

INCREASING ADULT LEARNER MOTIVATION FOR COMPLETING SELF-DIRECTED E-LEARNING

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This article explores methods organizations can use to increase self-directed e-learning completion rates and overall satisfaction. It focuses on three main areas of application: (a) increasing organizational support and positive initial user expectations, (b) reducing factors that lead to learner mental overload, and (c) designing motivational strategies into the learning content. Although applicable as general principles, relevant strategies, theories, and models are discussed with a focus on organizations offering technical product training for their clients.

DURING THE PAST decade, many organizations have implemented e-learning initiatives to enhance or replace their traditional instructor-led product training in hopes of cutting cost while offering clients more flexibility and convenience. The 2011 American Society of Training and Development (ASTD) State of the Industry Report indicates that an average of 40.1% of all formal learning hours used by their Fortune 500 Global Company respondents were delivered via technology-based methods (Green, 2011). Unlike instructor-led training, which requires the clients to set aside a specific block of time for learners to attend training as a captive audience, e-learning requires learners to use self-discipline to complete their training *at their convenience* among their other time demands.

Typical completion rates for extensive self-directed e-learning programs face challenges, especially for adult learners. Whereas e-learning offered at an educational institution has the enforcing mechanisms of grades and "credit," much adult education lacks that form of control over the learner. Research shows that many adult learners who begin a self-directed e-learning initiative do not continue through to its completion; attrition rates from e-learning can be as high as 70–80% (Flood, 2002; Long, Dubois, & Faley, 2009; Park & Hee Jun, 2009).

This adult learner attrition rate can have many negative consequences. For example, insufficient understanding of complex technical product offerings such as enterprise software systems, manufacturing components, and the like can cause many problems throughout their implementation cycle. For the users, these problems can include improper initial set-up and configuration, high error rates, and the failure of users to employ time-saving techniques and shortcuts. It is crucial for organizations offering e-learning as a venue for complex product training to produce instruction that keeps the learners motivated and engaged to continue in their training until proper utilization of the product is most assured. For organizations providing the product, failure in this area can lead to higher customer service costs and lower overall product satisfaction, along with potentially lower future sales and market position (Patterson & Spreng, 1997).

Part of the responsibility for ensuring the product offering is properly installed, configured, and used falls on the offering organization's training and implementation functions. Since the individuals responsible for the product's purchase are not necessarily its end users, training is often the client's product users' first exposure to the

offering. It sets the initial user impression of the product and directly affects the users' future appraisal of both the offering and the offering's organization.

Research has shown that a learner's motivation to begin training depends on the learner's attitudes before entering training. In addition, a learner's motivation to continue in an e-learning curriculum depends on this initial motivation (Kim & Frick, 2011). In the case of product training offered to external clients, this can be shaped and encouraged by the organization that is offering the product and its training, even during the marketing and sales cycle (Anand, 2012; Granitz & Greene, 2003; Park & Hee Jun, 2009). E-learning environments can be designed to encourage learner motivation and retention by reducing cognitive load (Kim & Frick, 2011; Mayer & Moreno, 2003) and by applying motivational design strategies (Keller, 2010; Keller & Suzuki, 2004).

It is important to enhance motivation to complete self-directed e-learning throughout the design, sales, and implementation cycles. There are a variety of factors beyond the training provider's control, such as competing time demands and personal issues, that may cause learners to drop out during a curriculum. Regardless of the information to be presented, three important areas that are somewhat controllable and can lead to increased completion rates as well as learner satisfaction are (a) increasing organizational support and positive initial user expectations, (b) reducing factors that lead to learner mental overload, and (c) designing motivational strategies into the learning content.

SHAPING INITIAL CLIENT E-LEARNING MOTIVATION

Expectancy-value theory posits that people's attitudes regarding an object or an action are influenced by their expectations of it and how much they value it. This theory has long been applied to product marketing (Blin & Dodson, 1980). Sales professionals and others in the product promotion cycle seek to build a client's positive *expectations* as to how the product would meet the client's needs and to spotlight or heighten the *value* clients place on the offering in terms of relative worth compared with that of the money they will have to spend to attain it. Failure to sufficiently raise the expectation of product performance and the value that performance offers may lose the sale. Raising it beyond what the product can really offer risks post-purchase dissatisfaction and damage to the organization's brand (Anderson, 1973; Selnes, 1993).

