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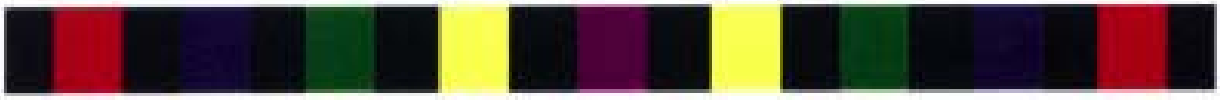

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Preface

This issue begins with an overview of themes and theses in self-directed learning, an invited paper that was presented at the opening session of the 20th International Self-Directed Learning Symposium. Dr. Long, founder of the Symposium, shares his perspectives of the central themes and theses emerging over the years.

Following a line of inquiry investigating self-directed learning and performance, Guglielmino and Hillard present a mixed method study investigating the self-directed learning of a select group of principals named as exemplary for their leadership of reading improvement in previously low-performing schools.

The remainder of the issue focuses on self-directed learning in relation to formal instruction. Park and Confessore explore an interactive model for promoting self-directed learning in formal instruction. Zsiga and Webster, writing from a U. S. perspective, present an argument for the importance of promoting self-direction in learning in secondary schools and describe a pilot program for introducing self-directed learning to high school teachers. Carmichael details an investigation of the outcomes of an established independent learning center in an Australian secondary education context.

The U.S. focus in recent years has been on high-stakes testing, with an emphasis on memorization of content. These articles provide a strong reminder that the complex challenges of our time require continuous, self-directed learning (as evidenced in the study of the exemplary principals). While content knowledge is important, it is not sufficient preparation for life after schooling.

Lucy M. Guglielmino
and
Huey B. Long, Editors

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CONTENTS

THEMES AND THESES IN SELF-DIRECTED LEARNING LITERATURE*

Huey B. Long

The purpose of this paper is to provide an overview of selected themes and theses reported in the self-directed learning literature since 1957. My comments do not constitute a critical review or in-depth analysis of the themes and theses; rather, this is a brief commentary on what I perceive to be some of the major ideas, approaches, and issues identified by others. I have not attempted to be exhaustive in citing either sympathetic or unsympathetic literature. References to authors are limited to illustration. Neither have I attempted to report all of any given author's work on any of the selected topics. It is also possible that some of the selected authors may have addressed multiple themes, but seldom have they reported substantively different theses. My apologies are offered if I have incorrectly reported, or unfairly characterized anyone's position. One additional caveat: I have chosen not to discuss the literature related to the various definitions of self-directed learning. Others (Gerstner, 1990, 1992), and Hiemstra (1996) have already provided instructive comment concerning the variability in terminology.

The vast literature of SDL contains a variety of topics and treatments. Since emerging on the scene in adult education publications in the late 1950s, SDL has become a popular topic across many fields of practice and study. References to what I consider to be self-directed learning pre-date the 19th century (Craik, 1840; Long, 1990b; Smiles, 1859). The idea of self-culture, also known as self-improvement and self-help, was popular in the 18th and 19th centuries. See Craik's (1856) novel, *John Halifax, Gentleman*, for an example of the idea presented in novels. Self-learning was important in the thought of the 19th century Transcendentalists. See Margaret Fuller Ossli (Long, 1991b) as an example. Twentieth century writers of note who referred to the topic before 1965 include Houle (1957, 1958), Kidd (1959), and Sheats (1957). Visibility of SDL in the literature emerged in force in the 1970s.

The expansion and depth of the SDL literature in the past three decades is noteworthy. Confessore and Long (1992), Long and Confessore (1992), and Long and Redding (1991) present reviews of the corpus of the literature before the mid 1990s. Brockett and the SDL Research Group at the University of Tennessee (Brockett, Stockdale, Fogerson,

* This invited article is excerpted from a paper presented at the 20th Annual International Self-Directed Learning Symposium, February 2006. Dr. Long founded the Symposium in 1986. The original version of the paper is available on CD from the author (*Keys to Self-directed Learning*, Volume 1, 2006).

Cox, Canipe, Chuprina, Donaghy, & Chadwell, 2000; Stockdale, Fogerson, Robinson, & Walker, 2003) provide recent analyses of the SDL literature.

Although there are wide-ranging possibilities for comment on SDL, because of space limitations only two major topics will be discussed here: themes and theses. In this paper, *themes* are central ideas or points that have been discussed by various authors; for example, the psychological concerns as proclaimed by several authors comprise one of the themes I have observed. *Theses* are defined as theoretical efforts contrived by various commentators to provide an explanation for the causes or basic properties of SDL.

I plan to discuss the conceptual aspects of the aforementioned topics rather than attempt to comment on the detailed elements and dimensions of the subject matter. One or more papers could be presented on each of the selected topics.

THEMES

Given the range of ideas discussed in the SDL literature, it is improbable that we could discuss all of the themes and theses found there. Therefore, my comments are not necessarily exhaustive. Nevertheless, the discussion should begin somewhere, and I immodestly share my thoughts here as a beginning point in the conversation.

The themes that I consider to be some of the more significant are: (a) the measurement of self-directed learning; (b) origins and sources of self-direction in learning; (c) SDL as goal; (d) the philosophical justification or description of SDL; the characteristics of SDL, both as a concept and a process; and (e) apologetic treatment. Brief commentary on each of the six themes is provided.

Measurement

Various authors address the measurement theme in the self-directed learning literature beginning in the 1960s (Pilling-Cormick, 1995). This theme contains several sub-themes: (a) a quantitative measure of sdl as a cognitive or personality construct; (b) an inferential measurement based on the number of learning projects; (c) validation studies of different instruments such as the Guglielmino *Self-directed Learning Readiness Scale* (Guglielmino 1978, 1997; Morris, 1997), the *Oddi Continuing Learning Instrument* (1984), Pilling-Cormick's (1998, 2000) *Self-directed Learning Perception Scale* and the learner autonomy assessments of Confessore and his colleagues (Carr, Ponton, & Ingram, 2003; Park & Confessore, 2000; Derrick, 2002); (d) ex post facto efforts to identify self-directed learning scores and behaviors with selected indices (Confessore, 1991; Long, 1991a; West & Bentley, 1991); and (e) criticism and defense of measurement approaches (Field 1989; Guglielmino, 1989; Long, 1989b; McCune, 1989).

Origins and Sources

A frequent theme in the SDL literature concerns the origins and sources of the impulses or behaviors that lead to self-directed learning. Several studies have attempted to determine

and/or explain why some people may embrace and engage in self-directed learning. These explanations generally fall in four categories: (a) family and culture, (b) learning style and self-efficacy, (c) motivation, and (d) environment.

Cheong and Long (1999), Eisenman (1990), Guglielmino (1992), Long, Cheong and Cheong (1998), Long, Redding and Eisenman (1993), Long and Cloud (1997), Long, Stubblefield, and Agyekum (1995), and Long, Stubblefield and Morris (1998) looked at the family, school, and personal development for insights into the manifestation of self-direction in learning. The above sources include a variety of interesting relationships.

A few contributions address the role of culture, defined as a broader construct than psychological environmental studies. Redding (1997) discriminated among cultural influences: micro, meso, and macro. Micro cultures include the family and limited face-to-face relationships. These settings are not unlike the family, small religious groups, and work place relationships. Meso cultural influences are broader and may apply to larger ethnic, racial, religious and corporate groups. Finally, the macro culture is broadly inclusive as framed by major time and events; thus we could speak of the 2005 hurricane season and its influence on the U.S., or issues of climate behavior and terrorism as they influence the global community in the first part of the 21st century.

Long conducted biographical case studies that illustrate this theme. He studied the biographies of Peter the Great (1990b), Timothy Claxton (1991b), and Wilder Penfield (1989d) in terms of family, historical time, and national settings. He determined that family relationships were of more explanatory value than the other two variables. That is, family relationships that may have contributed to the self-directed learning proclivities of these three males were more similar than their national settings and their historical time. Each had a family member or someone provided by the family that seems to have encouraged them to be self-directed. Redding (1997) reports that micro culture along with historical time and events limited to the lifetime of his subjects were associated with high self-direction. It is obvious that these investigations differ, not only in their results, but also in terms of design and method.

Bonham (1989), Confessore and Hermann (1997), and Hoban, Bulik, Hanor, Hoban, and Sersland (2002) are among the authors who have written about the possible influence of learning style and self-efficacy and related psychological phenomena. Confessore, Long, and others have sought to locate explanations for individual learning efforts within a motivational framework. These ideas frequently address intrinsic versus extrinsic motivation. Related literature is found in the areas of creativity. See May (1975) and Csikszentmihalyi (1991, 1997) for further explication.

A number of authors are concerned with precise or limited environmental elements. Mocker and Spear's (Spear, 1988; Spear & Mocker, 1984) work on organizing circumstances is an outstanding exemplar of this literature. Hiemstra (1994) has written frequently on learner self-direction in formal settings. His work includes collaboration with Brockett (Brockett & Hiemstra, 1991) and Sisco (Hiemstra & Sisco, 1990). Other contributions such as those by Bulik (2003) Pilling-Cormick and Bulik (2000), and others represent the work that focuses

on the formal learning environment. Durr, Guglielmino, and Guglielmino (1994), Foucher (1996), Piskurich (1994), and others address the work environment.

The work of other investigators concerned with the above topic can be found in the numerous books, CDs and papers presented and/or published as products emerging from the International Self-Directed Learning Symposium.

Self-Directed Learning as Goal

This theme is less robust than the first two. The idea developed by the authors who address self-direction as a goal usually implies that teachers should design their instructional plans and activities in a way that contributes to the development of self-directed learning by their students. Goss (1998) says, "Self-directed learning is the goal of all education practice, that is, the movement toward individual self-actualization (p. 203).

Goss's intent is unclear. Does he mean that the goal of all education practice is individual self-actualization? Or does he mean that self-directed learning is equivalent to self-actualization? I don't think he means either; it seems that he is saying that education practice has the goal of self-direction that will subsequently result in self-actualization. Unfortunately, he does not share any criteria that would inform us of the substance of the means by which self-actualization can occur. Self-directed learning is not defined other than this idea of goal. He continues to observe that the task of education practice is to devise methods and techniques that progressively develop greater self-directedness in learning. But we have no idea about how one determines the existence or development of self-directedness in learning because it has not been defined sufficiently to do so.

Goss encounters a challenge of internal consistency in reasoning as he has already dismissed self-directed learning as a process or as a personal attribute. Consequently, self-directed learning remains a chimera. Much of the literature concerning self-directed learning as a goal contains a similar problem. Long (1998) observed that it is difficult to conceptualize a goal without a referent. To say that the SDL is a goal without defining SDL is difficult to comprehend. Can we say that honesty is a goal without having in mind what honesty is?

One exception to the above problem in the literature is found in the work of Cheren (1983). Cheren distinguishes between *self-directed learning* as a term in preference for *self-direction in learning*. Nevertheless, he proposes that self-direction is a goal that has measurable dimensions. In other words, self-direction in learning is a goal that is comprised of certain behaviors that are measurable. Hence, one might be able to observe and measure selected behaviors and determine the absence or presence of self-direction.

Based on the comments of Goss (1998) reported above it is not difficult to assume some of the SDL literature that emphasizes the goal theme is closely related to a fourth theme as identified below.

Self-Directed Learning as Philosophy

The fourth theme includes two ideas. The first is concerned with defining self-directed learning in terms of philosophy. Brookfield, according to Goss (1998) has criticized self-directed learning as lacking in terms of political and philosophical foundations. I agree that writers and investigators concerned with SDL have largely ignored the philosophical aspects of SDL. Certain philosophical assumptions can be inferred, but a strong philosophical explication appears to be absent.

Philosophical assumptions underlie the second idea, which is concerned with whether self-directed learning is viewed positively or negatively. Viewed positively, SDL is something to which all should aspire; and in formal instruction teachers should put forth special efforts to achieve and develop self-directed learners. In contrast, a few have taken the position that such efforts are harmful. Some of the critics who have taken the latter position argue that using an instructional procedure that places responsibility on individual learners borders on teacher malfeasance; the idea is that by expecting the learners to formulate goals, develop strategies, select resources and participate in evaluation teachers abdicate their responsibility. Brookfield (1985) perceives self-directed learning as being inefficient, and therefore to be questioned. He also seems to be concerned that SDL is an insidious manifestation of individualism that is rooted in American political philosophy.

In contrast, Brockett and Hiemstra (1985) cite Tough (1965, 1966, 1967, 1971, 1979) to represent self-directed learning, or self-planned learning, as being desired because it is more efficient than attending classes. Long (2001b), however, emphasizes the potential effectiveness of SDL that is to be preferred over efficiency. Others suggest that since the teacher makes the decision to use self-directed learning techniques, the matter of choice has been taken away from the learners.

Simply stated, two major ideas separate the above authors. One concern is with the issue of efficiency and effectiveness. The other is concerned with the role of teachers and techniques. See Brookfield (1988) Bonham (1991), and Jarvis (1989) for related comments.

What seems to be missing in this literature is an effort to explicate the values and processes associated with self-directed learning in relation to philosophical terminology and perspective. For example, the influence of Adler, Dewey, Nietzsche, James, and Kilpatrick remain to be pointed out. Sexton's (1989) discussion of the relationship between Kilpatrick's ideas about learning and SDL is an exception.

Self-Directed Learning Characteristics

The fifth theme also is expressed in two sub-parts: (a) characteristics of the concept, and (b) characteristics of the process. Both bodies of literature addressing these themes are mostly hortatory rather than empirical. They sometimes reflect values associated with the first three themes. That is, the first often contains expositions of the nature of self-directed learning in terms of actions, strategies, and usefulness. This body of literature is concerned with how the learner or teacher can organize the learning environment to facilitate SDL. The literature

seems to flow from ideas associated with Knowles (1975, 1980) and Houle (1957, 1958). Tough's work (1965, 1966, 1967, 1971, 1979) is an exemplar of this sub-theme. The second is concerned with process elements that either improve or reduce the efficacy of self-directed learning. This body of literature is concerned with motivation, persistence, and so-forth. See Long's (1989) chapter on Wilder Penfield as one example. Other examples explore extrinsic and intrinsic motivation in SDL.

