AUTONOMOUS LEARNING FROM A SOCIAL COGNITIVE PERSPECTIVE

Michael K. Ponton
Professor of Education
School of Education
Regent University, USA

Nancy E. Rhea
Assistant Professor
Department of Curriculum and Instruction
University of Mississippi, USA

Abstract

The current perspective of autonomous learning defines it as the agentive exhibition of resourcefulness, initiative, and persistence in self-directed learning. As a form of human agency, it has been argued in the literature that this perspective should be consistent with Bandura's (1986) Social Cognitive Theory (SCT). The purpose of this article is to present an alignment between salient aspects of autonomous learning theory and SCT, thereby providing a heuristic position that guides future research in adult learning. Topics such as self-efficacy, cognitive motivation, and conation will be addressed. In addition, current research from the literature in autonomous learning will be discussed.

In 1991, Confessore alluded to the importance of motivation, resourcefulness, initiative, and persistence in self-directed learning. Since that time, researchers (Carr, 1999; Derrick, 2001; Meyer, 2001; Ponton, 1999; Ponton & Carr, 2000; Ponton, Carr, & Derrick, 2004) have attempted to theoretically define these constructs within the context of adult autonomous learning. Because autonomous learning was conceptualized as an agentive activity (Ponton, 1999), the study of associated conative factors led to a review of Bandura's (1986) Social Cognitive Theory (SCT). Unlike radical behaviorism or cognitivism, SCT recognizes that human behavior is intentional and is influenced by the environment and cognitive processes. Modeled as an intentional behavior, autonomous learning, as well as any description of its enactment, must be consistent with SCT.

Thus, a current conceptualization of autonomous learning states that it represents an agentive process resulting in the manifestation of resourcefulness (Carr, 1999), initiative (Ponton, 1999), and persistence (Derrick, 2001) in one's learning. Such agency is predicated upon the learner's (i.e., the agent's) beliefs and attitudes which generate behavioral intentions and subsequent behaviors (cf. Fishbein & Ajzen, 1975). Therefore, cognition and affection play a paramount role in conation (Fishbein & Ajzen) unlike earlier theories of behaviorism that discount the role of thinking upon action (Bugelski, 1964). Consistent with SCT, autonomous learning results from interplay among the environment, the person, and behaviors and is the mechanism through which self-motivated personal development is realized.

Further research is required to develop adequate models of autonomous learning that serve to guide those interested in developing facilitative strategies. Developing such models will require the measurement of variables related to human agency within the context of adult learning. Thus, the purpose of this article is to present an alignment between salient aspects of autonomous learning theory and SCT, thereby providing a heuristic position that guides future research in adult learning. The theoretical alignment suggested will be based upon a synthesis of extant literature rather than original research. The question that guides this discussion is the following: What SCT concepts inform autonomous learning theory?

This article will first present SCT related concepts such as the constituent forms of human functioning, triadic reciprocal causation, agency, self-efficacy, and cognitive motivation (Bandura, 1986, 1997). Next the simple behavioral model of Fishbein and Ajzen (1975) relating beliefs, attitudes, intentions, and behaviors will be presented followed by Ponton and Carr's (1999) expansion of this model to self-directed learning. The current conceptualization of autonomous learning theory will be explained next and then interpreted using a SCT lens. Recent research (Ponton, Carr, et al., 2004; Ponton, Derrick, & Carr, 2005; Ponton, Derrick, Carr, & Hall, 2004) that informs practice will be presented next followed by summary remarks.

