

Running head: MOTIVATIONAL FACTORS IN E-LEARNING

Motivational Factors in E-Learning

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I. Introduction

E-learning has the potential to open up a number of different opportunities for vast numbers of learners across the globe. Without the proper motivation for students to engage in the learning experience, however, these e-learning initiatives will be unsuccessful. As Wlodkowski states, "Motivation is not only important because it is a necessary causal factor of learning, but because it mediates learning and is a consequence of learning as well" (Wlodkowski, 1985, p. 4).

For a long time, motivation has been seen in e-Learning as a matter of design. In other words, proper instructional design and provision of suitable learning activities would guarantee to engage all learners. However, many educators and institutions are beginning to realize that there is more to motivation than meets the eye. It is not always the case that if the instruction is of good quality motivation will follow.

In this paper, I will be exploring a number of different theories and models regarding motivation and then explore what implications these models and theories have recently had on e-learning. In this case, I use the term e-learning broadly to mean any learning environment in which electronic-media are used as a component of an instructional delivery system. I also use Keller's definition of motivation as "the magnitude and direction of behavior. In other words, it refers to the choices people make to what experiences they will approach or avoid, and the degree of effort they will exert in that respect" (Keller, 1983).

II. Theories and Models for Increasing Motivation in E-Learning

A. Keller's ARCS Model

The *ARCS model* is named after its four main factors: Attention, Relevance, Confidence and Satisfaction.

- Attention involves engaging the learner by the use of interesting graphics, animation or any kind of event that introduces incongruity or conflict. Other components of attention include mystery

(unresolved problems that stimulate a sense of inquiry) and variability (the user adapts and loses interest over time (Keller & Suzuki, 2004, p. 231).

- Relevance involves providing consistent goals (ideally intrinsic in nature) that are connected to the learners' past experiences and future goals and are compatible with their individual learning styles. This factor has links to the *Goal Theory* which assumes that establishing goals to be obtained motivates behavior. These may be learning goals or performance goals and they can be proximal (those that can be achieved in a reasonably short time frame) or distal (those that will be met far into the future). In addition to setting clear goals, it also says that students need to be kept informed of their progress towards meeting these goals (Hodges, 2004, p. 2).
- Confidence involves helping students to establish positive expectancies for success. This factor has links to the *Self-Efficacy Theory* and *Attribution Theory*. Self-efficacy is the belief that one is capable of performing in a certain manner to attain certain goals. Attribution is concerned with how a learner explains successes and failures. A learner may attribute the success or failure on an assignment to himself or to reasons external to him. THE ARCS model argues that instruction should make an effort to help learners attribute their learning outcomes to that which is controllable.
- Satisfaction involves designing instruction so that learners gain positive feelings about their learning experiences. This factor can be linked to the *Expectancy-Value Theory* which argues that learners expect certain outcomes from behaviors and the more valued the outcomes, the more likely someone is to perform the necessary behavior. Also, students must feel that the amount of work required was appropriate and that there was no favoritism at play. Motivational strategies used to increase learner satisfaction are verbal reinforcement, rewards, personal attention, feedback, and deliberate avoidance of negative influences (Keller & Suzuki, 2004, p. 232).

B. Wlodkowski's Time Continuum Model of Motivation

Wlodkowski's *Time Continuum Model of Motivation* draws on approaches from linguistics, cognitive psychology, and motivation research. While it has many similarities to the ARCS model, it focuses more on the role motivation plays in different stages of the learning process. It divides the learning process up

into three critical stages: the beginning of the learning process, during the learning process, and the end of the learning process.