Apologetic and Critical Literature

The apologetic literature primarily defends the SDL concept from a value perspective. In contrast, the literature of criticism most often deals with problems of clarity, measurement, practice and theory. The apologists endeavor to offer explanations and descriptions to mitigate the criticisms. Topics include justification of the concept and practice. In addition, hortatory comments are directly promotional. While some apologists, such as Candy (1990), Confessore and Confessore (1993), Brockett and Hiemstra (1991), and Long (1990a; 1996), offer their criticism in places, their overall thrust supports the concept. Others such as Brookfield (1988) and Goss (1998) are less enthusiastic.

The critical literature addresses measurement issues, including occasional criticism of the Guglielmino *Self-Directed Learning Readiness Scale* (1978) and the *Oddi Continuing Learning Instrument* (1984). Usually these comments relate to questions of validity and theoretical base. Other critical literature addresses sample selection issues. Finally, some like Brookfield (1985, 1988), may be described as ambivalent, but generally critical of the concept, practice and theory. Bonham (1989), Ebeling (1994) Jarvis (1998) and Goss (1998) provide other critical positions.

It is possible for an author to hold positive attitudes toward SDL conceptually while maintaining negative attitudes concerning measurement and definitions. The opposite might also apply.

THESES

Theoretical efforts designed to explain how and why individuals engage in SDL are as varied as the themes previously noted. Naturally the theses reflect aspects of the themes, but they do not always directly associate with individual themes. Let us identify and examine some of the major theses: (a) self-directed learning as self-teaching, (b) as andragogy, (c) as method, (d) as sociological, and (e) as psychological.

Self-Directed Learning as Self-Teaching

Allen Tough was concerned with two major issues: (a) the frequency of adults' SDL behavior and (b) the questions of why and how adults organize and engage in self-instruction. The latter included helper issues and selection of resources. It appears that Tough's work proceeded from the ideas of his professor, C. O. Houle, whose investigation resulted in the classic *The Inquiring Mind* (1961). Tough assumed that many adults engage in

self-instruction in contrast with other-instruction. He was interested in several facets of the problem, including how and why this self-instruction process was adopted. Please note, Tough appears to have been mostly concerned with processes of self-instruction that parallel or mirror formal instruction. Hence he titled one of his publications *Learning Without a Teacher* (1967). He characterized his original investigation as being concerned with adults' learning projects. Hence, he examined the nature of many discontinuous self-instructional episodes. Following Tough, a number of investigators surveyed a variety of subjects in order to develop a better understanding of the self-instructional processes and motives underlying adult learning projects. The investigation into adult learning projects was useful in documenting and revealing interesting aspects of a previously ignored topic in adult learning. Unfortunately, these investigations were not subjected to any overarching comprehensive theoretical framework that significantly advanced knowledge of the phenomenon.

The learning projects research suggests several conclusions:

1. Most adults engage in one or more learning projects each year.
2. The quality of resources utilized by individuals varies according to several factors, including ease of accessibility.
3. The quality of learning outcomes is unknown.

Self-Directed Learning as Andragogy

Tough's ideas were overlapped by the andragogical conceptualizations of adult learning behavior presented by Knowles (1975, 1980). Knowles proposed that adults manifested set of behaviors and characteristics that he subsumed under his theory of andragogy. One of the most important positions, for our purposes here, is his proposition that as humans age and develop through childhood to adulthood they strengthen an innate drive to become self-directing or independent. Knowles' ideas, however, were closely related to the teacher-learner interaction in formal instructional settings. His thesis was that adult students desire to assume responsibility for their learning and, given the freedom to do so, will engage in self-directed learning.

Knowles' approach to adult teaching and learning was very influential. As a result, many teachers and trainers have followed Knowles in devising instructional situations that provide a range of opportunities whereby adult learners may identify and choose critical processes and procedures in learning, providing an opportunity for the learners to assume control and responsibility for their learning efforts and outcomes.

Self-Directed Learning as Method

Few theoretical positions have been developed within this category, as the main focus seems to have been on the distance delivery method. As a result the greater attention was directed to the delivery mechanism such as computers, mail, radio and television broadcast technology, and combinations of these. Garrison (1993), however, wrote on distance learning as related to a psychological concept: learner control.

Long (1989c) argues that the self-directed aspects of many of the distance learning programs are limited. Accordingly, he is of the opinion that many programs in this area are based on behavioral psychological concepts in terms of information organization, presentation, and evaluation.

Self-Directed Learning as Sociological

While the learning projects research is sometimes referred to as a sociological approach to discussing self-directed learning, the learning projects literature is mostly concerned with the social dimensions and processes of the learner's acquisition of information and knowledge development. The sociological theses as discussed here are concerned with speculations about the origins and development of self-directed learning readiness or inclination and the social context that is supportive of or punitive toward self-direction in learning.

This literature has been discussed earlier as one of the themes. The thrust of the theory is that social variables are associated with self-direction. Many have investigated the social variables of family and immediate friends (Cheong & Long, 1999; Guglielmino, 1992; Long & Cloud, 1997; Long & Stubblefield, 1994; Long, Stubblefield & Morris, 1998). The above is what Long (1990a) and Redding (1997) refer to as a micro social framework. Another framework, the meso social context, includes intermediate social forces such as the workplace (Spear, 1988), school (Long & Stubblefield, 1994), and extra-family interactions (Long & Redding, 1994). The macro social context includes such things as culture, historical era, and national societies (Guglielmino, Klatt, & Guglielmino, 1995; Long, 1990a; Redding, 1997; Schooler, 1990). Basic questions with which these studies are concerned relate to the effect of other people, time, and place in the lives of individuals that may or may not contribute to the manifestation of personal autonomy in learning.

Self-Directed Learning as Psychological

The idea that self-direction in learning has psychological explanations is not particularly shocking. It is surprising that this explanation was not highly visible in the literature before the late 1980s, almost 20 years after Tough's (1965) work on adults' learning projects. Knowles (1975, 1980) may have indirectly suggested the psychological idea in his basic developmental premise that as humans move from childhood to adulthood they become more self-directing. Knowles, however, was more interested in the implications of the development for the teaching-learning transaction than trying to explain this within a theory of psychological development.

Guglielmino's (1978) *Self-Directed Learning Readiness Scale (SDLRS)*, based on a Delphi process including 14 notable authorities, identified several behaviors and personality characteristics as being *desirable*, *necessary* or *essential* for self-direction in learning. See Guglielmino (1978) for a listing of the identified characteristics. I have been unable to identify empirical evidence of the relationship of the identified characteristics with self-directed learning prior to 1977. Nevertheless, it is not difficult to assume such a relationship based on the experience of the Delphi panel. While the earliest identified validation studies of the *SDLRS* failed to address this question, later investigations such as those conducted by

Long and Agyekum (1983) support the validity of the assumption.

Long was among the early theorizers to propose a psychological explanation for SDL (1990c). In the 1980s he stated that none of the other existing theories was sufficient to explain SDL. Specifically, he argues that a psychological explanation underlies the individual's choice to engage in an individual learning project, participate in a formal or informal learning group, or engage in a distance education activity. Some may chose to engage in a learning project as conceptualized by Tough, others may chose a group instruction setting as conceptualized by Knowles, and others may chose a distance delivery method. Some may chose all of the above at different times. But the choice does not necessarily explain why any of the above was chosen initially. Long proposes that the why of self-direction is not necessarily answered by the kind of choice. We need to know why the learner chooses to learn in the first place before we can understand the explanation for the approach chosen by the learner. Explanations for both of these concerns are theoretically rooted in philosophy and psychology and possibly to a lesser degree in sociology to the extent that social events and contexts interact with psychological development.

Long is intrigued by the relative strengths and explanatory power of various psychological phenomena including cognition, motivation, and personality. Unfortunately, previous investigators have generally limited their research to the relationship between the *SDLRS* and one of the other variables. Long and Agyekum (1983, 1984) conducted a multiple variable study that examined the relationship among Guglielmino's *SDLRS*, dogmatism, and *Yea Sayer-Nay Sayer* scores. The relative predictive power was found to be limited. Later, Long (1985) examined the research concerning the association between cognitive scale scores and the *SDLRS* and between personality scale scores and the *SDLRS*. He noted that few investigators have used both types of scales simultaneously with the *SDLRS*. Therefore, even when associations between the *SDLRS* and cognitive and personality scale scores exist among different studies, it is not possible to determine the relative power of the cognitive dimension compared with the personality factor.

Long was not able to satisfactorily differentiate among various psychological elements. He and others have been unable to untangle the relationship between cognitive and personality aspects of self-direction in learning. Despite extensive research and theoretical reasoning, Long was not able to his satisfaction to determine the relative explanatory power of diverse psychological phenomena such as cognitive characteristics, desire for control, motivation (Long, 1989c), persistence in the face of obstacles, personality, and others. Consequently, he adopted the position that the above psychological phenomena interact with other psychological and social variables (Long, 1990c). As a consequence he proposes that the variety of psychological and cognitive elements in play comprise a complex syndrome. See Long (2001a).

Personal desire to learn is paramount in the psychological explanation. It must be sufficient to overcome many psychological barriers. Long believes that desire must be greater than fear, and greater than competition from other satisfiers. He considers the possibility that some would-be learners may find themselves located about midway on the approach-avoidance gradient. The key to their movement on the gradient may be highly idiosyncratic.

For example, fundamental competence is extremely important in self-directed learning. Without a minimal level of competence individuals will likely lack confidence in their ability to be successful. It is, therefore, likely that many self-directed learners restrict themselves to their competence areas. Even though they may greatly value the potential outcomes of learning, lack of confidence and fear of failure may deter many, if not most people. For one interesting experience dealing with the issue of self-confidence in self-directed learning see Jones (1994). It is likely that most self-directed learning occurs when the learner thinks the achievement of a learning goal is probable, plus that goal must be of sufficient value to pay the cost of the effort.

Others raise additional questions. Bonham (1989) examined the possibility that self-directed learning might be a learning style. Hoban and colleagues (Hoban, et. al, 2002) conducted a number of investigations designed to reveal the relationship between self-efficacy and self-directed learning as well as learner performance in school subjects. Once again, however, this psychological characteristic does not reach a high explanatory level.

Recently Confessore has devised and sharpened his position concerning the value of psychological attributes in self-directed learning (personal communication, 2005). He casts self-directed learning behavior as a phenomenon best explained by a psychological syndrome. He posits the following:

> … the enacting of specific learning activity is driven by the interaction of the belief that the learning activity will contribute to the reduction of the cognitive dissonance at hand, to one's self-efficacy, and to the expectation there will be sufficient "payoff" to make it worth the time and effort to undertake a particular activity. These beliefs and expectations form a syndrome that gives rise to behavioral intentions that are grounded in relatively habitual response patterns.

Confessore has developed a promising instrument that may be helpful in encouragement of self-directed behaviors. *The Learner Autonomy Profile* is comprised of four major constructs and 23 sub-constructs: (a) *ILD- Inventory of Learner Desire*, based on circumstance, expression, group identity, growth-balance, love issues, communication skills, and change skills; (b) *ILR- Inventory of Resourcefulness*, based on learner priority, deferring gratification, resolving conflict, future orientation, planning, evaluating attention, anticipatory consequences; (c) *IL- Inventory of Initiative,* based on goal direction, action orientation, active approach, and self-startedness; and (d) *ILP- Inventory of Learner Persistence,* based on volition, self-regulation, and goal maintenance. See Ponton and Carr (2002), Derrick (2002), Park and Confessore (2000), Park and Meyer (2002), Ponton, Carr, and Confessore (2000), and other publications by the above for studies related to the ILP.

Christensen and Hooker (n.d) develop a psychologically based theory of self-direction in learning they label *self-directed anticipative learning* (SDAL). These theorists have applied their theory to scientific knowledge. It appears Christensen and Hooker's ideas of SDAL include many of the elements of SDL identified by Long, Confessore, and others. Their

theory posits that SDAL is goal directed, based on observation and collection of information, includes the possibility of error and correction, and involves evaluation and feedback.

SUMMARY

The large body of SDL literature is comprised of a variety of publications and papers on a diverse range of topics. This presentation was designed to organize these contributions in a way that we can grasp the diversity while also perceiving the centrality of certain topics. Accordingly, I identified and briefly discussed six conspicuous themes in the literature. The discussion was mostly an effort to identify and characterize the themes rather than provide exhaustive analysis. Others may do that at a later time.

Following the comments concerning the six conspicuous themes, we looked at five major conceptual theoretical positions. These theoretical positions share only limited over-lap and as such are mostly free of influence from any of the remaining three. They are more contrasting than comparative. Once again, I only skimmed the surface when commenting on each of the five positions.

I realize that the limited overview suffers the weakness of all overviews. I may have unintentionally incorrectly summarized the position of an important contributor; I may have overlooked an important contribution while giving too much attention to a less important contribution. But these errors can be corrected by others who may be motivated to use my comments as points of departure for further discussion.

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Huey Long founded the International Symposium on Self-Directed Learning in 1986 during his tenure at the University of Georgia. He was the recipient of the first Malcolm Knowles Award for significant lifetime contributions to the field of self-directed learning. Author of scores of books and research articles, he continues to contribute to the field as a professor emeritus from the University of Oklahoma (longhb@yahoo.com).

SELF-DIRECTED LEARNING OF EXEMPLARY PRINCIPALS

Lucy Madsen Guglielmino and Lurana C. Hillard

Growing out of the documented links between self-directed learning and performance, the purpose of this study was to explore the use of self-directed learning by a select sample of ten elementary school principals who had been designated as exemplary in leading reading improvement in their states. Data examined included transcripts of hour-long interviews, observer notes, and scores on the *Self-Directed Learning Readiness Scale (SDLRS)* (Guglielmino, 1978). The overarching conclusion of the study centers on the identification of these exemplar principals as "educational entrepreneurs" who employ innovation, teacher empowerment, shared leadership, and reliance upon data to lead reading improvement in their schools. On the *Self-Directed Learning Readiness Scale* (Guglielmino, 1978), the principals' scores were exceptionally high, comparable with those of the top entrepreneurs in the United States.