Social Cognitive Theory: Basic Concepts

A basic premise of Bandura's (1986) Social Cognitive Theory is that humans are motivated to engage in different activities due to cognitive processes that use information resulting either from personal action or from the observed actions of others. To support these performance related mechanisms, SCT recognizes five forms of human functioning: symbolization, forethought, vicarious learning, self-regulation, and self-reflection (Bandura, 1986). Symbolization refers to a person's ability to create mental images of temporary sensory experiences or information stored in long term memory. Forethought is the ability to use symbolization to create mentally unrealized future scenarios that provide motivation and desirable courses to pursue. Vicarious learning represents the ability to learn from others—a mechanism that allows our society to continually advance the knowledge base by not wasting time relearning the same lessons but also eliminating serious safety risks in having to relearn lessons with life threatening consequences. Self-regulation enables a person to select and manage pertinent activities in order to realize goals. Lastly, self-reflection refers to a person's ability to think about the consequences of past experiences, thereby shaping subsequent beliefs, attitudes, intentions, and behaviors. As evident from these inherent human capabilities, SCT recognizes the primacy of thought in action.

Furthermore, SCT acknowledges that factors associated with environment, person, and behavior exert influence over the aforementioned forms of human functioning (Bandura, 1986). The environment represents the physical world; the person represents internal cognitive, affective, conative, and biological processes; and behaviors are the actions of the agent. Through what Bandura terms triadic reciprocal causation, these three factors bidirectionally influence human functioning relative to the situation presented and the person involved. As an example, identical environmental factors with respect to a specific activity may be interpreted by one person as insurmountable, thus leading to activity avoidance, but interpreted by another as a

requirement to invoke coping strategies when performing this activity. The variation in agency is due to interpretive differences between the two individuals.

SCT recognizes three distinct forms of agency: mechanical, autonomous, and emergent interactive (Bandura, 1989). Mechanical agency describes the situation in which the environment predetermines action independent of cognitive influence, a premise consistent with radical behaviorism. Autonomous agency describes situations in which thought, independent of environment, predetermines actions, a concept associated with radical cognitivism. The third form of agency, emergent interactive agency, emphasizes the concept that human functioning is not predetermined by individual factors, but by interdependent factors through triadic reciprocal causation. SCT, then, is built upon the premise that human performance is a consequence of interactive factors. Thought, environment, and behavior exert varying degrees of influence on individual performance relative to specific tasks.

Social Cognitive Theory: Related Concepts

Self-Efficacy

The notion that cognition influences behavior is related to the concept of self-efficacy, or the personal perception of one's ability to successfully execute an activity (Bandura, 1997). As a perception, self-efficacy may or may not correspond to objective measures of capability; however, it plays a crucial mediating role in cognitive motivation and, thereby, influences activity choice as well as perseverance required for goal completion. Personal assessments of efficacy include both context (i.e., specific activity in which capability is being considered) and strength (i.e., degree to which the perceived capability is believed to be present particularly when impediments are present).

As a perception (not in the sensory sense but in the cognitive evaluative sense), self-efficacy is an interpretation of oneself based upon the processing of information. In this regard, self-reflection is the form of functioning that influences efficacy assessments. Consistent with reciprocal determinism, the environment and behaviors provide the information that is interpreted by the person in assessing efficacy, where self-efficacy beliefs reside within the person. The reciprocal mechanism as modeled by triadic reciprocal causation is enacted when efficacy assessments affect the environment (via subjective interpretations of opportunities associated with activity choices and potential impediments to success) and behavior (via activity choice, performance, perseverance, and interpretation of resultant outcomes).

Behavior and environment provide four sources of efficacy information: mastery experiences, physiological/emotive arousals, vicarious experiences, and verbal persuasion (Bandura, 1997). The first two refer to interpretations of outcomes related to personal behavior, whereas the last two refer to information supplied by the environment. Mastery experiences are past experiences with the same or similar activities that provide indicants of capability; physiological/emotive arousals are somatic/affective reactions to performances; vicarious experiences are the performances of similar others that provide information as to whether personal capability exists; verbal persuasion is an assessment from another concerning one's capability. The direction of influence of these four sources on efficacy (i.e., whether self-efficacy

beliefs are strengthened or weakened), however, depends upon the individual's interpretation of the information provided. For instance, past successes attributed to outside facilitation (e.g., the help of others) rather than personal capability would not enhance self-efficacy (Bandura, 1997).