- The beginning of the learning process should focus on *attitudes* and *needs*. Motivational strategies that may be used during this stage include icebreaker activities, stating clear objectives for the course, and various strategies to help the learners develop a clear understanding of what will be required to be successful in the course. It suggests that when possible, the instruction should focus on the physiological needs of the learners and experiences familiar or relevant to the learners. The instruction should allow for choice and self-direction in assignments. A key ingredient of this phase is the needs assessment which should be performed prior to developing the instruction.
- During the learning process, emphasis should be placed on *stimulation* and *effect*. Motivational strategies that may be used during this stage include learner participation via questions, humor, varying of presentation style, or the use of different modes of instruction from lecture to group work to class discussion. At the same time, it should be as personalized and relevant to the learner as possible.
- The end of the learning experience should focus on *competence* and *reinforcement*. Motivational strategies that may be used during this stage include frequent feedback and communicating learner progress (Hodges, 2004, p. 3-4).

C. Moshinskie's Model

A more recent motivational model that has gained some recognition is Moshinskie's model, presented in the white paper, *How to Keep E-Learners from E-Scaping*, in 2001. Moshinskie argues that there are two types of learners; those with active attitudes towards life (those with intrinsic motivation who need very little extrinsic motivation) and those with a passive attitude towards life (those who lack intrinsic motivation and need more extrinsic motivation). In his report, he provides a model, like Wlodkowski, intended to improve learner motivation before, during, and after online courses. In particular, the model is intended to

create and explain extrinsic motivational techniques that might complement the intrinsic needs of learners. A summary of these techniques is provided below.

Before the Online Course	During the Course	After the Course
<ul style="list-style-type: none"> • Know the intended learner • Know the work environment • Match learners' values and motives • Prepare the work environment • Apply both push and pull strategies • Include non-instructional strategies • Provide a learning portal 	<ul style="list-style-type: none"> • Create a conducive environment • Chunk the information • Build on the familiar • Vary the stimulus • Give legitimate feedback • Provide the human touch • Provide a social context • Build opportunities for fun • Make it timely • Stimulate curiosity 	<ul style="list-style-type: none"> • Celebrate successful completion of the training • Provide support when the learner returns to the workplace • Reinforce the learning • View e-learning as a process not an event • Measure motivation to transfer • Investigate the meta-cognitive strategies used by your learners

Moshinskie also argues that it should not just be the instructional designers who play a role in creating the motivational climate. Instead, he suggests a collaborative approach to making learning effective by including trainers, training managers, and others who can provide substantive contributions aimed at increasing employee success rates (Moshinskie, 2001).

D. Social Cognitive Learning Theory

Social cognitive learning theory emphasizes the importance of self-efficacy and self-regulation in e-learning. Self-efficacy refers to a person's belief about his or her capacity to perform a certain task at a certain level, while self-regulation refers to the control of the learning activity. Below is a summary of how the social cognitive learning theory differs from the other models mentioned above (Cocea & Weibetzahl, n.d., p. 2-3).

Previous approaches	SCT
Enhance motivation through design	Assess learner's motivational beliefs/cognitions and use them for personalised intervention
Motivational states	Self-beliefs
Infer motivation from the learner's interaction with the system	Involve the learner in the "evaluation" of his/her motivation => more <i>accurate learner models</i> => more <i>effective interventions</i>
Machine "knows better"	Learner is the main source of information about his/her motivation => <i>empower the learner</i>
Teacher-focus – a certain repertoire of teaching actions	Learner-focused; considering different reactions to same teaching actions => <i>personalisation</i>
Challenge as an important motivational state	<i>Challenge – beneficial or not, depending on the learner's self-beliefs</i> (low self-efficacy learners are not likely to engage in a highly challenging task)
Performance – just a learning outcome	Performance – viewed not only as outcome, but also in terms of <i>impact on the learner's</i> motivation level, self-beliefs about the learning process, and personal abilities
Feedback – based on performance; little work in associating it with motivation	Feedback – based on performance plus <i>beliefs about performance</i> (the performance was due to effort/luck/difficulty/ability) <i>and other self-beliefs</i> (e.g. self-efficacy)
Reduced or absent relation between motivational state and cognitive processes	Close relation between motivational state and content/ learning activities => <i>correlate knowledge models with motivational modules</i> (open learner models)

III. What Research Has Shown: Motivation in E-Learning

Even though many of the above mentioned models and theories have been around for decades, institutions are still struggling with how to incorporate them into their e-learning offerings. Recent statistics from the corporate training arena found that attrition rates are as high as 80% in e-learning training courses (MIT, 2001). Why is this the case? As Keller and Suzuki (2004) state, "overcoming motivational challenges can be difficult because of the complexity of human motivation and the vast number of motivational concepts and theories that exist. Ultimately, instructors and machine-based instruction cannot control learner motivation, but on the other hand, they cannot avoid influencing the motivation of learners, either positively or negatively."