Similarly, in the field of education, expectancy-value theory has been used to explain how learners' choice,

persistence, and performance can be explained by their beliefs about how well they will do on the activity and the extent to which they value it (Wigfield & Eccles, 2000). The initial student expectation and evaluation of a learning task is affected by how it is introduced to them (Patterson & Spreng, 1997). Learners need to perceive that the outcome of the training will correspond to their effort in time, work, and other opportunity costs involved in taking the course (Lau, 2000).

A study conducted with 368 adult learners taking a self-directed e-learning course developed by a major e-learning vendor found that the motivation to begin the e-learning was most correlated with the learners' perception that "e-learning was right for them," which included their expectations of the learning's delivery quality and its relevance to their situation as well as its perceived organizational support (Kim & Frick, 2011). A lack of perceived organizational support for e-learning has been identified as a major obstacle to adult participation in e-learning and a strong contributing factor to drop-out rates (Park & Choi, 2009). Organizational support as used here refers to the positive presentation by a learner's superiors regarding the usefulness and benefits of the training to be undertaken and the reinforcement of the use of the learning on the job. Such support is a critical factor in determining whether trainees use what they have learned when they are back on the job (Kidder & Rouiller, 1997). A study by Brinkerhoff and Montesino (1995) claimed that the learners who received higher supervisor support showed a significantly higher level of learning transfer. Ryu (2007) revealed that organizational support was a significant predictor of the learners' satisfaction with corporate e-learning.

In a study consisting of 379 learners who completed an e-learning courseware at a large company, Joo, Lim, and Park (2011) found that organizational support has a direct effect on learning transfer and learner satisfaction. Organizational support for a product's e-learning training offerings can be affected by the way it has been promoted to those in charge of its implementation within their work group. For those internal "sponsors" of the e-learning who have not had a chance to complete it themselves prior to rolling it out to their employees, the expectations and values communicated to them through the product's promoters is likely to be shared in their own e-learning promotion and implementation process. If those tasking their subordinates to complete an e-learning initiative are not fully aware of its features, advantages, and benefits, they will most likely find it challenging to present the most positive characteristics of the training to the learners. This positive presentation should go beyond the benefits of the content to be learned and should additionally

focus on the positive features incorporated into the e-learning content-delivery process itself.

If trainees are motivated to learn, they are more likely to be engaged during the training, and if engaged, more likely to complete the training and achieve the learning objectives (Rangel & Berliner, 2007). Kim and Frick's (2011) study also found that the motivation to continue during an e-learning course was positively correlated with the learners' initial motivation to begin the course. Information regarding the training that is communicated by the product vendor to the client implementing it often comes from both their marketing and implementation functions. These areas can have a meaningful impact on their client's ability to encourage their users' engagement in the training and their perseverance in completing it. Setting the initial expectations too high can lead to disappointment and dissatisfaction with the training; setting them too low can cause low initial motivation and, therefore, lower engagement. If the users complete the training in full, it can be assumed that they will be better able to properly utilize the product, and if the product is any good, that will enhance their level of satisfaction with it.

E-LEARNING MARKETING STRATEGIES FOR INCREASING MOTIVATION

If an organization has a complex product that requires more than a minimal amount of training, it is in that organization's best interest to "market" its training offerings as part of the sales and implementation cycles in order to increase its clients' training motivation. "From a business perspective, instructors with particular needs are suppliers of e-commerce content, students with particular needs are consumers of e-commerce content, the actual content of the course constitutes the product, while the communication medium provides the distribution channel that facilitates exchange" (Granitz & Greene, 2003, p. 17). As the administrators of most any basic sales training course will attest, it is important to focus on the product's *features, advantages, and benefits* (Kerin, Hartley, & Rudelius, 2011). The same rule should also apply when presenting the training program's details. Self-directed e-learning should offer flexibility and convenience of *at your own pace, in your own space* learning; that is an almost universal benefit of the training format. Showcasing an organization's offering in terms of the metrics available with the learning and the experience, qualifications, degrees and certifications, and publications of the course designers can also help add confidence and credibility to the offering (Anand, 2012).