Cognitive Motivation

The basic premise of expectancy value theory states that humans will be motivated to engage in behaviors that they perceive will lead to desirable outcomes or avoid aversive outcomes (Atkinson, 1964; Vroom, 1964). SCT (Bandura, 1997) characterizes these outcomes as personal (e.g., pleasure, pain), social (e.g., money, awards, ostracism, respect), or self-evaluative (i.e., consistency with self-standards of behavior). Desirable outcomes provide incentives to adopt performance goals and engage in behaviors that lead to these outcomes. Antithetically, undesirable outcomes render disincentives to engage in activities leading to them. Personal or self-evaluative incentives form the basis for intrinsic motivation, whereas the basis for extrinsic motivation resides in social incentives (cf. Bandura, 1986). Self-efficacy mediates the influence of outcome expectancies on motivation as behaviors are not chosen unless the agent believes that requisite capability for success exists (Bandura, 1997)—that is, people do not tend to engage in endeavors that they perceive as futile.

Performance goals, then, are targeted end states that an agent believes, if reached, will lead to one or several desirable outcomes (Bandura, 1997). Using forethought via symbolization, individuals consider various goals, evaluate courses of action, and formulate plans in order to achieve personally valued goals. The correlation between performance goals and desirable outcomes may be learned vicariously when personal experiences are absent. When an activity is chosen, an individual utilizes self-regulation to act towards the pre-established goal and utilizes self-reflection to evaluate actions in terms of goal achievement and desirable outcomes. Again, self-efficacy participates in this process. Should individuals perceive themselves incapable of success, they will avoid the task regardless of possible desirable outcomes.

Self-reflective attributions that one makes concerning the causes for successes or failures influences the motivation to engage in similar activities in the future (Weiner, 1985). Mastery experiences will increase self-efficacy if successes are attributed to personal ability; successes attributed to environmental factors will not (Bandura, 1997). Failures attributed to a lack of capability will reduce efficacy; failures attributed to a lack of effort will not (Bandura, 1997). In addition, self-efficacy influences causal attributions. Someone with strong efficacy beliefs is more likely to attribute successful performances to personal capability or failed performances to a lack of effort where such attributions will motivate the agent to choose similar activities in the future when past realized outcomes are again desirable.

Beliefs, Attitudes, Intentions, and Behaviors

According to Fishbein and Ajzen (1975), beliefs reciprocally influence attitudes where attitudes influence subsequent intention formulation and behavioral choices. Using a feedback model, the consequences of behaviors provide information for additional beliefs thereby perpetuating the cycle. Beliefs represent our knowledge of the world where different objects of thought (e.g., a person, place, event, behavior, or idea) are differentiated from other objects using

distinguishing attributes. These attributive assignments may be subjective (i.e., not factual) and influenced by our attitudes toward the object of thought. Based upon these attributes and our attitudes toward these attributes as separate objects of thought, an individual may feel either favorable (i.e., a positive attitude) or unfavorable (i.e., a negative attitude) toward the object itself.

When the object of thought is a behavior, Fishbein and Ajzen (1975) assert that a behavioral intention will develop if a favorable attitude toward the behavior exists. This will occur when (a) the behavior is believed to lead to desirable outcomes, (b) the behavior is encouraged by significant others, and (c) factors to facilitate the behavior exist (Ajzen, 2002). Blankenship (1985) asserts that intentions transform into behaviors when opportunity, time, importance, urgency, and means are perceived to exist whereas Frese and Sabini (1985) theorize that a wish precedes an intention, where a wish is a dormant intention that transforms into an intention when facilitative opportunities arise.

The model provided by Fishbein and Ajzen (1975) is consistent with SCT as it supports the decisional role of thought (cognition and affection) in activity choice (conation and behavior). The congruency with triadic reciprocal causation is as follows: (a) Information from the environment and from personal behavior influence beliefs and attitudes; (b) beliefs and attitudes result in subjective interpretations of the environment and in behaviors; and (c) the environment provides restrictions and/or opportunities for behaviors to occur whereas behaviors objectively transform the environment.