Focusing on improvement of reading skills has become a mandate across the U. S., as exemplified in the Reading First program (USDOE, 2001) and corresponding state initiatives. Best practices in reading have been outlined in major reports issued by the National Reading Panel (2002), the National Institute of Child Health and Human Development (NIFL, 2001), and others. The wide variety of information and mandates may bewilder a principal whose area of expertise is not reading instruction.

Principals are on the front lines to demonstrate improvement and attainment of the goals mandated by *No Child Left Behind* (USDOE, 2001). In recent years, expectations for principals have expanded dramatically (Jones, 1999), with an important recent focus on instructional leadership (Ubben, Hughes & Norris, 2001). Leadership for reading improvement is considered particularly critical; many view reading improvement as the key to increased achievement (McEwan, 1998), as the NCLB requirements demonstrate. Unfortunately, many principals have had little or no instruction in the teaching of reading, and professional development and guidance for principals in leading reading improvement have been rare.

Despite the lack of formal resources for assisting principals to meet the challenges of leading reading improvement, some have demonstrated exemplary performance in this area. In the business arena, studies have demonstrated a link between exemplary performance and readiness for self-directed learning. An initial study by Guglielmino and Guglielmino (1982)

reported positive correlations between workplace performance and readiness for self-directed learning. The study was replicated by Roberts (1986) and Durr (1992) with similar results, and these studies also documented a link between SDL readiness and level of management. Other studies strengthening the connection included a study of the top entrepreneurs in the U. S. (Guglielmino & Klatt, 1994) and the top female corporate executives in the U. S. (Guglielmino, 1996). Examining the approaches of principals who were named as exemplars in leading reading improvement in their schools before the legislative push could reveal whether there is evidence of self-directed learning in their approaches and document important principles and practices that could be incorporated into professional development programs for principals.

PURPOSE OF THE STUDY

The purpose of this study was to determine if there was evidence of self-directed learning in the approaches of ten Florida elementary school principals identified as exemplary in leading reading improvement in their schools. A secondary purpose of the study was to compare the principals' levels of readiness for self-directed learning as measured by the *Self-Directed Learning Readiness Scale (SDLRS)* to those of other groups.

METHOD

The study incorporated both qualitative and quantitative methods. An in-depth interview was used to explore the principals' approaches to leading reading improvement. Two weeks later, they responded to a quantitative assessment of readiness for self-directed learning to enable a comparison with other groups. The order of data collection was chosen to avoid influencing the interview responses. All data were self-reported.

Sample

The purposeful sample for this study was composed of ten elementary school principals, each from a different school district in Florida, who were identified as "success stories" by the Florida Department of Education for their "marked progress" in leading reading improvement, even though neighboring schools with similar demographics were not making appropriate progress. All ten principals agreed to participate in the study. Most of the principals reported a high percentage of students normally considered to be at risk for low reading achievement: students who qualified for Federal free or reduced lunch, students with a high rate of school mobility, and minority and limited English proficient (LEP) students. Despite these daunting demographics, in most cases, the ratings of these principals' schools, according to the state of Florida's *A+ Plan* for grading schools (A+ Plan for Education, 1999), moved from D or F to A or B.

Six of the principals were female and four were male; seven were Caucasian and three were African-American. Their ages ranged from 36 to 46+, and their years of experience in education ranged from 10 to 34 with a median of 25.5. The years of experience as principal of the school where the success was achieved ranged from 3 to 8, with a median of 5.5. All participants reported experiences as a principal and assistant principal, and most reported

elementary teaching experience. Formal study of reading instruction was very limited; only one had earned a degree in Reading (Master of Arts), and only one was certified in the area of curriculum. Most reported only one or two reading courses in their degree programs and some inservice workshops in reading.

Research Questions and Hypothesis

Three research questions were explored:

1. Is there discernible evidence of self-directed learning linked to reading improvement efforts among principals who have been recognized as exemplary in leading reading improvement in their schools?
2. Do the exemplar elementary principals perceive themselves to be highly self-directed learners?
3. How do the *SDLRS* scores of the exemplary principals compare to those of other groups?

The third research question led to one null hypothesis: There is no significant difference between the *Self-Directed Learning Readiness Scale* (Guglielmino, 1978) scores of the principals who have been recognized as leading reading improvement in their schools and the *SDLRS* adult mean.

Instruments

Interview Protocol

The *Interview Form for Elementary Principals* was developed by the researchers. Comprised of eleven questions, it explored the principals' length of administrative experience, types of educational experiences, and approaches to improving reading achievement; information regarding district and/or state support for elementary administrators; and descriptions of how their districts and their schools were implementing the *Just Read, Florida!* (Florida Department of Education, 2002) initiative. After it was reviewed by an expert panel for content, vocabulary and structure, suggested changes were incorporated into the final format.

The Self-Directed Learning Readiness Scale (SDLRS)

The *SDLRS* (Guglielmino, 1978) is composed of 58 items with responses on a five-point Likert scale. It is designed to assess individual attitudes, values, skills and personality characteristics indicative of self-direction in learning. The instrument is also known as the *Learning Preference Assessment (LPA)* (Guglielmino & Guglielmino, 1991). This title is used on the assessment and when discussing the scale with subjects in order to avoid response bias.

An internal reliability of .87 (Cronbach alpha) was reported for the pilot instrument as well as the 58-item version used today. Most published studies on populations over twenty years old report reliability figures ranging from .72 - .92. Finestone (1984) and Wiley (1981) reported test-retest reliability coefficients of .82 and .79 respectively. A split-half Pearson product moment correlation with a Spearman-Brown correction produced the highest reliability figure of .94 (Guglielmino & Guglielmino, 1991), based on a population of 3,151 individuals

from the United States and Canada. Despite some criticisms of the *SDLRS*, (Brockett, 1987; Field, 1989; Straka & Hinz, 1996), the vast majority of studies have supported the reliability and validity of the instrument (See, for example, Delahaye & Smith, 1995; Durr, 1992; Finestone, 1984; Graeve, 1987; Guglielmino, 1997; Hassan, 1982; Long & Agyekum, 1984; McCune & Guglielmino, 1991; McCune, Guglielmino, & Garcia, 1990; Posner, 1990, 1991; Roberts, 1986; Russell, 1988). The *SDLRS/LPA* is by far the most widely used quantitative instrument in the study of self-directed learning (Merriam, Caffarella, & Baumgartner, 2007). Overviews of research using the instrument can be found in Brockett and Hiemstra (1991), Merriam, Caffarella, and Baumgartner (2007) and Delahaye and Choy (2000).

Data Collection

Pilot Study

The *Interview Form for Elementary Administrators* was pilot-tested with a sample of three elementary school principals. The only revision made to the *Interview Form* consisted of adding Question 11: "What are your recommendations for assisting other elementary principals in Florida to lead reading improvement in their schools?"

Interviews

A letter was mailed to each of the selected elementary school principals to explain the purpose of the study and invite their participation, along with a consent form stating that participation was voluntary. All subjects (N=10) agreed to participate in the study, and appointments were arranged for face-to-face interviews with each participant. A copy of the *Interview Form for Elementary Principals* was sent to each participant to read in advance of the interview.

First, the interviewer gathered data on the participants' gender, age, ethnicity, educational background, and educational experiences. The majority of the interview was focused on three open-ended interview questions, with allowances made for follow-up questions for a more in-depth understanding of the responses. Follow-up probes were utilized to clarify participants' responses. The participants were also asked to add any information and reactions that may not have been covered in the researcher's questions or probes. Each interview lasted 60 and 75 minutes. The principals were also invited to share any written materials related to their reading improvement efforts, and many provided flyers, descriptions of professional development sessions, schedules which set aside schoolwide reading time or made teacher collaboration possible, and similar items. The interviews were transcribed and sent to each participant for member-checking to ensure accuracy of the transcripts. After the interview transcripts were returned, or confirmatory emails sent by each participant, all data collected for that participant were placed in a folder and assigned a numerical label corresponding to the participant's coded identifying information. The researcher who conducted the interviews is a school psychologist by both training and practice, and is experienced with interviewing techniques; therefore, researcher bias was reduced (Best & Kahn, 1998).

The *Self-Directed Learning Readiness Scale* (Guglielmino, 1978) was sent to each participant approximately two weeks after the interview in order to ensure that exposure to the instrument did not affect the interview responses. After the assessments were returned, they were coded with the participant's identifying information.

Data Analysis

First, the open-ended questions from the interviews were analyzed independently by the researchers, using the constant comparative method (Patton, 1990) to glean any patterns, themes or commonalities. Each transcript was reviewed first to identify and then to confirm key words, phrases or reported actions emerging from the review. Key words or phrases were assigned a color code to aid in the indexing and sorting of the data for analysis of commonalities. The researcher's results were then combined and compared with Guglielmino's (1978) description of the highly self-directed learner that was developed through a three-round Delphi survey of experts. This description has been referred to as "the most-used operational definition for self-directed learning" (Merriam, Caffarella, & Baumgartner, 2007, p.121).

In the second stage, the *Self-Directed Learning Readiness Scale* (Guglielmino, 1978) responses were scored, with the raw scores converted to percentiles and readiness levels. The results were coded as numerical data and entered into a spreadsheet for analysis. In the scoring protocol, items left blank are coded as 3, the middle response; tests with 5 or more unanswered items are discarded. All of the assessments met the criteria for retention. A mean was derived from the sample and an independent samples t-test was used to compare the group SDLRS mean with a national sample of adults as well as with the means of other groups studied previously.

RESULTS

Findings from Qualitative Analysis of Interview Responses

The first research question was addressed through the interviews:

> *Is there discernible evidence of the use of self-directed learning in the approaches of ten elementary school principals in the state of Florida who have been recognized as exemplary in leading reading improvement in their schools?*

The principals' responses to the challenge of leading reading improvement before the national and state initiatives were fully functional showed a high degree of initiative and independence, critical elements in self-directed learning: they assumed the responsibility for researching and learning new approaches to reading instruction. When asked how they were implementing *Just Read, Florida!* only two participants indicated that their support from the state was important to their early improvement efforts. They said:

> …You improve because you need to improve—and you want to.

> We received very little from the state level. We did what we did on our own and through the support of the district itself.
>
> …We were way ahead of them. By the time they implemented, we had already gone to the struggling readers chart.

While space constraints limit the extensive use of principals' direct quotes, this paper will incorporate brief samples to illustrate key topics and themes; first, to briefly describe the dual focus of the principals' efforts. This foundational theme is apparent throughout the principals' descriptions of their self-directed learning and problem-solving to support reading improvement efforts. Their efforts will be presented in four categories: preparing for and supporting the learning needed for the reading initiative, seeking learning resources, sharing the learning, experimenting with innovative efforts, and analyzing the ultimate learning outcome: student progress.

Dual Focus: Personal Self-Directed Learning and Fostering of SDL in Others

The qualitative analysis of the interview data clearly indicated that the principals not only evidenced a high degree of self-directed learning themselves, but also evidenced a strong commitment to fostering self-directed learning in others through building learning communities and self-directed teams. Their belief that the best approach to reading improvement is the empowerment of teachers to expand their knowledge of reading strategies was evident. This dual theme of the principal seeking knowledge and resources to promote reading improvement while recognizing the centrality of empowering teachers' learning was evident throughout the transcripts. The principals displayed self-directed learning related to reading improvement themselves, but it was primarily focused on gathering resources and arranging circumstances to facilitate teachers' learning of new reading improvement strategies and taking responsibility for implementing them and sharing them with other teachers. Many of their comments directly addressed this focus:

> …I think the important piece is empowering teachers and giving them the tools they need to make reading instruction happen.
>
> …Teachers discussing the problems of student learning is the most definitive factor that leads to change and improvement in teaching and learning--teachers discussing and sharing best practices of how they teach and how kids learn.
>
> What I made possible was that the teachers would be listened to for their needs in the classroom; that I would take what they are saying is impossible, listen to why it's impossible, and offer solutions, but I would not dictate to them…[I said], "You're an educator, you're a professional and just because I happen to be the leader that wants to accomplish something great for the students, I don't have all the answers." And I think that's what I made possible. The fact that I would allow them to own...what they set out to do in the classroom. I allowed that to happen and … they just embraced it.

Preparing for and Supporting the Learning Need for the Reading Improvement Efforts

Forming leadership teams. The principals' focus on teacher involvement appeared to be grounded in a belief in shared leadership and commitment to the development of a shared vision for school improvement efforts; thus, the first step for most was the formation of leadership teams to plan and implement their reading improvement efforts. Most of the principals indicated involvement of a wide range of personnel in the realization of the vision of reading improvement, leading to consistent, cohesive effort and a feeling of unified, team commitment. They said:

> To…develop a school-wide model you need to involve the key people in the school…the curriculum and leadership team.

> We had to change the learning environment… We started … with the leadership, focus, vision, mission…Without their assistance…my job would have been harder.

Composition of the leadership teams varied within each school. Most principals included strong teacher-leaders, such as the grade chairs, and the assistant principal. Some of the principals included other staff members; a few also included a parent representative. One principal's leadership team included not only teachers, but also custodians, cafeteria workers, and clerical support staff. They met twice a month, and the principal noted their importance: "We are the visionaries for the future."

Part of the work of the leadership teams was to expand the schoolwide commitment to the reading improvement effort:

> I had… at least six teacher-leaders who could see the big picture, see outside their classrooms and think, "What do we need to do for the school?" And from our leadership team they realized that part of their job was to go out and to encourage the other teachers and get them on board… so each one of them went out with a mission of, "Let me get more people with us on there…" Without their assistance in that I think my job would have been a lot harder.

In addition to the formation of leadership teams, the principals sought mentors; sought funding to support needed travel, materials, and training to implement the initiatives; and made changes in the school schedules to provide time for cooperative planning for teachers, to release them from other duties, or to support schoolwide reading activities.