Granitz and Greene (2003) assembled a list of e-marketing strategic themes that can be applied to

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online learning based on a study of e-marketing textbooks, articles focused on e-commerce in major marketing journals from the previous five years, and 25 different marketing syllabi as well as through consultation with a practitioner-based e-commerce advisory board of e-marketing managers. Their suggestions represent areas to consider and highlight in the marketing of a product's online training.

Personalization and Customization. Can the offering be tailored to the individual user? A major advantage is that it is possible to offer additional time savings by targeting information for each user or group of users while reducing or eliminating extraneous content. This approach offers choices for content exploration, and additional information can be a key feature in the marketing discussion.

Community. If the e-learning site or learning management system (LMS) interface can become a place of interest where participants can interact repeatedly with one another on topics related to the product, this can provide an important draw for continued learner engagement.

Disintermediation. This represents the benefit of removing the middleman and getting the information directly from the source. Self-directed e-learning opens up this channel for two-way communication, which can offer the benefit of being able to detect needs for customization due to direct contact with customers. It can also

allow the organization to offer better customer service at reduced cost.

Reintermediation. Conversely, adding connections to intermediaries that collect and distribute information that the customers/trainees might find useful or interesting can offer a value-added service that can help continue bringing them back to the site.

Learner Tracking. Many learning management systems databases offer metrics that can be made available to the client's management team, such as real-time user tracking, pages visited, links followed, modules completed, assessment scores, and satisfaction survey results. These can become a powerful tool for both the client and the training provider.

Enhanced Customer Service. In the e-commerce world, customer service takes on a new meaning due to the ability to create a direct link with the customer. Once a customer buys or uses something online, that customer can be kept updated and in the communications network during and after the product or service delivery. Additional training offerings and information sources can be directed toward learners based on their online choices and performance. Opportunities for learner self-service can be presented.

Mixing Bricks and Clicks. Self-directed e-learning can be used to make time spent in instructor-led training more effective. E-learning can serve as "pre-learning" to provide learners with the basics they will need to reduce information overload during the live sessions (Seery & Donnelly, 2012). It can also be used as "just-in-time" follow-up training as needed.

Learner motivation to continue with a self-directed e-learning program is strongly affected by issues involving the instructional design itself. In promoting an initiative, special consideration should be given to communicating ways that the designers have gone beyond simply presenting the content and how they have included strategies to make the content both easy to digest (by reducing the cognitive load) and interesting and enjoyable (through incorporating purposeful motivation designs). It is to these areas we turn next.

REDUCING COGNITIVE LOAD IN SELF-DIRECTED E-LEARNING

As one of the critical factors leading to a *decrease* in learner motivation (Kim & Frick, 2011), the cognitive load of the material can have an important effect on

learners' satisfaction with (Bradford, 2011), perseverance through (Rangel & Berlinger, 2007), and retention of (Mayer & Moreno, 2003) online learning content. Cognitive load theory indicates that content presented in a way that exceeds the learners' cognitive capacity to absorb it inhibits their ability to focus their attention on it (Hartley, 1999). Students' motivation to learn is diminished when they feel overwhelmed by the effort required to mentally persevere through the learning (Schunk, Pintrich, & Meece, 2008). Heavy cognitive overload is especially problematic for first-time e-learners, and studies have found it to be a major influence on their drop-out rates (Tyler-Smith, 2006). Cognitive load theory "has evolved by withstanding rigorous tests of falsification, consistent confirmation of existing hypothesis, timely modification of the theory as required by new data, and generation of new hypotheses" (Pass, van Gog, & Sweller, 2010, p. 116).

Cognitive load theory makes three important assumptions regarding how the mind works in online learning:

1. Verbal and visual information are processed through differentiated mental channels.
2. Each of these channels can process only so much information at a time.
3. Online learning with multimedia materials requires substantial mental processing in both the verbal and visual channels (Plass, Moreno, & Brünken, 2010).

Plass and his colleagues (2010) also present three kinds of cognitive demands: *essential processing*, which is required for making sense out of the material; *incidental processing*, which is not required but is primed by the design of the learning task; and *representational holding*, or retaining the verbal or visual information in working memory over time. The total processing intended for learning consists of the sum of all three of these cognitive demands. Cognitive overload occurs when the total intended processing exceeds the learner's cognitive capacity.