A Model of Self-Directed Learning

In 1999, Ponton and Carr presented a model of self-directed learning consistent with the aforementioned concepts (see Figure 1). The Ponton and Carr model encompasses two dichotomous elements: (a) general and contextual applications, and (b) learner self-directedness and self-directed learning.
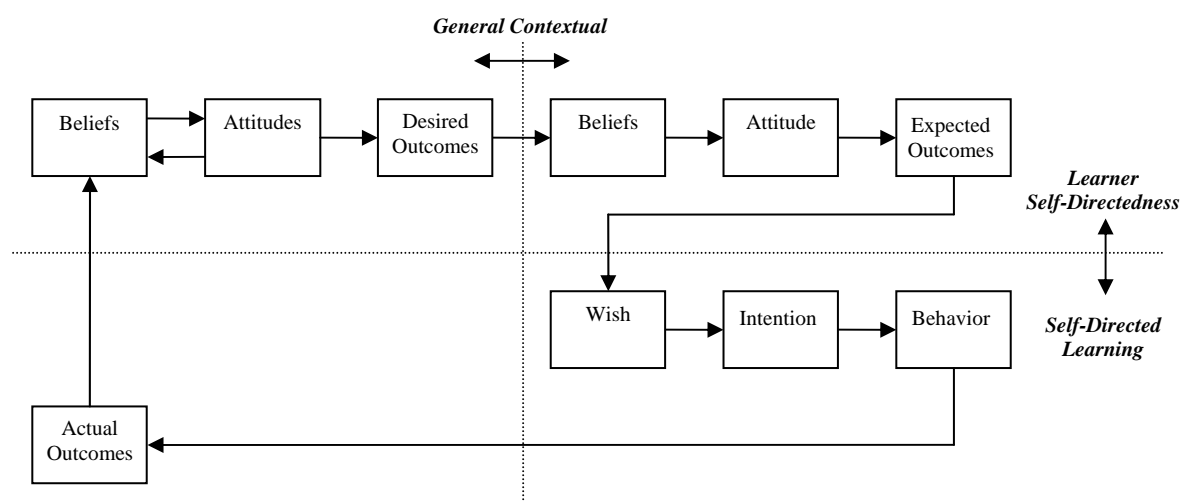

Figure 1. A model of self-directed learning (Ponton & Carr, 1999).

To understand the model, examination begins at the general beliefs location. General beliefs represent the entire universe of personal object-attribute assignments or everything an individual knows. These beliefs provide information upon which to develop attitudes toward various objects, thus creating a personal value system. On the basis of this value system, individuals determine outcomes desired from life.

Once desired outcomes are identified, the individual proceeds to decisions regarding pertinent actions required for the outcomes to occur. At this point, decisions become more context-specific as specific behaviors applicable towards certain outcomes are assessed. Beliefs about many behaviors (including self-efficacy assessments, goal-outcome correlations, and possible impediments) influence the determination of the most favorable course to pursue (i.e., a positive attitude toward a specific behavior) that is motivated by expected outcomes. When self-directed learning activities are chosen to obtain desirable outcomes, as opposed to other nonlearning courses of action, the individual is theorized as having learner self-directedness. The manifestation of this self-directedness is participation in a self-directed learning activity that is comprised of wishes and intentions to engage in the self-directed learning activity, actual participation in the activity, and an evaluation of the actual outcomes resulting from participation. Self-directedness, or the propensity to engage in self-directed learning activities, is fostered when the correlation between actual and desired outcomes is great, and the agent comes to the realization that many desirable outcomes in life can result from independent learning processes.