Seeking mentors. The principals who had no mentoring program in their districts had found their own mentors on an informal basis and attributed some of their success to being able to call upon them when needed. As self-directed learners, they sought experts as resources for their learning. One principal, who indicated that there was no formal mentoring program in the district when s/he first began as a new administrator, said, "They have a formal program

now and… I get jealous…. The system was not there for me but… I'm part of the present system [as a mentor]."

The principals also sought to be mentors to their faculty and staff, indicating that modeling, mentoring, and coaching were important activities contributing to their improvement efforts. One of the principals summarized this idea: "Well, be a model, is the first [important step in leading reading improvement]…I probably would recommend to any principal that they actively get involved in curriculum…what is being taught."

Seeking funding. Funding is often a concern for providing the personnel, staff development, and materials to achieve the goal of improving reading achievement. Principals reported working with a variety of entities, such as business partners or Title I, and juggling budget priorities business partners to provide needed resources. One of the principals stated: "I do make sure that the resources are available to purchase the things that teachers need to support reading achievement." One principal reported, "I've really committed more money to sending teachers to conferences and workshops outside of the school or the district." Another reported a reduced reliance on district support "because I have pieces in place."

Adjusting school schedules. Most of the principals developed a master schedule that provided an uninterrupted block of time devoted to reading instruction. One participant was adamant about this: "When I say 'No interruptions'—I mean no interruptions—that's the bottom line." Applying successful practices they had gleaned from readings, conferences, other schools, or mentors, several of the principals adjusted school schedules to provide a cooperative planning time for the teachers or the opportunity to participate in professional development sessions during school hours. One principal was able to arrange for teachers to be released from other responsibilities to focus on their teaching:

> Our teachers have no special duties. Their duty is to teach children and to plan to teach children, to evaluate children and to re-teach them. That is their duty. They don't have morning duty, they don't have lunch duty, they don't have after-school duties, they have no [special] duties.

Seeking Learning Resources

The dual focus of self-directed learning for the principals' own use and the fostering of self-directed learning in others, particularly teachers, was especially evident in their descriptions of learning resources they sought and used. Among the most prominent were books and other readings, visits to schools with successful reading programs, and invited or self-developed professional development sessions.

Books and other readings. Several of the principals listed specific books that had been helpful in their improvement efforts. They reported that they had either researched these books on their own, or had involved the faculty and staff in book study groups or in professional learning communities. One principal stated: "I think that professional study groups were … a wonderful, powerful tool to prompt conversation …" Another principal involved the teachers "in book review groups…learning communities…" One of the participants reported: "Teachers know that they must be committed to their own professional

growth and development…For the past three years we have had a faculty study focus…[we looked at] Rick Stiggins' work on assessment…" These principals did not wait for the district to recommend readings or to mandate learning groups. They took the initiative to locate or develop their learning resources at the school level.

Visits to model programs. Several of the principals reported how important it was to their improvement effort to visit other sites and observe improvement programs in action. One principal "went to South Carolina and they were gung-ho about the Accelerated Reader Program." Another related: "I had visited a school in Orlando with several of my teachers… They had a program called 'Push In.' "

Professional development sessions. Most principals were adamant about the importance of professional development for faculty and staff, and they made a strong effort to provide learning opportunities both at the school and offsite. Many of the sessions related to the use of new materials or technology. As one principal noted, "It's one thing to buy materials, but if you don't train the teachers in how to use the materials then you're purchasing them for naught…" Another noted, "I've committed more money to sending teachers to conferences and workshops outside the school or district…"

While "training" was cited as a top recommendation, the expectation for teachers' personal commitment to continued learning was also evident: "Teachers know that they must be committed to their own professional growth and development."

Sharing the Learning: Building the Learning Community

Several principals espoused the need to participate in professional development activities with their faculties. Their shared experiences provided the foundation for a learning community: "I went and did and learned and we did it together," "[I] joined in the SRI data training," "They all know that I'm involved in the training, just as they are."

As noted in the section on readings, many of the principals reported regular use of professional learning communities in which teams of self-directed learners share and discuss new ideas and research. One principal described their process as he commented on their great value: "...we all keep notes, we read, we share our notes as well as our discussion…" When teachers were sent to conferences and workshops outside the school or the district, these principals had a strong expectation that the teachers would share what they had learned when they returned. As one principal commented: "…I pay for it, but your commitment is that you have to come back and present to the staff."

The sharing of learning was evident in the implementation phase as well. Several principals adjusted the school schedule to provide cooperative planning time for teachers as they began to create new lesson plans. This intensive effort sharpened understanding of the new strategies through focused discussion, peer mentoring, and collaborative synthesis and application of the new learning in the lesson plans. One principal noted the valuable outcome: "So they were learning to work together and create these lesson plans that they could share back and forth…and at the end of the year, each grade level would have a bank of lesson plans."

The principals were also generous in sharing their innovations with others, welcoming visitors to their school sites. One reported "visitors coming to see the [reading] lab and pick the brains of my reading lab teachers." Another said: "I showed them the things we were doing; I took them into classrooms."

Experimenting with New Approaches to Achieving Reading Improvement

The principals enthusiastically described many of their efforts to apply their new learning, experimenting with creative and innovative approaches to help students improve their reading skills. Some of the approaches were gleaned from the literature, others from site visits or conferences, and some were developed by the principals and their leadership teams. They varied widely, including schoolwide modeling and mentoring to build awareness of the importance, benefits, and joy of reading; intensive reading experiences; intensive diagnosis and intervention efforts, and efforts to involve parents in their children's reading. In some especially innovative efforts, the schools engaged in elaborate long-term activities to create excitement about reading.

Modeling reading. One principal expressed the importance of modeling a personal love of reading for the students: "I love to read…how could you NOT want to read?" This principal regularly invited faculty and staff to appear on the school's "Morning Show" and talk about their favorite books. Another set up a schoolwide reading time, but not just for students: "I feel modeling is very important…I had my office people reading. Everybody was reading at 2:30 every day." At another school, reading goals were developed by everyone: "…Everybody in the whole school set reading goals—teachers, students, the principal, custodians, the secretary…"

Intensive reading experiences or diagnosis and intervention efforts. One principal had developed a program called "Jump Start Reading." It was a summer program requiring students to work in small groups for 90 minutes; parents had to provide transportation. Student achievement results were better for that group than for a comparison group which received the district's "FCAT Camp" intervention. Another principal reported piloting a highly successful program called "SWAT," whereby a "team [of resource teachers and other personnel] just sweeps through the school..."

Parent involvement efforts. In addition to book fairs and schoolwide reading competitions, one principal instituted student-led conferences to encourage more parent participation. "So we started student-led conferences—from kindergarten to sixth grade…the students had, basically, a conference about report cards, AR progress, STAR reading progress, [the] DIBELS chart. I want you to imagine seeing a first grader explain his DIBELS data chart to the parent."

Creating excitement about reading. Principals engaged in some large-scale activities to draw the students and parents into the improvement effort by creating excitement about reading. One principal described two school-wide initiatives:

> One year we did Reading Olympics—and it was the year of the Olympics. To kick it off we had an opening Olympics parade… each classroom was assigned an author and they could dress up as the book character of one of his books…The little girl who had read the most books the year before was the torch-bearer—she carried the torch… to kick off our Reading Olympics and then she brought it in to extinguish…at the end…Our art teacher got into it—she had boards that she painted silver, bronze and gold… Every other month kids had to reach a certain number of books to get a bronze medal and silver medal. Then they had to have 25 books read by the end of the year to get a gold medal….
>
> One year we ran around Florida— if you got to Cocoa Beach you had to have read six books; then you had to read six more books to get to Miami….so by the time you got to Tallahassee [you] would have read 25 books.

Several principals were not afraid to go to extremes to make their commitment to reading memorable to the students. One reported: "I made a challenge to the kids that if they get X number of points schoolwide in reading, then I will do X, and the latest one was they threw pie in my face…" Another recounted filling an elaborate student request:

> …They wanted to get root beer floats if they met their goal by class and… have a little celebration…They said, "If the whole school works together and we meet our school goal, we would like not only to get root beer floats but we would like you to build a great big root beer float and we would like you to sit in it."
>
> I thought, "This is the craziest thing I've ever heard,"—but it's what the kids think! …So we had to put a swimming pool on the stage…"

Analyzing Student Progress

The state and national reading initiatives require the gathering of detailed data on each child's progress. Initially, school office personnel were handling the process. One of the exemplary principals described the early move to having the teachers take responsibility for this data gathering, learn from it, and use the results to guide instruction:

> …Now every teacher is gathering his or her own data…at the beginning of the year we give our teachers a data gathering sheet…We also look at the AIP (Academic Improvement Plan) that they…develop for any child who is below level—make sure that the pieces are in place, etc. But it's now largely teacher-driven, not office-driven.

As previously noted, at least one principal moved this data analysis to an even more individualized level, setting up parent conferences in which students explained all of their diagnostic and achievement data to their parents, thus making them more likely to take responsibility for their own learning. The principals' practice of actively taking

responsibility for their own learning was extended as an expectation for teachers and students as well.

Findings from Quantitative Analysis of SDLRS Results

The second research question, **"**Do the exemplar elementary principals perceive themselves to be highly self-directed learners?" was addressed by the analysis of the *SDLRS* scores. The exemplar principals' group mean for the *SDLRS* was 267.8 with a standard deviation of 11.53. This score fell within the "high" range, indicating a highly developed readiness for self-directed learning and a willingness to determine their own needs as well as to plan and implement their own learning, rather than relying on structured, other-directed learning plans.

The third research question, "How do the SDLRS scores of the exemplary principals compare to those of other groups?" was addressed through the testing of one null hypothesis:

> *There is no significant difference between the Self-Directed Learning Readiness Scale scores of the principals who have been recognized as leading reading improvement in their schools and the SDLRS adult mean.*

The exemplary principals' mean score was among the highest ever recorded as a group mean for the *SDLRS* in its 30-year history. The principals' mean score was compared to the means derived from a meta-analysis of college students and professionals, a group of top entrepreneurs, and a group of top female executives. The exemplary elementary principals' *SDLRS* mean was significantly higher than those of each of the other groups: meta-analytic mean ($t = 11.00$, $p<.000$); entrepreneurs ($t = 5.27$, $p<.001$); and female executives ($t = 2.7$, $p<.02$). Table 1 details the comparison study groups.

Table 1. Comparison of Mean SDLRS Scores of Exemplar Principals and Other Groups

Study	*N*	*Mean*	*SD*	*Significance*
Exemplar principals	10	267.8	11.53	----
Meta-analytic[a]	4596	227.7	----	Yes**
Entrepreneurs[b]	162	248.6	18.70	Yes**
Female executives[c]	19	257.8	14.69	Yes*

Note. *p<.02. **p<.001

[a]McCune, S. K., Guglielmino, L. M., & Garcia, G. (1990). Adult self-direction in learning: A preliminary meta-analytic investigation of research using the Self-Directed Learning Readiness Scale. In H. B. Long & Associates, *Advances in self-directed learning research* (pp. 145-156). Norman, OK: Oklahoma Research Center for Continuing Professional and Higher Education. *(Included 29 studies: mean age, 37.5; female, 66.2%; male, 33.8%; mean educational achievement, 14.4 years of formal schooling; 62% of the subjects were students).*

[b]Guglielmino, P. J., & Klatt, L. A. (1994). Self-directed learning readiness as a characteristic of the entrepreneur. In H. B. Long & Associates, *New ideas about self-directed learning* (pp. 161-174). Norman, OK: Oklahoma Research Center for Continuing Professional and Higher Education.

[c]Guglielmino, L. M. (1996). An examination of self-directed learning readiness and selected demographic variables of top female executives. In H. B. Long & Associates, *Current developments in self-directed learning* (pp. 11-22). Norman, OK: Public Managers Center, University of Oklahoma.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The sample population of this study was limited to ten elementary school principals in the state of Florida who were identified as "success stories" in leading reading improvement. The size of the study group is very small; participation of the sample population in this study was voluntary. Therefore, while the study may reveal important directions for future research, generalization of these results should not occur with any other type of educator group, or for any other geographical area.

The primary value of this research was the identification of commonalities in the self-directed learning readiness of elementary principals who were exemplars in leading reading improvement in their schools. Two overarching themes emerged: educational entrepreneurship informed by self-directed learning and expecting and supporting self-directed learning of faculty and staff (and, in one case, students).

Educational Entrepreneurship

The most striking conclusion from all of the data was that exemplary principals were "educational entrepreneurs," embodying the characteristics of self-directed learning. These exemplar principals had begun their improvement efforts before the federal *No Child Left Behind* and the state's *Just Read, Florida!* (Florida Department of Education, 2002) initiatives were in place. They took the initiative to develop innovative approaches to reading improvement. Their interview and survey responses indicated that they had received little or no support at the state level, and that, as a group, they conducted their own research, initiated professional development, required consistency and quality from their staffs, and involved the parents and community in their change effort. While one principal reported assistance from the district, most cited independent action: "No, you improve because you need to improve—and you want to." These actions reflected the characteristics of independence and knowledge-seeking. The exemplar principals were not afraid to initiate innovations at their schools, and they supported other staff who engaged in innovation.

Funding for professional development for principals was reported in only two cases. Interestingly, no participants felt short-changed by the lack of professional development opportunities provided for them by their districts; they were satisfied that their faculties and staffs were able to receive professional development. The exemplar principals appeared to be self-starters who relied on an informal system of finding their own mentors to assist them as they began their school leadership careers; they built their own network of collegial support. One principal indicated that there was no formal mentoring program in the district when s/he first began as a new administrator: "…there was no set mentor program in our district at all…you make your own collegial support."