ADDRESSING POTENTIAL E-LEARNING COGNITIVE OVERLOAD SCENARIOS AND POSSIBLE SOLUTIONS

Mayer and Moreno (2003) define five scenarios where e-learning may risk overloading the learner's cognitive capacity.

(1) *Essential processing in the visual channel is greater than the cognitive capacity of the visual channel.* This occurs in situations such as when an on-screen animation is demonstrating a process as on-screen text off to the

side or at the bottom of the screen details the explanation. The user may have difficulties visually focusing on both the video and the on-screen text simultaneously (Sweller, 1999). This overload situation can be solved by removing the on-screen text and replacing it with verbal narration, thereby off-loading the excess visual essential processing to the verbal channel. This has been found to be a more effective method for presenting multimedia explanations (Mousavi, Low, & Sweller, 1995).

(2) *Essential processing in both channels is greater than cognitive capacity.* This often takes place when a lot of complex information is presented simultaneously both visually and verbally and the learner has a hard time taking it all in (Sweller, 1999). A practical resolution to this overload situation is to segment the information by breaking it down into smaller chunks with either a sustained pause or a required user interaction such as a “continue” button before introducing the next chunk (Mayer & Chandler, 2001). Another solution involves the inclusion of “pre-training” or the introduction of the terms and component concepts to be presented in the e-learning beforehand (Pollock, Chandler, & Sweller, 2002; Seery & Donnelly, 2012). E-learning itself can often serve as a good form of pre-learning to reduce the cognitive load for complex instructor-led offerings.

(3) *Essential processing plus incidental processing (caused by extraneous material) in a channel is greater than cognitive capacity.* When e-learning contains both essential information related to the educational goal and additional interesting and related but extraneous information or even musical accompaniment, cognitive overload can occur (Sweller, 1999). In the presentation of simple information, this may add to learner motivation (Sanghoon & Jung, 2007), but it can produce overload in explanations that require more complex processing. Solutions include weeding out extraneous information when cognitive load demands are high (Mayer, Heiser, & Lonn, 2001) or providing verbal or visual cues to the learners to signal to them what is important (Kirschner, Sweller, & Clark, 2006; Mautone & Mayer, 2001).

(4) *Essential processing plus incidental processing (caused by a confusing presentation) is greater than cognitive capacity.* This scenario represents situations such as where on-screen text and graphics used in conjunction in explaining a point are separated on the page and require the user to scan back and forth while reading, or where the e-learning consists of simultaneous and redundant audio narration and on-screen text. The first instance may be overcome by integrating the text and graphics by placing the text within the graphic or next to the element it is describing (Moreno & Mayer, 1999). The second should involve eliminating the redundancy in the

presentation such as by removing the on-screen text (or reserving it for use as closed captioning) and using visual signaling devices when necessary (Kalyuga, Chandler, & Sweller, 2004; Leahy, Chandler, & Sweller, 2003).

(5) *Essential processing plus representational holding is greater than cognitive capacity.* A final cognitive overload scenario comes into play when learners are put in a situation where they must hold on to information in their working memory until additional explanatory information is provided, such as when narration is presented followed by an animation that illustrates it. This can be overcome by better breaking down or synchronizing the information’s presentation (Moreno & Mayer, 2002) or, when this is not possible, by individualizing its presentation to take into account both learners who can handle the increased representational holding and those who may find that more problematic (Mayer & Sims, 1994).

These five cognitive overload scenarios represent major challenges for e-learning instructional designers. If not addressed, learner motivation, training satisfaction, perseverance, and retention will be decreased, leading to higher attrition rates of the self-directed e-learning initiative and, in the end, poorer product utilization and satisfaction and higher support costs. If addressed by the organization’s designers, however, this represents another arrow in marketing’s quiver for selling the value of the training and setting it apart from the competition. Since these efforts to address cognitive load are not part of the typical common knowledge of the average marketing professional, intentional training in the ways these scenarios have been overcome will be required for them to share them with their prospects.