From Figure 1, self-directed learning is a conative and behavioral process; that is, it represents what the learner intends to do and actually does with respect to the chosen learning activity. As such, self-directed learning is an intentional action that is comprised of all activities necessary to reach desired outcomes. Consistent with interactive emergent agency, this model of self-directed learning characterizes an activity in which agents (i.e., learners) are internally motivated to engage in based upon values and assessments of capability that are socially influenced and personally evaluated.

Autonomous Learning

Autonomous learning refers to a subset of activities within those associated with any self-directed learning project. Activities related to resourcefulness (Carr, 1999), initiative (Ponton, 1999), and persistence (Derrick, 2001) form the core of autonomous learning. Following the conative analogy, an autonomous learner *shows* resourcefulness, initiative, and persistence in his or her self-directed learning activity.

Attending to the cognitive activities that comprise autonomous learning are essential to comprehend fully the notion of self-directed learning. The socially imposed concept of self-directed learning as learning that occurs in isolation does not reflect its essence. As asserted by Long (1989), psychological constructs are necessary in defining self-directed learning. A subset of these constructs is associated with autonomous learning. Consider a situation in which two individuals are involved in academic study. One studies to satisfy imposed requirements, course requirements for example, whereas the other studies to satisfy personal interests. On the surface, both learners are engaged in the same activity. If self-directed learning were identified solely

upon these observable behaviors, then both individuals would merit self-directed learner status. However, if factors associated with autonomous learning were considered, the differences between the two learners and their activities would emerge.

The concept of learner resourcefulness as applied to autonomous learning is based upon Rosenbaum's (1989) nonautomatic self-control theory that addresses an agent's actions in responding to a stressful situation. Rosenbaum asserts that an agent faced with a stressful situation may opt to exercise redressive self-control by escaping the situation to one more comfortable. Alternatively, the agent may exercise reformative self-control by enduring the situational discomfort to reach long-term benefits. Reformative self-control involves skills which enable an individual, or agent, to manage short-term discomfort in order to engage in life-altering activities. These skills include the individual's ability to anticipate future rewards, prioritize values, delay immediate gratification, and solve problems. Learning is a life-altering activity. Self-directed learning activities induce stress as a consequence of learning requirements as well as having to manage them amidst life's other requirements.

Employing the skills associated with reformative self-control, Carr (1999) developed the construct of learner resourcefulness as it pertains to autonomous learning. In Carr's model, autonomous learner resourcefulness hinges on the learner's capacity to anticipate future rewards of present learning, prioritize learning over nonlearning activities, select learning over nonlearning activities, and resolve problems relative to the selected activity. However, Carr's model does not make the distinction between redressive and reformative self-control in that redressive self-control occurs for the sake of activity avoidance to invoke immediate gratification; Carr recognizes that engagement in autonomous learning may be immediately gratifying for the learner in addition to leading to future benefits.

Ponton (1999) developed the five factor construct of personal initiative in autonomous learning based primarily upon research in business (Frese, Kring, Soose, & Zempel, 1996; Frohman, 1997; Ghiselli, 1971). The factors include goal-directedness, an active approach to problem solving, action-orientation, persistence in overcoming obstacles, and self-startedness. Goal-directedness refers to creating and working toward the accomplishment of personal learning goals. An active approach to problem solving is taking the responsibility to create solutions to impediments that interfere with one's learning. When an intention is created, a rapid transition from intention to behavior is action-orientation; thus, a learner displays action-orientation when learning goals and plans are quickly enacted. Persistence in overcoming obstacles refers to the dogged pursuit of learning in spite of barriers. Finally, self-startedness describes learning that commences without the need of others.

The three factor construct of persistence is comprised of goal-directedness, self-regulation, and volition (Derrick, 2001). The goal-directedness factor differs from that defined by Ponton (1999) in that the focus is on perseverant action directed toward goal completion rather than working toward goals with characteristics that provide maximum motivation (i.e., goal specificity, challenge, and proximity; cf. Bandura, 1997; Locke & Latham, 1990). Self-regulation encompasses personal management strategies that enable persistent behavior. Volition refers to postdecisional motivation that represents the cognitive strategies enlisted after one

decides on a course to pursue—other forms of cognitive motivation are predecisional in that they lead to the creation of an intention; volition motivates behavior *after* the intention is created.