The qualitative findings that led to the conclusion that the principals were educational entrepreneurs are supported by the principals' scores on the *Self-Directed Learning Readiness Scale* (Guglielmino, 1978). Based on the results of a Delphi study using an expert panel, Guglielmino (1978) described the highly self-directed learner. The exemplary principals exhibited many of these characteristics without any prompts related to self-directed learning:

> …A highly self-directed learner, based on the survey results, is one who exhibits initiative, independence, and persistence in learning; one who accepts responsibility for his or her own learning and views problems as challenges, not obstacles; one who is capable of self-discipline and has a high degree of curiosity; one who has a strong desire to learn or change and is self-confident; one who is able to use basic study skills, organize his or her own time and set an appropriate pace for learning, and to develop a plan for completing work; one who enjoys learning and has a tendency to be goal-oriented. (p. 73)

Research has indicated that those who have developed high self-directed learning skills tend to perform better in jobs requiring a high degree of problem-solving abilities, creativity, and change (Durr, 1992; Guglielmino, Guglielmino & Long, 1987; Roberts, 1986). Guglielmino (1993) also reported a "strong positive relationship between high levels of readiness for self-directed learning and high levels of performance on the job. These relationships were even stronger in jobs that required high levels of creativity or involved a high rate of change. In addition, as management levels rose, levels of self-directed learning rose." (p. 233). Top entrepreneurs (Guglielmino & Klatt, 1994) and top women corporate executives (Guglielmino, 1996) held the highest mean scores on *the Self-Directed Learning Readiness Scale* since its development in 1977; however, this study sample of educational exemplars achieved an even higher mean score than the entrepreneurs and executives studied in the business world. In examining this finding, one may conclude that a high level of readiness for self-directed learning contributes to success in leading such a change effort. Interestingly, some of the exemplar principals reported incorporating business leadership methods with sound educational practices to achieve marked improvement.

Fostering Self-Directed Learning In Others: Building Learning Communities, Building Self-Directed Teams

The second major conclusion is that a primary approach used by these highly self-directed learners to achieve their success was the fostering of self-directed learning in others by building learning communities, as described by DuFour (2004) and building self-directed teams. This conclusion is unanimously supported by the comments of the exemplar principals. All mentioned efforts to foster the learning of teachers; several asserted that the formation of professional learning communities within their schools increased the level of buy-in to the change efforts and provided a synergy of thought for driving the reading improvement. All mentioned staff members who had made exceptional contributions to their schools' reading improvement efforts; none took credit by themselves.

The most potent recognition and rewarding of teachers appeared to be through involving them in the planning and decision-making process for school improvement rather than relying on consultants to tell them how to improve or adopting a pre-planned process. The quotes illustrate that the teachers were respected as professionals and expected to be highly involved in the change efforts, and they embraced the challenge. Administrators, members of leadership teams and parents were able to use data in the selection and evaluation of reading programs. The principals acted as data coaches and sought to empower the staff with ownership of their students' performance data.

Recommendations for Research and Practice

While many recommendations related to leading reading improvement could be tentatively offered on the basis of the findings in this study, this section will focus on what we need to learn about the preparation of educational leaders in order to best arm them to face the multiplicity of challenges in today's educational environment. Their roles have changed and expanded extensively. In a major national study of preparation programs for educational leaders, Levine (2005) describes what they are facing:

> In a rapidly changing environment, principals and superintendents no longer serve primarily as supervisors. They are being called on to lead in the redesign of their schools and school systems. In an outcome-based and accountability-driven era, administrators have to lead their schools in the rethinking of goals, priorities, finances, staffing, curriculum, pedagogies, learning resources, assessment methods, technology, and use of time and space. They have to recruit and retain top staff members and educate newcomers and veterans alike to understand and become comfortable with an education system undergoing dramatic and continuing change. They have to ensure the professional development that teachers and administrators need to be effective. They have to prepare parents and students for the new realities and provide them with the support necessary to succeed. They have to engage in continuous evaluation and school improvement, create a sense of community, and build morale in a time of transformation. (p. 12)

How can our colleges and universities best prepare educational leaders who are able to devise innovative and effective responses to the challenges they face? Educational leadership preparation programs have been severely criticized in recent years for not adequately preparing their graduates for the demanding, rapidly-changing conditions of today's educational environment.

Unfortunately, the findings of Levine and his co-researchers after their extensive national study were "very disappointing" (p. 13); they found only a small number of strong programs in the U. S., and none that they were willing to rate as exemplary. When asked what learning approaches would have been most helpful, U.S. alumni and students called for "active learning pedagogies that knitted together the clinical and academic strands of their education" such as simulations and case studies (p. 55). Their comments mirror the central

approaches of the only program that Levine (2005) and his colleagues were willing to offer as a model: the National College for School Leadership (NCSL) in England. Combining on-the-job and classroom instruction to ensure a relevant mix of theory and practice, the NCSL program relies on active modes of learning. The emphasis is on problem-solving and field-based experiential learning, methods that promote self-directed learning, as do the simulations and case studies recommended by the alumni.

The NCSL operates under the mantra, "Every child in a well-led school, every leader a learner" (p. 54), emphasizing the need for continuous learning for effective school leadership. Kotter (1996) reflected this emphasis when he wrote about the relationship of lifelong learning, leadership skills, and the capacity to succeed in the future. In his citation of a twenty-year study of 115 students from the Harvard Business School class of 1974, one of the characteristics that was most striking to him among the most successful graduates was *lifelong learning*, including *willingness to seek new challenges* and *willingness to reflect honestly on successes and failures* (Kotter, 1996, p. 179). This observation supports the research links reported between high self-directed learning readiness and achievement already mentioned.

The recommendations of Levine (2005) and the findings reported by Kotter (1996) and Guglielmino (1993) are aligned with the findings of this study: the ten principals who were chosen as exemplary in leading reading improvement in Florida before the state and national initiatives were implemented exhibit the characteristics of highly self-directed learners and encourage self-directed learning in their faculties. Their interview and survey responses indicated that they had received little or no support at the state level, and that, as a group, they conducted their own research, sought and initiated professional development, required consistency and quality from their staffs, and involved the parents and community in their change effort. They did not depend on district or state initiatives to begin their innovations.

The concurrence of these findings provides a strong indication that further exploration of levels of readiness for self-directed learning among current and aspiring school leaders is merited. Attention to the development of readiness for self-directed learning could be one of the keys to identifying and developing good educational leaders and a starting point for building capacity within educational organizations.

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AN INTERACTIVE MODEL OF INSTRUCTIONAL DEVELOPMENT

EunMi Park and Gary J. Confessore

This article provides a review of selected adult learning theories and current practices in professional and higher education, and proposes steps that can be taken to improve instructional design through an interactive model of instructional development that builds skills for independent learning. The practical implications of the theories related to change and learning, the organizing circumstance, and learner orientation are discussed as foundational forces linked to individuals' behavioral intentions to learn. They provide insights instructional designers may use to address the different magnitudes of needs and motivations of individual adult learners. Finally, we propose an interactive model with selected resources that may be used to support the implementation. It expands ongoing communications between instructors and prospective students and facilitates the application of instructional methodologies that account for learner needs, while maintaining instructional objectives in ways that typically cannot be achieved by non-interactive models of instructional development.

Institutions of higher education intend to provide learning experiences that meet the needs and expectations of individual learners as well as the regulatory requirements of professions, employers, and society. Certainly, this intention places substantial responsibility on individual instructors, organizations, and professional societies to assure these constituencies that the educational programs and courses they provide are designed to accomplish claimed ends for the vast majority of the learners they support. For example, The Liaison Committee on Medical Education (LCME) has a standard that, "the program's faculty must be responsible for the detailed design and implementation of the components of the curriculum" (2007, p. 19). A common expectation of professions and our educational system in general is to develop in students the capacity for effective and efficient lifelong learning. For example, LCME states, "the educational program must include instructional opportunities for active learning and independent study to foster the skills necessary for lifelong learning." The American Council for Graduate Medical Education (ACGME) requires the competence of Practice-Based Learning and Improvement stating, "residents must demonstrate the ability to …continuously improve patient care based on constant self-evaluation and life-long learning..." (2007, p.1). Indeed, many institutions across the spectrum of higher education have included this objective in their mission statements. However, there are substantial differences in the needs, motivations, and expectations of individual learners and educators.

Long (1989) and Grow (1991) address theoretical considerations of how to reconcile learner- and educator-differences found in formal and informal learning settings. For all the rhetoric regarding the need for students to become lifelong learners, little has been done to create learning environments in which students get to practice the skills of full participation in fine-tuning their own learning experiences. The purpose of this article is to describe an interactive model of instructional design that can be used to involve learners in the practice of such skills. The model described in this article is primarily appropriate to professional and higher education. However, instructors in other educational settings may adopt the principle of interaction.

PROBLEM

Different perspectives on the processes of learning influence educators in the design and practice of instruction. For example, behaviorists (e.g., Skinner, 1968, Braden, 1996) emphasize behavioral outcomes as responses to instructional stimuli, while constructivists (e.g., Willis, 1995, Reigeluth, 1996) value learners' processes interpreted by their previous experience and interactions and the resulting learning outcomes. They hold different assumptions about the meaning of learning and take different approaches to instructional design and evaluation. Over the years, some instructional designers have challenged the traditional behavioral models, which they see as focusing exclusively on observable behavioral outcomes while neglecting learners' beliefs and attitudes. As this discussion has grown, some have moved toward incorporating the tenets of constructivism related to active student involvement in the process of constructing understanding. Despite the growing demands of students for learner-centered, active, self-paced, and individualized learning approaches, some scholars (e.g., Reigeluth, 1996; Reiser & Dempsey, 2002) note that many educators continue to practice predominantly instructor-oriented, tailored, standardized, linear, and de-contextualized approaches in a wide variety of modern educational settings.

While there are many different theoretical models of instructional development, many commonly include an element of needs assessment that instructors use to identify specific course objectives (e.g., Dick & Carey, 1977; Gagne, Briggs, & Wagner, 1992; Gerlach & Ely, 1980; Seels & Glasgow, 1998). Some point to the importance of analyses of learner characteristics (e.g., Morrison, Ross, & Kemp, 2004; Smith & Ragan, 1993), and "entering behaviors" in specific content and skill areas (Gerlach & Ely, 1980). These models reflect the theoretical assumption that addresses the importance of understanding individual differences and welcoming such inputs for designing instruction. However, this theoretical assumption is generally applied during the initial stages of the development of instructional strategies and is seldom extended to the adjustment of strategies during the course of instruction. If instructors monitor the relative success of their planned strategies, they may identify opportunities to facilitate students' efforts to meet or exceed the objectives and standards of the course by soliciting their input as the course proceeds. Such an approach may also contribute to the accomplishment of institutional goals to develop students who become self-directed lifelong learners.

Often educators claim it is difficult to translate theory-based instructional design models into design practice (e.g., Wedman & Tessmer, 1993). Many instructors in professional and higher education who are not familiar with the notions of learner-centered instruction and adult learning theories find it difficult to be purposefully responsive to individual differences when designing and implementing instructional strategies. Some do not actually conduct a comprehensive and individualized assessment of their students' instructional needs. Rather, they tend to rely upon impressions of what has worked well for their past students or on what they know about students with whom they have an ongoing instructional relationship. These approaches proceed from an assumption that students they have never met have needs and motivations that are not significantly different from students they have served in the recent past. Some instructors are concerned that student-centered instruction will cause distraction from or loss of control over course objectives and standards (Felder & Brent, 1996).

To reduce the gaps between theoretical assumptions and current practices in professional and higher education, we address two central questions. These are: "Why should we care what brings individual learners to the decision to engage in particular learning settings in professional and higher education?" and "How can educators account for the needs and behavioral intentions of the learners they serve without abandoning course objectives and standards?" We consider these questions through the lens of selected adult learning theories and research findings that address the nature of the needs and behavioral intentions of adult learners.

THEORETICAL FRAMEWORKS

Various psycho-social issues influence an individual's intentions to learn. Educators should address as many of these as possible during instructional development. We review three areas of adult learning theories and findings that provide critical insights into learners' behavioral intentions, in terms of why instructional designers and educators need to care about what brings learners to engage in learning settings. These areas of research are: (a) change and learning, which deals with personal, professional, or socio-economic life changes that precipitate a perceived need to learn, (b) environmental determinants, which addresses the individual's conceptions of how learning is liable to be experienced in selected circumstances, and (c) learner orientation, which accounts for how a particular formal learning activity is likely to fit into the individual's ongoing patterns and purposes of learning activities.

Changing and Learning

Fox, Mazmanian, and Putnam (1989) provide helpful insights into the ways in which changes in life circumstances influence physicians to engage learning in terms of triggering events and the magnitude of change sought through learning. They assert that individuals may view personal, professional, or socio-economic life changes as forces that trigger a need to learn. In their original research, as well as subsequent studies of changing and learning among lawyers (Katzman, 1997) and real estate professionals (Smith, 1998), the data indicate that people are less likely to report larger life changes than smaller changes (See Table 1). Each

study found common dimensions of life change (personal, professional, social, and economic) and showed a significant correlation between the size of the life change and the magnitude of the learning response reported.

Table 1. Types of Change According to Size, Complexity, and Frequency of Occurrence

Change	Size	Complexity	Percent *
Accommodation	Small	Simple	16%
Adjustment	Small to moderate	Incremental	62%
Redirection	Large	Structural	18%
Transformation	Large	Complex	4%

*Percentages reported by Fox, Mazmanian, and Putnam (1989).

