide relevance to stimulate the motivation to learn. For instance, Keller (2010) suggests that teachers have eye contact with their students, remember their names, or make them feel that they are valued as individuals who are capable of making unique or interesting contributions. When students receive personal recognition, they would perceive themselves as being useful members of a learning community and would try to seek relevance in the learning task. Another strategy is motive matching, which is about designing learning tasks to meet students' motives such as personal interest, achievement opportunity, group work opportunity for cooperation or leadership role. And lastly, familiarity of examples or illustrations used in the learning task could help students relate the learning content to their own background and experience.

It is also important to build up the confidence of the learners themselves. Fear or anxiety hinders the ease of learning. As confidence is about establishing expectations of success, it is important to bolster confidence in students. The subgroups that help to build confidence are learning requirements, success opportunity, and personal control. When students are informed about the performance requirement or evaluation criteria, they would become more confident of their ability to succeed, given the appropriate level of ability for the task. However, providing success opportunity poses a challenge for the teacher as it might be difficult to control the level of challenge and pace of learning to avoid

boredom; at the same time, if there is too much to learn, the anxiety level might increase. Fairly low level challenging task and frequent feedback should give learners the opportunity to experience success, while gradually building up the level of challenge to enhance newly learnt skills or knowledge. Teachers should help students exercise personal control over the learning process, i.e. help them understand that success is in their own hands. Learning is a personal responsibility. As mentioned in the Attribution Theory (Weiner, 1985), students need to understand that ability is an unstable trait over which they have autonomy to change, given sufficient time and effort. According to Hodges (2004), students are unlikely to be motivated if they perceive that ability is not changeable. Therefore, teachers should provide some learning tasks for which there are no fixed answers but to allow discussions so that students can justify their own answers. In this way, students are able to exercise personal control over the learning process. To encourage personal control, teachers should pose problem-solving questions, short-answer tests or open-ended questions.

Satisfaction, the fourth motivational element, is aimed at establishing a continuous desire to learn. Satisfied students have a sense of accomplishment; they enjoy tackling learning tasks and look forward to such challenges. According to Keller (2010), positive feedback is the key to promoting motivation as it reinforces satisfaction. The challenge for teachers is when and how much to give feedback and praise to ensure effective reinforcement of learning. Keller (2010) suggests three categories of consequences to consider when nurturing satisfaction, namely natural consequences, positive consequences, and equity. Natural consequences are about giving students the opportunity to practise their newly learnt skills such as participation in case studies, simulations, and experiential learning activities. Positive consequences are about establishing reinforcement to sustain motivation, especially for students who are not intrinsically motivated. Lastly, teachers need to be consistent with reinforcement and assessment standards to establish a fair learning environment for all students.

#### **Integration of ARCS model into instructional design model**

Keller (2010) emphasises that the ARCS model is not an instructional design model but a motivational design model that can be adapted to any instructional design model. Main (1993) suggests that the ARCS model can be integrated into the ADDIE (Analysis, Design, Develop, Implement and Evaluation) instructional design model. However, such an approach might lead to difficulty in differentiating the motivational design from the instructional design process because the designer has to consider each of the four categories of ARCS model throughout the instructional design process (Keller, 2010). In other words, the ARCS model is seen as providing additional guidelines for each of the five phases of the ADDIE instructional design process in which the integrated framework is not weighted equally for both models.

Okey and Santiago (1991) also suggest integrating the ARCS motivation model into the instructional design model developed by Dick and Carey (1978). They discuss the relationship between motivational and instructional activities, but Keller (2010) claims “the connections between the motivational and the instructional design are defined only loosely” (p. 68). Therefore, Keller (2010), in reconsidering the relationship between both models, proposes a point-by-point interface between the ten steps in the ARCS motivational design and the instructional design process. He introduces eight key interfaces that describe how the two models can be closely related to each other. The eight key interfaces are: 1) instructional goals and course description, 2) entry behaviour characteristics and audience description, 3) audience motivational analysis, 4) coordination of instructional and motivational objectives, 5) designing of instructional strategies, 6) designing of motivational strategies, 7) development of instructional and motivational materials, and 8) evaluation and revision. However, for a novice designer, knowing the relationships between motivational and instructional design processes may not be sufficient to prepare appropriate instructions and instructional materials. The designer needs a systematic design process to achieve both motivational and instructional objectives.