Autonomous learning represents a set of cognitive activities that are enacted to varying degrees during self-directed learning tasks. Although not overt behavior in the traditional sense, resourcefulness, initiative, and persistence are made observable via valid instrumentation (cf. Carr, 1999; Derrick, 2001; Ponton, 1999). Consistent with SCT, the current conceptualization of autonomous learning recognizes the important role of these cognitive activities in agentive learning.

Autonomous Learning From a SCT Perspective

Autonomous learning is purposeful, intentional learning. Throughout the course of a single day, humans become aware of new information that is either purposefully sought or fortuitously realized; however, autonomous learning refers to the former. For example, while driving to a destination, one may notice and remember a new store. Because the purpose of the drive does not concern learning locations to new stores, this learning would not represent autonomous learning. However, if learning about the surroundings is the intent of the trip, then the drive is considered an autonomous learning activity in which learner initiative, resourcefulness, and persistence are manifest.

Human thought can influence action. Though incapable of initiating sophisticated environmental interactions, infants have the capacity to symbolize, reflect upon environmental stimuli, and learn vicariously. As physiological skills develop, the child acquires the capacity to use forethought in order to select activities with associated consequences that guide self-regulation. When the basis for selecting an activity is to learn specific content, the child engages in autonomous learning. Cognitive and affective factors provide the impetus for autonomous learning, the consequences of which provide the child with new information with which to influence future behavior.

Humans think and live in an objective reality that supplies information subject to individual interpretations. Though incomplete information may be known and incorrect logic used, humans decide which courses of action to pursue in light of perceived abilities and anticipated valued consequences. Expectations regarding valued consequences are derived from interpretations of past experiences, observations of others, or interaction between the two.

Through symbolization, beliefs about autonomous learning activities are cognitively considered particularly in relation to other activities. As illustrated in Figure 1, many activities are considered with respect to their perceived correlation to desirable outcomes. However, learner autonomy, like learner self-directedness, is presumed to exist when an agent is inclined to engage in autonomous learning activities to acquire desirable outcomes; that is, the agent has a favorable attitude toward autonomous learning activities. This favorable attitude may be based upon learning from others the value of autonomous learning or from past successful learning endeavors initially modeled by competent learners.

Even though an agent believes autonomous learning may lead to valued outcomes, pursuit of this course of action will not commence unless self-efficacy is present. For example, it is not enough for a person to correlate a college diploma in engineering with career opportunities and financial security to catalyze participation in such an undergraduate course of study; the agent must believe that capability is present to perform successfully the requisite scientific and mathematical coursework and persevere in a multiyear academic endeavor. Therefore, a person will not engage in autonomous learning unless both valued outcomes are anticipated and perceived capabilities are present.

Autonomous learning, then, represents learning that is not necessarily coincident with social isolation. The relevant self-efficacy assessment is whether or not an individual believes that capability is present to show initiative, resourcefulness, and persistence in a chosen learning activity. If the agent believes that a college course is an appropriate resource to accomplish some level of satisfaction and subsequently registers and participates in the course, then this activity is consistent with the concept of autonomous learning. Autonomous learning relates to the interactive emergent form of agency that recognizes the interactional influences among the person, environment, and behaviors. Therefore, social isolation is not a defining characteristic of autonomous learning.

Recent and Future Research on Autonomous Learning

Using data from a nonprobability sample of 909 adults, Ponton, Carr, et al. (2004) developed a path analytic model for autonomous learning and argued that persistence is heavily influenced by resourcefulness mediated by initiative. Thus, to foster autonomous learning tendencies, a learning facilitator should focus initial efforts on creating learner resourcefulness. When the facilitator helps learners to anticipate the future rewards of learning activities as opposed to nonlearning activities, learners prioritize and select learning over nonlearning activities. Facilitators who create courses that provide opportunities for learners to develop academic skills and create assessments that highlight increases in learning capabilities equip the learner with the capacity, both actual and perceived, to solve the problems that interfere with desired levels of learning.