Consistent with findings reported by Fox, Mazmanian, and Putnam (1989), Katzman (1997), and Smith (1998), most people are seeking to accomplish "adjustments" to changing life circumstances through learning. This group represents about 62% of adult learners. As one might expect, the vast majority of formal instruction, including distance learning formats, correctly anticipate this expectation in the design of instruction. The 16% who engage in "accommodations" to meet the need for new knowledge and skills typical do not require or seek formal education because the changes required are usually simple behavior modifications or can be satisfied by acquiring relatively simple information from family or colleagues, or from widely available resources such as the Internet or trade journals. The 22% who are involved in "redirections" or "transformations" may be expected to come to formal learning environments with specific needs to address the conditions of their emerging new identity as well as the new knowledge and skills they seek. In effect, these learners have a need to "become" as well as to "know." Kolb (1984) asserts that programs serving learners who have such needs must:

> ... make every possible effort to incorporate the appropriate knowledge, skills, and *attitudes* [italics added] deemed necessary for professional competence. As a result, the process of socialization into a profession becomes an intense experience that instills not only knowledge and skills but also a fundamental reorientation of one's identity. (p. 182)

Pratt and Associates (1998) have designated the appropriate instructional design to meet such needs of transforming identify as "apprenticeship." They provide helpful guidance regarding this approach in which instruction is designed to reach beyond knowledge and skill to "becoming." For example, having the requisite knowledge and skills to be awarded the degree Doctor of Medicine does not make a person a "physician" in terms of self-identity, intentions, and attitudes of being a healer. Based upon the findings of Fox, Mazmanian, and Putnam (1989), Katzman (1997), and Smith (1998), more than 20% of adult learners are seeking learning environments that will help them "become" some new identity as well as gain new knowledge and skills. There is a growing interest in how instruction supports the issues of professional identity development. For example, there has been an increase in educational offerings designed to serve the needs of women and minority faculty who desire to become leaders in academic healthcare (e.g. Kosoko-Lasaki, Sonnino, & Voytko, 2006;

Dannels et al., 2008). Facilitating successful identity transformation requires efforts of the individual and community. Individuals should be encouraged to conduct critical reflection on triggering events that catalyze their transformative learning processes (Mezirow, 1997). Communities of practice also should encourage reflection on assumptions regarding identity issues (e.g. Lave & Wenger, 1998; Wenger, McDermott & Snyder, 2002). According to Merriam & Caffarella (1999), developing "learning communities in which change is accepted as the norm and innovative practices are embraced" would be helpful (p. 44).

Drawn from the theory and research findings on change and learning, we assert the following issues should be considered when designing and implementing instruction:

1. If instructors understand what changes influence individual learners as they form intentions to learn in an instructional setting, they will gain insights into ways of enhancing the likelihood of an individual's success within the context of course objectives and standards.
2. The success of individual learners includes the competence to undertake successful change processes of different magnitudes.
3. The successful change of individual learners benefits from ongoing assessments to follow changes in the student in addition to testing for gains in content mastery during the learning experience rather than assuming pre-course assessments adequately describe the learner throughout the course.

The Organizing Circumstance

A second issue that affects the likelihood of relative learner success was articulated by Spear and Mocker (1984) and Spear (1988). Both studies focused on learners' anticipations of the conditions under which learning might occur. Their work was based upon open-ended interviews of 78 adults who had completed less than a high school education and were engaged in a variety of learning projects in both formal and non-formal settings. Previous research by Tough (1971), Peters and Gordon (1974), Hiemstra (1975), and Penland (1979) suggested that adult learners engage in planning learning activities in much the same way as a professional teacher might organize formal learning experiences for students. However, Spear and Mocker (1984) found no such linear and purposeful planning among their sample. Having found this discrepancy between the standing literature and the findings of his 1984 work with Mocker, Spear (1988) asked, "How do self-directed learners get started on, and then pursue their learning if they are unaware of the specifics to be learned and they have no plan for engaging the learning process?" (p. 200)

In the process of considering these questions Spear (1988) turned to Bandura's (1978) model of triadic reciprocal determinism, which describes the interactions of the environment, personal/cognitive, and behavioral/action dimensions of human behavior. Based upon the interviews they reported in 1984, Spear and Mocker describe the centrality of environmental determinants. They describe personal, professional, and psycho-social life circumstances as well as the circumstances of the learning environment as determinants of the ways in which adults engage in learning activities. They drew four inferences from their interviews with adult learners:

1. The triggering event for a learning project proceeds from change in life circumstances,
2. The changed circumstances tend to provide few resources or opportunities for learning that are attractive to the individual,
3. The structure, methods, resources and conditions for learning are generally constrained by the circumstances, and
4. Learning sequences do not necessarily progress in a linear fashion. Rather, the circumstances of one learning event become the circumstances, positive or negative, for the next learning event.

Furthermore, they describe four types or patterns of circumstances that organize the learning process. Table 2 describes the types of learning circumstances articulated by Spear (1988).

Table 2. Types of Learning Circumstances

Type	Event	Learning	Example
I	Single	Anticipated	A person accepts employment in a new setting where he/she is aware they will need to "learn the ropes" by asking questions or receiving suggestions from colleagues and supervisors.
II	Single	Unanticipated	Similar to Bandura's (1977) concept of modeling, individuals in this circumstance do not consciously engage in learning tasks. Rather, through observation of repeated behaviors of colleagues they accumulate an acute awareness, often an "ah-ha experience," of skills and knowledge integral to some new competence.
III	Series	Related	Several episodes that are related, but not necessarily a linear processing leading toward a long-range goal, in which episode one becomes the organizing circumstance for episode two, and so forth.
IV	Series	Unrelated	The individual assembles random bits of information and perceptions over an extended period, in unrelated settings, and for no special purpose. The retention of these is not explained; however, when a decision is made to learn in a related area, this collage of related learning becomes the organizing factor.

Note. Based upon text provided on pages 203-204 of Spear (1988).

Type I learning events in higher education settings frequently take the form of very short, non-credit-bearing opportunities for individuals to learn about some new processes or ideas of current interest. For example, a university may sponsor a reading and interview session with an author or a late winter weekend session on preparing to have a vegetable garden the following summer. The participants anticipate learning, but they consider the workshop to be a single event. In general, instructional designers of face-to-face or distance learning environments for higher education are likely to have little direct demand for services that represent Type II learning, because they are unanticipated by the learner.

Realizing the likelihood of Type III and IV learning events occurring in a formal setting, Spear and Mocker (1981) recommended further research into whether "there are elements or conditions in the structure of non-formal learning that might be incorporated into the organizing of formal learning that would increase its effectiveness" (p. 17). Following their reasoning, we believe that it is very important for instructional designers in higher education to assess whether a given student is experiencing a Type III or IV learning event, because this information will help the instructor capitalize on how a particular course or study unit fits into the learning journey of the student. Students involved in a Type III event understand the event to be part their learning journey that has a past and a future. The individual comes to the learning circumstance with some accumulated skills or information that the instructor should elicit from the student in order to capitalize upon it. With learners involved in a Type IV learning event, the student comes to the event unaware of skills and information that have accumulated from past experiences that will have important applications in the present event. In such cases, instructors should give information to help students become aware of their prior learning that they may not have realized would form a helpful foundation for the present learning event. Such realizations will permit students to draw on prior learning in a more purposeful and productive way.

Drawn from the theory and research findings on the organizing circumstance, we assert the following issues should be considered when designing and implementing instruction:

1. If instructors understand whether individual learners anticipate learning under particular circumstances and the relationship of the current setting to their previous learning events, they gain insights into ways of meeting individuals' readiness related to the new learning context that will facilitate their efforts to meet or exceed course objectives and standards.
2. Individual adult learners have different levels of previous knowledge, skills, and attitudes related to new activities and opportunities including formal course offerings.
3. According to Spear and Mocker (1984), adult learners do not follow a linear and purposeful process of pre-planning their learning experiences.

When encounter settings where instructors provide pre-planned learning activities, one might reasonably question the extent to which such activities can be responsive to students needs without asking their input. Therefore, there should be an ongoing process of assessment throughout the period of the course experience. This will allow instructors and students to optimize the individual's learning opportunities in ways that cannot be anticipated by a pre-course assessment.

Learner Orientation

Another way to assess the roots of an individual's behavioral intentions to learn was provided by Houle (1961), who addressed why adult learners continue to participate in learning activities. He reported different conceptions adult learners held about the purposes and values of participating in educational activities. According to Houle (1961), "The goal-oriented are those who use education as a means of accomplishing fairly clear-cut objectives" (p.15), the activity-oriented "take part because they find in the circumstances of the learning a meaning

which has no necessary connection, and often no connection at all, with the content or announced purpose of the activity" (p. 15-16); and the learning-oriented "seek knowledge for its own sake" (p. 16).

However, Park (2000) asserts that his "activity-oriented" classification, which includes many different reasons why individuals engage in particular learning activities, does not provide sufficient differentiation for educators to be responsive to the learner's reasons for engaging in a particular course. For example, Houle (1961) assigned the same classification of activity-oriented to those who hoped to find a spouse in school as to those who were lonely (p. 19), those seeking to carry on "a tradition of family or culture" (p. 22), and those seeking "diplomas, certificates, or degrees … [who] care little (often nothing) for the subject-matter itself" (p. 21). It seems likely that people with such diverse reasons for engaging in a given learning activity will have very different needs and expectations many educators would address differently.

In an effort to increase the likelihood that educators can discriminate appropriately among learners that Houle's model groups together, Park (2000) analyzed whether students view the learning experience as a means to an end or an end in itself as an essential component of the individual's purposes for engaging in a learning project or course. Within a sample of higher education students participating in certificate and degree programs, she found a variety of primary reasons for participation expressed by the respondents. Some cared about the content and purposes of learning either because they enjoyed learning as an end in itself and had no concern for any practical use of the content (Houle's learning-oriented) or because they want to use the knowledge and skills to improve practice (Houle's goal-orientation). She also found other reasons unrelated to the content and purposes of the course (Houle's activity-oriented). Taken together these findings suggested a refinement of his model, particularly regarding the activity-oriented classification, was needed.

First, she considered those who Houle's model would describe as activity-oriented because their reasons for participation were to engage in social activities that were possible in the educational environment (e.g. to find a spouse) and who had little or no concern for what was to be learned or what its value might be in the future. After reviewing the statements made by such individuals, she concluded that these individuals viewed the course as a social end in itself (e.g. to have opportunities to socialize during class meetings). As such, it would be more accurate and meaningful for instructors to describe them as social-oriented.

Next, she considered those who Houle's model would describe as activity-oriented because their reasons for participation were to acquire credits, diplomas, certificates, of degrees but cared little or not at all for the subject matter. After reviewing the statements made by such individuals, she noticed that some were interested in little more than collecting credentials, as Houle suggested. Some aspired to assume an identity within groups based on those degrees (e.g. to establish an identity as a college graduate rather than a high school graduate). This constitutes a goal to achieve personal status through the perceived value of education. Park (2000) classified such people as goal-oriented rather than activity-oriented.

Her analysis revealed that there remained a third group whose enrollment status would suggest they were activity-oriented but who expressed little or no interest in the content or social environment of the courses they were taking. In particular, she concluded that those who selected the survey item, "I have been **directed or required** to undertake this learning project. **I do not believe** that completion of this project will contribute directly to my own learning objectives." (Confessore & Confessore, 1994) (Emphasis in original), were not adequately described by any of the categories. After reviewing the statements made by such individuals, she concluded that these individuals viewed their enrollment as little more than a means to satisfy a requirement imposed by some authority. As such, it would be more accurate and meaningful for instructors to describe them as required-oriented.

Figure 1 illustrates Park's (2000) refinements of Houle's work that was also reported in Confessore and Park (2000). Both Houle (1961) and Park (2000) proceeded from an assumption that all learners have some underlying reasons for participating in educational activities. Both assert that no one is likely to fit into a single orientation at all times and to the exclusion of any of the other orientations. In any given circumstance, the individual may exhibit predominantly any one of the orientations. The authors agree with the Houle's caution expressed in an audio-video recording of an interview conducted by Long (1996). He warned that educators should not use the content or design of the courses for which learners enroll as a mechanism for discerning the individual's orientation as a learner (minute 54) because, based on his experience, it would not provide usable information about the individual's reasons for taking the courses. He also stated that it was his belief that educators should employ some model to learn about students' reasons for electing to learn through enrollment in their course (minute 52).

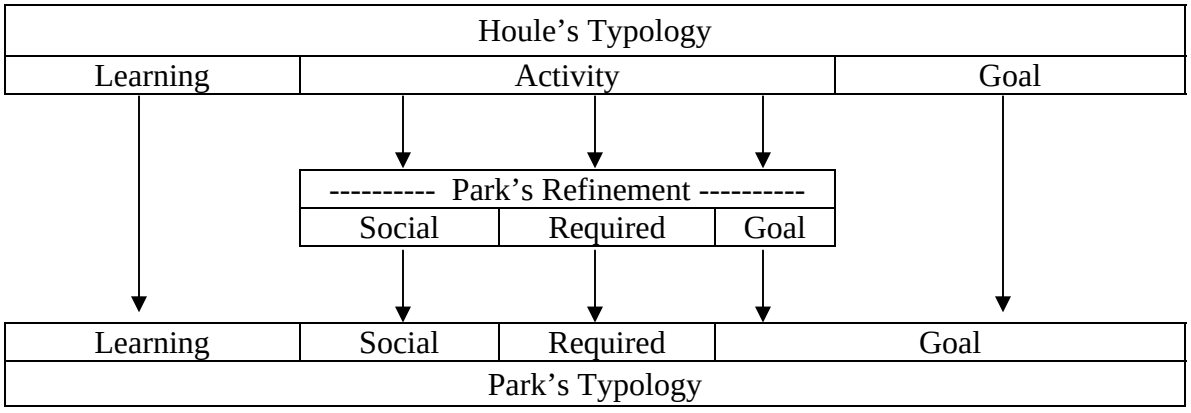

Figure 1. Park's refinement of Houle's typology.

Note. The figure was presented originally at Park (2000). The cells in this figure are not intended to be proportional. Neither Houle nor Park asserts that the various classifications do not overlap.

Based upon several studies of learner orientation in higher education samples using Houle's classifications conducted between 1961 and 2000 (e.g. Barron, 1999; Confessore & Barron, 1997; Confessore & Park, 2000; Cross, Valley & Associates, 1974; Pengitore, 2001), the distribution of orientations has been reported to range from 30-70% goal orientation, 20-50% activity orientation, and 10-40% learning orientation. Although Park (2000) reported there

are significant differences statistically when researchers use three categories versus four, the findings from such studies suggest that most adult learners express goal-oriented reasons for learning in higher education.