Some positive ways of influencing motivation in online courses are provided in the 2002 research of Curtis Bonk, *Online Training in an Online World*. In this research study, Bonk surveyed 201 corporate trainers, instructional designers, training managers, and Chief Learning Officers, 80% of whom had training departments in their organizations, to find out what motivational principles they valued the most.

In the study, respondents were asked about the importance of thirteen different Web-based principles or characteristics when creating or delivering a Web-based course. Twelve of these characteristics primarily related to intrinsic motivation while the other concerned extrinsic motivation. A summary of their responses is provided below (Bonk, 2002, p. 90).

Rated Highly important	relevant and meaningful materials	88%
	timely and responsive feedback	78%
	goal-driven and product-oriented activities	61%
	personal growth	51%
Rated Moderately important	flexibility in activities	49%
	interactive and collaborative activities	47%
	a sense of variety and novelty in activities	45%
	engaging in discussion that involves multiple participants	41%
	supportive community of learners	41%
Rated Not Very important	work-related incentives (wages, increases, rewards)	31%
	a safe climate with a sense of belongingness	29%
	online tension, conflict, and controversy	7%

As indicated, the respondents favored intrinsic motivational principles related to content relevancy, timely feedback, goals and product-based activities, personal growth, choice, flexibility, interaction, collaboration, fun, and variety in course materials and activities (Bonk, 2002, p. 90).

The four motivational techniques that respondents found most useful and engaging were job reflections (59%) and brainstorming or idea sharing (53%), group or team projects (41%) and electronic guests or mentors (34%). The least favorable motivational techniques were icebreakers and social tasks (17%) (Bonk, 2002, p. 13).

IV. Evaluating Motivational Factors

Motivation is very difficult to evaluate because it is so complex in nature. Each individual has different levels of intrinsic motivation and each individual responds differently to extrinsic motivational techniques.

It is very difficult to understand through simple observation what is actually motivating a student to behave the way they do in response to technology-based training.

One study, however, would disagree. In 2001, de Vincente and Pain found that it was feasible to infer motivation diagnosis knowledge based only on the information provided by computer interaction with a tutoring system. In the study, ten tutors were asked to watch a number of recorded interactions of a student using a prototype called MOODS to learn Japanese numbers and then infer and comment on the motivational state of the student during the interaction. No video cameras were used and they could not see the student's expressions while using the program. They could only see the screen recording of the student interacting with the program. Initially, participants were convinced that they would be unable to infer much from the pre-recorded screen interactions of students. Despite these doubts though, most participants were able to infer a large number of motivation diagnosis inference rules based on concrete aspects of the interaction such as mouse movement, quality of performance, etc. Motivation model variables they evaluated each student on were control, challenge, independence, fantasy, confidence, sensory interest, cognitive interest, effort, and satisfaction (de Vincente & Pain, 2001).

The results from this study have strong implications for online learning and distance education. Imagine being able to login and observe how your distance education students or employees in another country are interacting with the instructional materials that you provide. This would not only be beneficial in evaluating which students are actively engaged in the learning process and which students need additional support, but would also serve as a way to constantly re-evaluate the materials provided to assure they are meeting the needs of all learners.

V. Conclusion

Reading the research available regarding the models and theories of motivation in the learning process has been informative and has shown me that there are still many unknown elements in this area. Despite the fact that the Time Continuum model and the ARCS model were developed well before the rise of the Internet and e-learning, they still for the most part remain the foundation for designing motivating instructional materials. More research needs to be undertaken to specifically evaluate motivation in

various e-learning environments and how these motivational factors possibly might vary depending on the learning environment.

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