Facilitators foster initiative when they help learners to create performance goals that are specific, challenging, proximal, and correlated to anticipated future rewards, or desirable outcomes. Furthermore, fostering personal initiative encourages the development of a high level of personal responsibility not only to solve the problems associated with one's learning, but also to create goals, plan learning activities, and persevere to personal levels of success. Persistence, as volition, results when valued goals are created and pursued, learning outcomes are monitored for desired levels of learning, and activities are modified to accomplish these goals and standards. Facilitators should create opportunities for autonomous learning in their courses and help students to value such learning as they develop efficacy in these conative factors.

To further investigate the path analytic relationship between resourcefulness and persistence, Ponton et al. (2005) conducted a follow up study using data from 492 adults. The results of this study suggest that while adults may anticipate the future rewards of learning, prioritize learning over nonlearning activities, and intend to show persistence in their learning,

they may not actually choose learning over nonlearning activities. Ponton et al. (2005) argue that activity selection may be related to the many choices that busy adults have and that personal learning may be postponed due to the perceived exigencies of multiple life roles. Thus, to foster autonomous learning, a facilitator should prescribe methods (e.g., reflective journals) that help learners to assess the costs versus the benefits of activity choices. In this manner, the learner increases self-monitoring tendencies and is better able to invest time in activities that have long term value.

As self-efficacy plays an important role in instigating autonomous learning, Ponton, Derrick, et al. (2004) developed the *Appraisal of Learner Autonomy* (ALA) to measure self-efficacy in adult autonomous learning. The instrument was developed utilizing Bandura's (2001) guidelines in both scale creation and validation assessment. In light of the mediating role of self-efficacy in cognitive motivation, research using the ALA will be directed at confirming the role of self-efficacy as a predictor of the autonomous learning conates. Provided the model is supported, using the sources of efficacy information to guide the promotion of learner autonomy is tenable.

Concluding Remarks

Autonomous learning represents an intentional activity in which learning is pursued based upon individual preferences. Supported by motivation and self-efficacy, the exhibition of resourcefulness, initiative, and persistence in one's learning defines autonomous learning. When a person is inclined to engage in autonomous learning activities, even when other courses of action may lead to equally satisfying outcomes, the person is characterized as having learner autonomy. Thus, learner autonomy represents cognitive and affective processes that lead to the conative factors of autonomous learning.

Consistent with SCT, humans choose to engage in autonomous learning based upon an ideation of potential future states. Anticipating valued outcomes, formulating learning goals, planning learning activities, and monitoring the feedback from such activities, thereby influencing the self-regulation of continued action, is consistent with conceptions of both SCT and autonomous learning. These cognitive processes occur in a dynamic model that recognizes the bidirectional influence among three constituent factors: the environment, person, and behavior. Thus, autonomous learners as agents are not only influenced by the environment and their behaviors, but they also influence the environment and their behaviors through purposeful action.

For many years, self-directed learning has been fluidic in definition. As a result, several researchers have attempted to focus on autonomous learning by creating a theoretical definition consistent with the current concepts of human behavior such as SCT. It is in this spirit that these researchers (cf. Carr, 1999; Derrick, 2001; Ponton, 1999) have attempted to not only provide a fresh line of inquiry but also to direct ongoing studies that better enable learning facilitators to foster learner autonomy among students. With continued studies directed towards the conative factors described in this article and other relevant constructs (e.g., curiosity, personal responsibility, self-efficacy), the facilitation of autonomous learning tendencies based on empirical evidence may be realized in just a few years. Accepting autonomous learning as an

agentive activity consistent with SCT provides a heuristic framework that will continue to guide research and inform practice in facilitating lifelong learning and human empowerment through intentional development.

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