APPLYING MOTIVATIONAL DESIGN STRATEGIES

Motivational theories and models have been around since the dawn of modern psychology (James, 1890). Throughout the 20th and 21st centuries, a vast amount of research has been done on the topic, and many a theory has been put forth. As of yet, no “one theory to rule them all” has arisen. Instructional design programs continue to teach students a cross section of the more current theories and allow them to assimilate the various perspectives into their own mental models. Much can be gained by integrating insights from a variety of motivational theories into the practice of instructional design. In this section we glance at a few approaches that have been found to be effective in previous research on motivation and discuss their application to self-directed e-learning.

One helpful theory for improving the motivation content of online learning is Deci and Ryan’s (2000)

self-determination theory (Chen & Jang, 2010). A major task it undertakes is addressing the issue of intrinsic versus extrinsic motivation. It posits that motivation is not an either-or situation but runs across a continuum from lack of motivation, to progressive levels of being motivated by external sources, to engaging in an activity for its internal inherent satisfactions. Although some e-learners may be internally motivated, many fall further down the continuum. Online learners have been found to possess both intrinsic and extrinsic types of motivation that coexisted during training and are highly sensitive to situational influences (Hartnett, St. George, & Dron, 2011). This presents a challenge for instructional designers, as it has been found that intrinsically motivated learners do not need outside incentives, which may even be counterproductive because the reward lies in the doing of the activity. In contrast, learners who are extrinsically motivated undertake activities for reasons separate from the activity itself (Ryan & Deci, 2000). Since it is often the case that an organization's self-directed e-learning program is required by the management powers that be, extrinsic motivation will often be present. It is in such situations that motivational design becomes a critical component in the development of the instruction.

Self-determination's needs theory further puts forth that people in general have three innate psychological needs: *autonomy*, *competence*, and *relatedness* (Deci & Ryan, 2000). Let's take a moment to discuss each of these needs in turn and its application to instructional design.

Autonomy

Learners want to perceive themselves as being in control of their own learning and learning-related behaviors. This might be aided, even before the learning begins, through the use of a pre-testing process that allows users to "test out" materials that they can either already display a level of competence in or that are determined to be irrelevant to their needs. It may also include allowing clients' alternatives to self-directed e-learning, such as in-person or video conference instructor-led training or reliance on the user manual and general experimentation with post-testing. During the learning, it is important to offer meaningful choices and exploration rather than simply offering users the ability to choose the order of the training units (Clark & Mayer, 2011; Sansone, Fraughton, Zachary, Butner, & Heiner, 2011).

Competence

Learners want to feel effective in their learning environments and express their existing capacities. A motivational theory popularized by Csikszentmihalyi and his colleagues, related to learners' need for competence,

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is that of "flow." A state of flow occurs when a person is engaged in deep intrinsic absorption in an activity due to simultaneously experiencing concentration, interest, and enjoyment (Csikszentmihalyi, 1990; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003). Three competence-related conditions are necessary for entering and achieving flow (Kowal & Fortier, 1999, p. 361):

1. *Learners must have a clear set of goals in regard to the activity, thereby adding direction and structure to the task.* These goals can be made clear to the learners up front as part of the learning objectives.
2. *Learners must also have a good balance between the perceived challenges of the task and their perceived skills.* Learner analysis should be used to judge the entry knowledge and skill level of each learner. Using scaffolding and techniques to reduce cognitive load during the presentation of more difficult content can help keep learners engaged. Offering links to additional optional detail during the presentation of simpler content can help maintain the more advanced learners' curiosity.
3. *The task must have regular, immediate, and clear feedback.* This enables each learner to adjust his or her performance with respect to the changing demands of the task. Including feedback messages during challenging interactive content that praises the learners' effort rather than their innate intelligence can help sustain their competence confidence (Dweck, 2006).

Relatedness

Learners want to feel connected to others and to have a sense of belonging both with other individuals and with their own community. Due to the typically asynchronous delivery of self-directed e-learning, meeting the need for relatedness poses special challenges to online instructional designers. Humanizing the instruction becomes an important tool for motivation. Simply using story situations that include named characters for the learner to identify with can help learners better relate to the online

interactions (Herman, 2003). Personalized learning that includes animated avatars or motivational agent characters that work alongside the learner (Kim, 2012) can also serve as human simular for “enhancing motivational and affective outcomes, such as improving self-efficacy, engagement and satisfaction, moderating frustration and/or improving stereotypes” (Baylor, 2011, p. 291). The use of human presences on videos and audio narration as well as the inclusion of discussion boards, chat, or other means of social interaction in the learning process can also prove beneficial (Kim & Frick, 2011).