Educators should attend to the different motivations and priorities that affect individuals' intentions to learn as they design and implement alternative activities by which learners may achieve the objectives and standards for the course. Pengitore (2001) reported there are relationships of learner orientation to instructional design issues that affect retention and satisfaction in a two-year technical degree program. For example, his data showed the learner group with a primarily activity orientation was more likely to drop out of the program because no team learning activities were allowed and there were no sponsored co-curricular social activities. The student group with a primarily learning orientation was most likely to persist to completion of the program because the courses helped them achieve objectives to acquire certain skills and knowledge they had held at the time they selected the program.

Drawn from the theory and research findings on learner orientation, we believe the following issues should be considered when designing and implementing instruction:

1. If instructors understand the primary learner orientation of individuals, they gain insights into ways of meeting individuals' primary motivations for participating in the course. In doing so they increase the likelihood learners will meet or exceed the course objectives and standards.
2. Individual adult learners hold different values and attitudes that lead to different degree of willingness or desire for engaging in learning opportunities.
3. Since learning at the individual level is influenced by different learner orientations which are highly situational and subject to change on the bases of circumstance (Houle, 1961; Park, 2000), there should be an ongoing process of assessment throughout the period of the course experience to increase opportunities for instructors and students to adjust ways to achieve objectives.

IMPLICATIONS FOR HIGHER EDUCATION INSTRUCTORS

The implications of accounting for concepts of change and learning, the organizing circumstance, and learner orientation to higher education instructors in their course development are grounded in applications to use self-directedness of individual learners in their learning experience at the interactions of educational offering. The suggestions are:

1. Facilitate the instructors' efforts to meet institutional and disciplinary obligations to shape the learning environment while accounting for the learner's sense of readiness to productively engage in tailoring learning activities.
2. Allow instructors to articulate their educational intentions and learners to articulate their learning needs, prior experiences, and values at the beginning of the course.
3. Provide instructors and students opportunities throughout the course to assess the extent to which the agreed-upon goals of the course are being met. Ongoing planning during the course will identify opportunities to support learners' needs to make sense of how the course

requirements are related to their needs to learn, prior learning, and orientation as a learner. We propose the following interactive model of instructional development that responds to these suggestions by gathering and sharing information related to issues of change and learning, the organizing circumstance, and learner orientation.

An Interactive Model of Instructional Development in Higher Education

There is a well-established expectation in higher education that instructors must design the courses they teach in ways that meet university, accreditation, and discipline standards. At the same time there is an expectation that courses will contribute to each student's capacity to secure gainful employment and serve as a productive member of society. The practice of promulgating instructional intentions through the use of course descriptions and syllabi is the main mechanism by which universities inform prospective students about how these expectations are met in each course. These documents are generally considered a contract between the instructor and the student that sets forth content to be covered, the activities in which the student will engage, and the standards by which they will be evaluated. Yet, prospective students in many professional and higher education settings are not invited to participate in establishing the details of these contracts. These non-interactive efforts are usually little more than the instructor's best effort to lay out a non-negotiable sequence of purposes, activities, and standards for student evaluation that are established with little or no understanding about the student's circumstance of life change, prior learning experience, or reasons for enrolling in the course. In this process, instructors seldom are able to consider various needs, readiness, and motivations held by prospective students as they consider enrolling in courses. One way to improve the process of instructional development is to employ an interactive process of course design. Figure 2 is a graphic representation of non-interactive versus interactive models in instructional development.

Long (1991) illustrated the relationship of pedagogical (instructor) and psychological (student) control in self-directed learning. Without abandoning instructor control, this interactive model invites learners to engage in the instructional development process. This interactive model has three advantages. First, it addresses the obligations of both sides. The instructors are obliged to meet institutional, accreditation, discipline and societal standards, and the students are obliged to undertake commitment to course objectives and standards when they enroll in a particular section. Second, it provides a channel for instructors and students to communicate with each other. It provides an open forum in which instructors articulate their educational intentions and students express their needs and intentions to learn. Interactive communication will allow for instructors and individual students to become aware each other's intentions and differences. Finally, this interactive model allows joint-review opportunities for instructors and students to reflect on whether their teaching and learning intentions are being met throughout the instructional period. On-going assessments during the course will provide critical opportunities for the instructor to fine-tune instructional approaches in light of the individual needs. At the same time, students may gain understanding of the relevance of the instructor's methods to their learning circumstances and readiness.

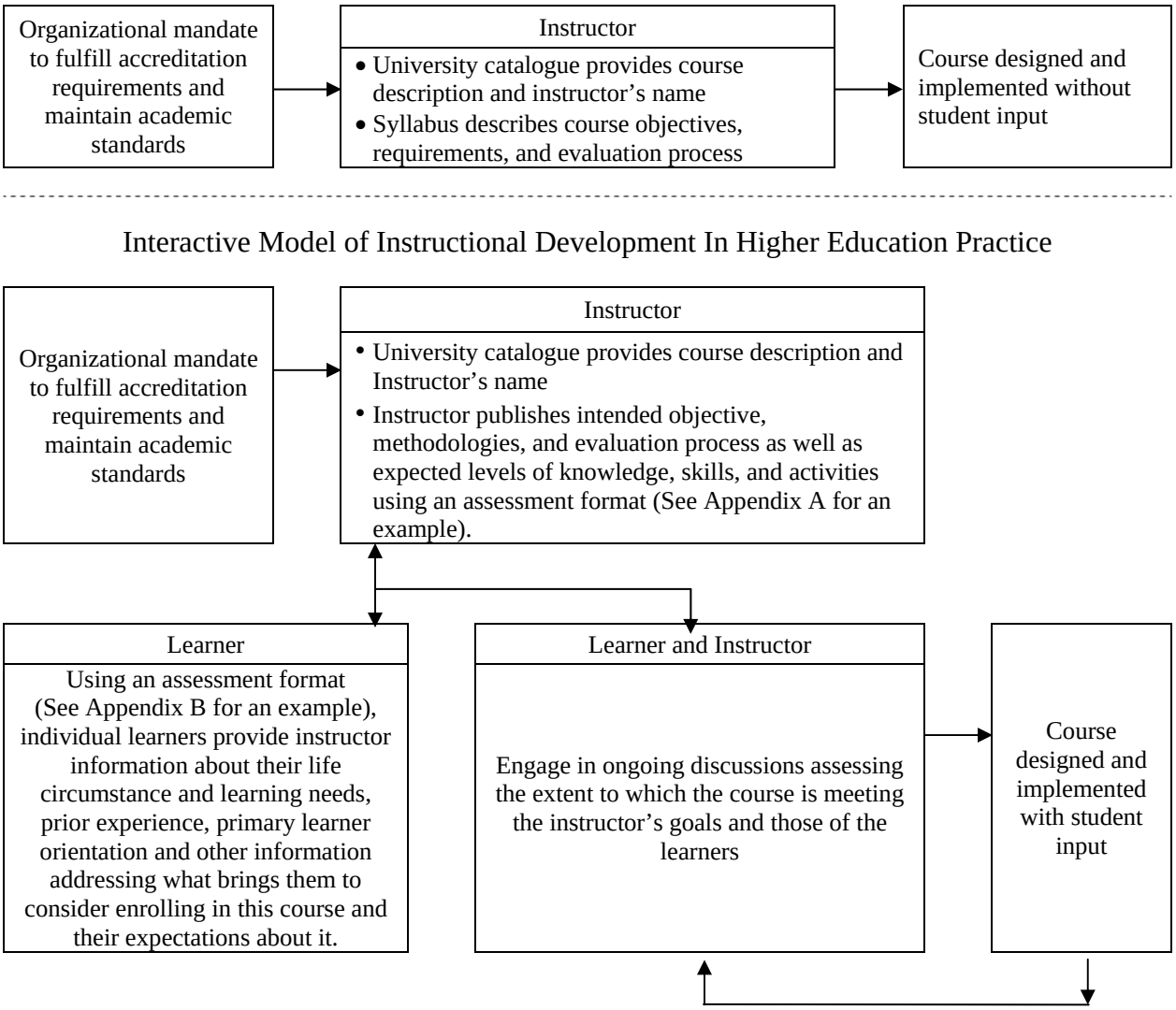

Figure 2. Non-Interactive versus interactive models of instructional development

Instructors might implement various communication and review mechanisms. One way to communicate with students is to publish a detailed course description that reports the information included in the Individual Development and Educational Assessment (IDEA) Faculty Information Form (http://www.theideacenter.org/sites/default/files/Student-Ratings_Faculty_Information_Form.pdf). Appendix A includes a sample format we extracted from the IDEA form for this article. The form presents selected items to which instructors respond in a survey conducted prior to the beginning of a course. If these responses were made available to prospective students during the period in which they are selecting courses or course sections, learners might be better able to match instructional objectives with their own learning intentions. In doing so, learners can establish expectations of themselves that are essential to informed pursuit of knowledge and skills.

Instructors should also collect information about the goals and expectations of individual students who enroll for their courses. The information should address the students' intentions to learn informed by issues of change and learning, their organizing circumstance, and their primary learner orientation. Many forms may be useful for this purpose. We have provided a sample protocol, A Protocol for Review of Individualized Ongoing Reflection (PRIOR), for instructors to consider adopting or adapting (See Appendix B). Some participants may be reluctant to disclose such issues as enrolling for the course because it is required of them and, in fact, they actually have no interest in the topic. Success in getting complete honesty will depend directly on establishing an historical reputation for using such information in supportive rather than punitive ways.

Instructors should take time in the first or second course meeting to have students compare their own goals and expectations, as expressed on the PRIOR, with the design intentions of the course reported through the IDEA Faculty Information Form. The information provided on these two forms should be treated as conversation starters that allow a free exchange of ideas students have about the place of the particular course in their overall education and allow instructors to elaborate on the reasons the course is designed in a particular fashion. This should allow students who feel there is not a good match with their goals and expectations, and for whom the course is not required at this time, to reconsider enrollment in the course during the standard course drop or add period. This discussion may help students to develop specific behavioral intention to learn more effectively and efficiently in formal learning during the early stages of each course. Instructors may wish to have their students complete additional PRIOR and conduct follow-up discussions at intervals throughout the course, especially when the instructional design has been modified in light of student feedback. Serendipity seldom provides an appropriate foundation for instructional design, however, these review and discussion efforts may prompt unanticipated behaviors that enrich learning experiences by producing unintended, but positive learning outcomes.

SUMMARY

The confluence of issues addressed in the literature on change and learning, environmental determinants, and learner orientation has a substantial influence on the needs and expectations of individual learners as they begin formal learning activities. Instructional designers and instructors have simultaneous obligations to ensure that institutional curricular standards and objectives are met, and that their courses reflect an understanding of the best ways to meet the needs and expectations of the learners they serve. By making a concerted effort to communicate the instructional purposes, standards, and design of courses to prospective students as they consider the courses or course sections for which they will enroll, the institution increases the likelihood of maintaining the academic standards set by external accreditation authorities and by the faculty. By incorporating opportunities for students to communicate their needs and expectations as they select each course, the chances for student success are optimized. These opportunities for students and their instructors to "fine-tune" the course syllabus at the outset of the course are the most important component of this model. The need for this kind of interaction is based upon Spear's (1988) assertion that the optimal learning plan cannot be designed by the learners or the instructors acting

alone. This implies that opportunities for students and instructors to share in the process of shaping the learning experiences in a course will produce better outcomes than can be had when instructors act to design courses without appropriate interactions with their students. Finally, in the interactive model, instructors and students have opportunities throughout the period of instruction to conduct joint reviews of course activities to determine whether their agreed-upon goals are being met. Inclusion of interactive review steps is an important component of sound student-centered instructional design for all types of courses. The success of individual participants, the course, and program are likely to be enhanced by these steps. Moreover, the long-term reputation of the sponsoring institution for excellence in the design and delivery of effective student-centered learning opportunities cannot be sustained without such steps.

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APPENDIX A

Items Selected from the IDEA Faculty Information Form ©*

Objectives: Using the scale provided, identify the relevance of each of the twelve objectives to this course. As a general rule, prioritize what you want students to learn by selecting no more than 3-5 objectives as either Important or Essential. Use the following scale: **M = Minor or No Importance, I = Important, E = Essential)**

____ Gaining factual knowledge (terminology, classifications, methods, trends)
____ Learning fundamental principles, generalizations, or theories
____ Learning to *apply* course material (to improve thinking, problem solving, and decisions)
____ Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course
____ Acquiring skills in working with others as a member of a team
____ Developing creative capacities (writing, inventing, designing, performing in art, music, drama, etc.)
____ Gaining a broader understanding and appreciation of intellectual/cultural activity (music, science, literature, etc.)
____ Developing skill in expressing oneself orally or in writing
____ Learning how to find and use resources for answering questions or solving problems
____ Developing a clearer understanding of, and commitment to, personal values
____ Learning to *analyze* and *critically evaluate* ideas, arguments, and points of view
____ Acquiring an interest in learning more by asking questions and seeking answers

The primary approach to this course (Mark only one)	The secondary approach to this course (if any) (Mark only one)
____ Lecture	____ Lecture
____ Discussion/recitation	____ Discussion/recitation
____ Seminar	____ Seminar
____ Skill/activity	____ Skill/activity
____ Laboratory	____ Laboratory
____ Field Experience	____ Field Experience
____ Studio	____ Studio
____ Multi-Media	____ Multi-Media
____ Practicum/clinic	____ Practicum/clinic
____ Other	____ Other

Describe this course in terms of its requirements with respect to the features listed below.