Cheng and Yeh (2009) have devised a framework for adapting ARCS motivational design to the instructional design model by Morrison, Ross, and Kemp (2004). Instead of pinpointing the relationship between the two models, they merge two models and interpret the steps. Cheng and Yeh's

(2009) framework provides 13 steps of systematic design process by viewing both the motivational and instructional models simultaneously. Table 1 shows the instructional designer how to pragmatically integrate motivation into his instruction by considering motivation from the beginning. Besides, the steps listed in the table can be easily adapted and are applicable in any instructional planning situation or learning context.

*Table 1: Framework for adapting motivational design to the Morrison, Ross and Kemp model (Cheng & Yeh, 2009, p. 602)*

| ARCS phase | Instructional design process       | Motivational design process   | Interpretations  |
|------------|------------------------------------|---|--|
| Define     | 1. Instructional problem analysis  | 2. Perform motivational audience analysis                             | 1. Analyze learner's prior knowledge and needs.  |
|            | 2. Learner and contextual analysis |   | 2. Define general level of learner motivation, learner characteristics, and environmental factors.                                     |
|            | 3. Task analysis                   | 3. Identify the content required to solve the instructional problems. |  |
|            | 4. Instructional objectives        | 4. Prepare motivational objectives and criterion measures             | 4. Generate motivational as well as instructional objectives and prepare methods for assessing the objectives.                         |
| Design     | 5. Sequencing                      |   | 5. Sequence the instructional content to help learner achieve the objectives.  |
|            | 6. Instructional strategies        | 6. Create potential motivational strategies                           | 6. Create potential strategies for each motivational objective and instructional objective.  |
|            |                                    | 7. Select strategies  | 7. Select appropriate strategies.  |
| Develop    | 9. Message design                  | 8. Integrate strategies   | 8. Incorporate the strategies into the instructional content.  |
|            |                                    | 9. Create motivational instruction and improve existing instruction   | 9. Develop materials that effectively integrate the motivational and instructional strategies. Enhance existing instructional product. |
|            | 10. Developmental test             | 10. Conduct developmental tests (formative evaluation).               |  |
| Pilot      | 11. Development of instruction     | 11. Implement with target population                                  | 11. Implement the instruction to representatives of the target population.   |
|            | 12. Evaluation                     | 12. Evaluate motivational outcomes                                    | 12. Administer formative evaluation to measure the adequacy of instruction and motivational effects of the instructional materials.    |
|            |                                    | 13. Revise instruction  | 13. Revise the instructional product.  |

This paper explicates Cheng and Yeh's (2009) framework in the context of classroom learning. Firstly, in the 'Define' phase, the learning objective and students' entry skills should be clearly articulated. After identifying what students are supposed to learn, their motivational profiles are created. Such profiles include identifying the students' problems and attitudes towards learning. This is done by carrying out a motivational audience analysis. Next, an instructional task analysis is done. The results for both analyses are used to posit instructional and motivational objectives. Instructional materials are arranged and sequenced so that they fit the entry skills of learners. By doing so, there is a greater chance of learning objectives being achieved. Throughout the 'Design' phase, the designer has to list out all potential strategies, before choosing the ones suitable for both instructional and motivational objectives and integrating them into the instructional content. In the 'Develop' phase, the focus is on creating motivational instruction and improving existing instruction. This forms the core message of the lesson. It is also aimed at motivating students to learn by using the outcome of the previous phase as input. Moreover, a developmental test is needed as formative evaluation of the instructional material. Such a test should be validated by expert teachers and a sampling that is representative of the students to be taught. The feedback from the test will provide feedback to improve the instructional materials. Lastly, in the 'Pilot' phase, a formal assessment of students' motivation towards learning *vis-a-vis* students' performance is established before the completion of the whole instructional material.

### **Conclusion**

This paper provides an overview of strategies aimed at integrating motivation into instruction. Too often, the efficacy of instruction is measured by how much students can learn in a certain amount of time, provided that they want to learn. When it is assumed that students are ready to learn, motivation is often overlooked in the instructional planning. The ARCS motivational design model has been discussed at length in this paper. The focus is on motivation and related motivational strategies in terms of four elements, namely attention, relevance, confidence, and satisfaction. The model also provides a systematic motivational design process that can be adapted to any instructional model. There is also a discussion on the framework by Cheng and Yeh (2009) who have adapted the ARCS model to the instructional model by Morrison, Ross and Kemp (2004). To conclude, students' motivation to learn can be improved by appropriate structured instructional materials and motivational strategies. Thus, it is important for teachers as instructional designers to realize that they play a pivotal role in motivating students to learn more effectively.

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