DESIGNING IN MOTIVATION

Just as addressing the perceived basic psychological needs for autonomy, competence, and relatedness can aid in learner motivation, so can considering factors that heighten learners’ *attention*, increase their sense of informational *relevance*, build their *confidence*, and enhance their *satisfaction*. This ARCS model (attention, relevance, confidence, and satisfaction) was first introduced by John Keller in 1984. Since that time, much has been published on its use and validity for online instructional design. It is to this model and its uses in self-directed e-learning development that we now turn.

Attention raises the question, “How can I make this learning experience stimulating and interesting?” (Keller, 2010, p. 45). Keller breaks down this factor into three subcategories: perceptual arousal, inquiry arousal, and variability.

- *Perceptual arousal* refers to capturing the learners’ interest. This can be aided simply through using second-person references such as “you will” rather than “users will” and referencing specific people during the learning instead of abstractions such as “mankind.” This can also be accomplished by employing user-friendly presentation formats that use bulleted lists instead of paragraphs; illustrating step-by-step procedures or relationships with flow charts, diagrams, or other visual aids; and including examples, visualizations, metaphors, and analogies with which the learner can better relate to the material (Keller, 2010). Such interventions as posting challenging scenarios; creating online games; and using audio, video, and visual formatting may arouse more interest and, therefore, promote continued motivation to work on the lesson (Kim & Frick, 2012; Nehme, 2010).
- *Inquiry arousal* relates to stimulating the learners’ curiosity and attitude of inquiry. This can be aided by including problem scenarios that the new knowledge can help solve, offering paradoxical examples and conflicting information or unexpected opinions for the

learner to resolve (Keller, 2010). Curiosity may also be aroused by including optional links and examples that can break up the monotony of reading text on screen (Sansone et al., 2011).

- *Variability* in style and sequence is required to maintain attention. Novelty draws in users. “No matter how interesting a given tactic is, people will adapt to it and lose interest over time. Thus it is important to vary one’s approaches and introduce changes of pace” (Keller & Suzuki, 2004, p. 231). Using variation in content layout, including placement, typeface, text boxes, and types of material (text, figures, tables, pictures) keeps the learner interested. Varying the sequence of the element of instruction to avoid the cookie-cutter effect also helps maintain attention. This also applies to motivational design; repeatedly using the same motivational tactics quickly gets old (Keller, 2010).

Relevance involves relating the content to what is important to the learner. Three subcategories of relevance include goal orientation, motive matching, and familiarity.

- *Goal orientation* is at the heart of relevance. How can the materials be most closely associated with the learner’s goals? This can be aided by offering authentic or real-world learning tasks (Kim & Frick, 2011), by making the goals and benefits of the instruction immediately evident, and by associating the new knowledge or skill with how it will be useful to them in achieving a goal in the present or in the future (Nehme, 2010).
- *Motive matching* involves linking the instruction to the learning styles and interests of the learners. The learners’ basic motivation may be stimulated by using personal language, real-world examples they might relate to, and exercises for helping them to visualize the process. In addition, there is the satisfaction of achieving the outcome. Puzzles, games, or simulations can be used to stimulate problem solving or encourage learners to compete against others, against themselves (beating their own best record), or against a standard.
- With puzzles and games, however, it is also important to clearly spell out their relevance to avoid having learners skip them to move on to the “real learning activities” (Ben-Zadok, Leiba, & Nachmias, 2011). Motive matching can also be aided by the use of role models, testimonials, or quotations from people—or even, to a lesser extent, virtual motivational agents (Kim, 2012)—who benefitted from a particular skill relevant to the knowledge area (Keller, 2010).
- *Familiarity* ties the instruction to the learners’ experiences. Motivation is enhanced when the content is

explicitly connected to the learners' existing knowledge, skills, and previous experience. Less familiar content can be related to more familiar concepts through the use of analogies and metaphors. Allowing the use of choices as to how learners can personalize the learning by selecting examples and topics of personal interest and allowing them to select their own means to accomplish a given end can also aid familiarity (Keller, 2010).

Confidence relates to helping learners to establish positive expectations for success (self-efficacy) and then to experience success under conditions where they attribute their success to their own efforts rather than luck or the task being too easy or difficult (Bandura, 1977; Weiner, 1974). Again, according to Keller (2010), the confidence factor has three subcategories: learning requirements, positive consequences, and personal responsibility.

- *Learning requirements* relates to helping the learner understand what is expected of him or her during the training. This involves alerting the learner of the prerequisite knowledge requirements, target audience, and tangible outcome objectives of the offering.
- *Positive consequences* offer experiences that support or enhance the learners' beliefs in their own *competence*. As we saw in our discussion of self-determination theory, offering the appropriate challenge level for the learner and self-tests with instant confirmational feedback can help the learner enter a state of enhanced competence, motivation, and flow.
- *Personal responsibility* is that ability of learners to view their success as based on their own efforts, not the presence or lack of some imagined innate abilities (Dweck, 2006). This can be related to the self-determination need for *autonomy* by allowing the users to control the sequencing, pace, and choices in the learning module. Virtual motivational agents that are portrayed as a caring co-student with similar competencies to the learner have also been found to increase learners' confidence in self-directed e-learning environments (Baylor, 2011).

Satisfaction allows users to feel good about their learning experience and desire to keep learning. From a business perspective, it also represents an important tool in garnering future client referrals and for further brand and reputation building. Keller's (2010) subcategories of satisfaction are intrinsic reinforcement, extrinsic rewards, and equity.

- *Intrinsic reinforcement* heightens the learners' internalized enjoyment of the learning experience. This can be increased by giving the learners opportunities to use

their newly acquired knowledge and skills in a realistic setting soon after the training, as well as by offering positive recognition of the learners' accomplishments and the challenges they overcame. Intrinsic reinforcement is also aided by encouraging learners' continued motivation through providing them with opportunities to explore additional related areas of interest.

- *Extrinsic rewards* involve providing gratifying consequences to the learner's successes. This can involve providing games that offer rewarding scoring systems, public recognition or congratulations, or certificates or other symbolic rewards. Extrinsic reward is also enhanced by avoiding the use of threats or surveillance as means of task performance compliance.
- *Equity* builds the learners' perception of fair treatment. This can be enhanced by ensuring that the problems in the final exercises and post-test correlate strongly with the learning content and objectives and that their level of difficulty is consistent with the preceding exercises.

Designing in intentional motivational devices, such as those mentioned previously, into self-directed e-learning content can help hold the learners' interest and perseverance during their progress through the e-learning. Chang and Lehman (2001) designed a study using the ARCS model (emphasizing *relevance*) to guide the motivational design of a distance learning class along with incorporating features to reduce cognitive load. Such designs yielded a significant improvement in learner perceptions of motivation and on scores on a comprehension test.

In a study conducted employing the ARCS model reported by Chyung, Winiecki, and Fenner (1999), the use of motivational design strategies improved learning and motivational reactions on all four motivational factors (attention, relevance, confidence, and satisfaction) and incurred a 50% reduction in drop-out rate (from 44 to 22%). Motivational design should be taken into consideration throughout the instructional design process. A number of motivational design processes that utilize the ARCS model have been suggested and are worthy of further study (Keller, 1999; Main, 1993; Okey & Santiago, 1991). A cautionary note must be reiterated however. Using the same techniques repeatedly quickly diminishes their value and eventually becomes demotivating (Keller, 2010). Variety and novelty are important.

SUMMARY

Organizational support can be enhanced from the very introduction of the self-directed e-learning platform. Whether that comes from the provider's marketing or

implementation functions, “selling” the e-learning’s features, attributes, and benefits in a way that enhances learners’ expectations for success and the value of the training can lead to higher learner satisfaction and completion rates. Having these functions able to effectively communicate the instructional design factors taken into consideration for increasing motivation to the client sponsors helps clients to better communicate them to their user base. Of course, to do that, self-directed e-learning designers must first understand and incorporate the underlying principles of cognitive load and motivational design. This will better enable them to utilize the existing tools, tactics, and strategies for keeping learners motivated and engaged and to come up with their own while relying on tested theoretical frameworks. ☀

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