N = None (or little) required; S = Some required; M = Much required

____ Writing ____ Oral communication ____ Computer applications
____ Group work ____ Mathematical/quantitative work ____ Critical thinking
____ Creative/artistic/design endeavor

The principal type of student enrolling for this course will be:

____ Freshmen/sophomores seeking to meet a "general education" or "distribution" requirement
____ Freshmen/sophomores seeking to develop background needed for their intended specialization
____ Upperclassmen non-majors taking the course as a "general education" or "distribution" requirement
____ Upperclassmen majors (in this or related fields of study) seeking competence or expertise in their academic/professional specialty
____ Graduate or professional school students
____ Combination of two or more of the above types

APPENDIX B

A Protocol for Review of Individualized Ongoing Reflection (PRIOR)

Date: _____
Learner: _____

1. What are your reasons for enrolling (for participating) in this course? Please rate the degree of importance of the following perspective that may relate to your reason to enroll (participate) at this time, to:
   - seek career qualification or promotion
   - engage in social interactions with others
   - meet the expectations of my significant others (e.g. family, community, etc.)
   - enjoy learning new things without any other reasons
   - seek other special aspects (please indicate:_____)

Career qualification	Social opportunity	Expectation of others	Enjoy learning	Other reason
0 (not at all important) ---------- 10 (extremely important)				

2. Have you experienced any life changes that led you to enroll (participate) in this course at this time? To what degree do you believe completion of this course will help you respond productively to that change?

Changed Circumstance	Expected Degree of Difference 0 (not at all)--10 (extremely)
1.	
2.	
3.	

3. Based upon your review of the course syllabus and your accumulated learning experiences, to what degree are you confident that each of the following issues will contribute to your success in the course at this time?

Related Knowledge	Related Skills	Motivation to learn	Finance	Time	Energy to persist	Other _____ ____
Don't know (D), 0(Not at all) ---------- 10(extremely confident)						

4. Do you have any additional information that you believe may be helpful to your instructor's efforts to help you meet or exceed the course objectives and standards?

WHY SHOULD SECONDARY EDUCATORS BE INTERESTED IN SELF-DIRECTED LEARNING?

Peter L. Zsiga and Mary Webster

Secondary school students need to acquire specific knowledge and information to develop self-sufficiency as adults, citizens, and employees. Research in several countries is elevating the importance of self-directed learning skills as a component of current student and future employee success. Secondary educators are responsible to their students and their communities to provide students the opportunity to gain these skills despite apparently inherent obstacles to change within the system of education. Changes will also be required in professional development programs to focus more attention on learning processes than on content.

PURPOSE

Through a review of the literature, this article will first explore self-directed learning in secondary education and the increasing importance, acceptance, and expectation of self-directed learning skills in the workplace. After discussing the need to incorporate more self-directed learning into the secondary curricula, it will briefly illustrate how self-directed learning is currently included in secondary education, and then reflect on the possibilities of and obstacles to increasing self-directed learning in secondary curricula. Finally, this article will explore the implications for professional preparation and development of educators.

NEED FOR SELF-DIRECTED LEARNING IN SCHOOLING

Engaging in self-directed learning is a natural part of maturation and is evident in the questions even young children ask. "Why is the sky blue?" and other confounding questions from young children are a reflection of their growing awareness of the world around them and of their separation from it (Elkind, 2007; Loewy, 1998). As many parents will attest, the pockets and pails of children often reflect this curiosity. However, this curiosity is often suppressed and discouraged by educators who feel the need to direct a child's attention and energy to more traditional forms and topics for learning (Davis, 2006; Saulny, 2006). Researchers have suggested that the structure of the public school system may actually have a negative influence on the development of self-directed learning (Caffarella & O'Donnell, 1987; Candy, 1991; Posner, 1989). "Educators have two masters to serve, the society and the students, and the two are not always compatible (Henson, 2006, p. 39)."

Structurally and pedagogically, there are reasons why curiosity and self-direction are channeled and managed in education systems (Loewy, 1998). The group learning process is far different from the process individuals apply, creating difficulties for the learner:

> First, knowledge in school is characterized by separation in subjects, systemic structure, abstractness, suggesting completeness and [that] it is consensual knowledge. This is contrary to the ill-structured, incomplete and non-consensual knowledge in daily life. Second, the artificial learning situation creates motivational problems. Third, the amount of knowledge and the characteristics of knowledge cause school learning to resort to reproductive learning. (Bolhuis, 1996, p. 5)

There is a body of knowledge and information which students need to acquire to successfully develop self-sufficiency as adults and employees. Managing the flow of the information requires the development of curriculum plans and lesson plans, standardized testing and segmented school days. Decades of educational experience have not uncovered a more effective means of delivering instruction to large numbers of children simultaneously and thereby providing them the tools they need to succeed (Henson, 2006). However, as indicated below, recent sociological and economic trends, combined with indications from research, are elevating the importance of self-directed learning skills as a component of current and future success (Rowden, 1996).

Research in other countries supports the concerns for educational improvement and the consideration of the self-directed learning. Discussions regarding systematic application of the concepts have multi-national distribution. In addition to the American researchers, van Grinsven and Tillema (2006), Bolhuis (1996) and Bolhuis and Voeten (2001) in the Netherlands, Purdie and Hattie (1996) in Australia and Japan, Rasku-Puttonen, Eteläpelto, Arvaja, and Häkkinen (2003) in Finland, and Maynes (1990) in Canada all reported links between self-directed learning and educational goals and achievement in secondary education. The impact of these links is beginning to influence national education systems:

> Self-directed learning and learning to learn are educational goals of growing importance in Dutch educational policy. One of several nationwide innovations in secondary education is taking place in the second phase of senior general secondary education and pre-university education. School should be turned into ‘a house of study’ where students learn to study more independently in order to be better prepared for higher education, work and life. (Bolhuis & Voeten, 2001, p. 837)

Roots of Self-Directed Learning

Self-directed learning has roots in community education, not formal education. While directing the adult education program at the Boston YMCA, Malcolm Knowles observed formal and informal astronomy classes. He discovered that adult learners responded far more positively to less structured lessons which provided more opportunity for self-direction. The instructors who cared more about what the learners wanted to learn, rather than what the

teacher wanted to teach, were more successful at attracting and keeping students (Carlson, 1989; Kruse, n. d.).

In 1970, when he published *The Modern Practice of Adult Education* (Sork, 2000, p. 172), Knowles encapsulated his concepts and introduced the word *andragogy* to educators (Brockett & Hiemstra, 1991; Carlson, 1989; Kruse, n.d.; Merriam, 1991, in press). Generally cited as Knowles' Assumptions of Andragogy, the principles of adult learning he presented crystallized his thinking about the way adults differ from children in their approach to learning. These assumptions are that as individuals mature, four important changes take place:

> 1. Their self-concepts move from one of being a dependent personality toward being a self-directed human being.
> 2. They accumulate a growing reservoir of experience that becomes an increasingly rich resource for learning.
> 3. Their readiness to learn becomes oriented increasingly to the developmental tasks of their social roles.
> 4. Their time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly, their orientation toward learning shifts from one of subject-centeredness to one of performance-centeredness. (Knowles, 1980, pp. 44-45)

These assumptions are relevant to secondary educators. Secondary students are moving along a continuum to adulthood and should be learning how to learn as adults. Many middle and high school students are prematurely assuming adult roles and responsibilities and already use or need self-directed learning skills in their social roles (Burton, 2007). Incorporation of self-directed learning skills into the educational development of the students and increased engagement of the community with the school and the students can be helpful for both those students who are performing adequately and those who are at risk (Cattin, 1996; Purdie & Hattie, 1996; and Young, 2001). Self-directed learning can move schools away from being "an increasingly moribund and irrelevant institution" (Prensky, 2006, p. 23) and move students away from the question, "Will this be on the test? " (Guilfoyle, 2006, p.10) to learning that is related to their lives and goals.

SELF-DIRECTED LEARNING AND SECONDARY EDUCATION

Self directed learning (SDL) has been one of the most widely published components of adult education since Knowles (1970) included autonomy as one of the characteristics present in his assumptions of andragogy. The concept has stimulated a quiet revision in education. Tough (2006) highlighted the change in perspective for educators: "We assumed the teacher was the center of the universe, but it is the student" (n. p.). Schlechty (2005) recognizes and presents a similar orientation in introducing his *Working on the Work* (WOW) strategies to educators. He proposes that although student attendance may be compelled, attention is voluntary. Educators are encouraged to earn and maintain high levels of student engagement and interest.

While working in a school district that based much of its professional development program on Schlechty's concepts, Webster (2006) organized a focus group of high school teachers who were familiar with Schlechty's (WOW) program and carefully introduced self-directed learning concepts to them. The teachers recognized the similarities and developed a chart to compare elements of WOW to SDL. Table 1 reflects their efforts.

Table 1. WOW to SDL Comparison

WOW	*SDL*
Organization of knowledge	Learning/Skill development
Content and substance	Learning/Skill development
Choice	Student control
Affiliation	Settings
Affirmation	Self-managed/ Self-motivated
Authenticity	Adolescent experience
Protection from adverse consequences	Self-managed/ Self-motivated
Clear and compelling product standards	Challenge to perform
Novelty and variety	Full life experience

Note. From Webster, 2006, p. 9

A focus group of students from the same school district indicated that choice in the process and the product were desired along with clear learning expectations. Similar results were reported by van Grinsven and Tillema (2006) who found "students' perceptions of a learning environment as promoting self-regulated learning is a crucial determinant for participation and learning efforts" (p. 87). This finding dovetails with Schlechty's (2005) comments and is further developed:

> We may conclude that students in self-regulated learning environments are more motivated to learn, report more enjoyment of the material and are more actively involved in their learning than those who study in more restrictive environments (van Grinsven & Tillema, 2006, p. 87)

The Transition to Self-Directed Learning in Secondary Institutions

Moving pedagogical secondary instruction toward increased andragogical self-directed learning is a progressive procedure. Change is required from students, teachers, administrators and educational leaders to focus attention and efforts on teaching students how to learn (Bolhuis & Voeten, 2001). Webster (2006) recognized that initiating this movement would entail creating a climate in which teachers perceived SDL as an integral part of their work instead of an add-on. In reflecting on the process, she reported a discontinuity between

what teachers thought was happening and true self-directed learning, when one teacher reported that she was self-directing her class through her group projects. While this sounded good, in reality she was determining the groups, projects, process, and product and was grading everything according to her own plan (Webster, 2006).

Even with full acceptance, it still takes time and patience for teachers and students to move along the self-direction continuum. Teachers must gradually cede control for more of the responsibility to the students (Bolhuis, 1996). The paradox for educators is that teachers are afraid to give up control and lack confidence that students will learn effectively with SDL, while at the same time they know students are not learning and that the teachers are not really in control (Webster, 2006). "Effective teachers seemed to shift the responsibility for managing the problem-solving tasks to the student" (Rasku-Puttonen, et al., 2003, p. 379).

To build skills in their students, retain more control, and provide more direction than in later stages, teachers may initially decide to use scaffolding strategies. The Center for Research on Education, Diversity and Excellence (CREDE) defines scaffolding as "a teaching strategy in which instruction begins at a level encouraging students' success and provides the right amount of support to move students to a higher level of understanding" (CREDE, n. d.). For new learners, and learners in new situations, teachers use scaffolding by first reducing and then gradually increasing the tasks and span of learning as learners become better able to comprehend the complexity of the material and the context (Young, 1993). Considering the instructional content and context, while monitoring and assessing student progress in the learning activity allows teachers flexibility to adapt the level and direction of the scaffolding support to reflect student needs and enhance performance (Bolhuis, 1996; Rasku-Puttonen, et al., 2003).

Peer and reciprocal assistance is one form of scaffolding which can aid students in gaining strategies, confidence and comprehension (Maynes, 1990), particularly when the subject matter is new or unfamiliar (Bolhuis, 1996; Candy, 1991):

> Teachers are right in their belief that students who are unfamiliar with a subject need their assistance. The shift most teachers have to make is from focussing on content only to focussing also on the knowledge building process: the methods and procedures by which knowledge is constructed in this specific domain. (Bolhuis, 1996, p. 9)

Students from lower socioeconomic settings may have greater difficulty in adjusting to the demands of self-directed learning (Dryfoos, 1996; Young, 2001) and therefore may be more predisposed to react by dropping-out. Coaching, guiding and explicit instruction and practice in learning how to learn will be most critical for this population (Bolhuis & Voeten, 2001). This path will be challenging; but the alternative, continuing with the present model, is consigning these students to an unacceptable future of underachievement and underemployment.

Bolhuis and Voeten (2001) provide four recommendations for transitioning to self-directed learning. They should occur concurrently and are complementary to each other.

1. Move gradually to student regulation of the complete learning process.
2. Focus on knowledge building in the domain (subject area).
3. Pay attention to emotional aspects of learning.
4. Treat learning processes and results as social phenomena. (pp. 837-9)

Developing appropriate assessment strategies to determine incremental accomplishments in self-directed learning is also an adjustment in perspective for teachers. Corno (2004) suggests that teachers ask themselves, "What would be good evidence that students were regulating goals and controlling thinking and emotions in academically challenging situations?" (p. 1686).

NEED FOR SELF-DIRECTED LEARNING IN A TIME OF ECONOMIC AND EDUCATIONAL CHANGE

From the community and the employer standpoint, the value of self-directed learning is increasingly being proven. High-paying employers worldwide are recruiting people who solve rather than create problems, who rush to learn rather than wait to be taught, and who make decisions rather than delays.

Guglielmino, Guglielmino and Long (1987) linked self-directed learning readiness to higher workplace performance ratings. Subsequent researchers found correlations between self-directed learning readiness and success in many other areas of life. Durr (1992) reported self-directed learning readiness to be correlated with performance at a major United States electronics firm. Reio (2004) uncovered indications that those who rate higher on self-directed learning readiness are prone to be more: independent, responsible for their learning decisions, tolerant of risk and ambiguity, reflective, self-starting, creative, and successful in learning. Kandarian (2004) studied executives who were credited with elevating their companies to excellence at the highest levels, and found these executives used self-directed learning as a key personal strategy. Connolly (2004) compared self-directed learning and leadership in a corporate setting and reported that the leaders who scored higher on the SDLRS and who allocated more time for self-directed learning had a greater probability of being successful. These studies are indicative of the value of self-directed learning readiness to students for their success in school and in life.

Modern employers, from a technology, research or production and sales base are looking for candidates with these skills. Rowden (1996) reported that, as businesses transform into learning organizations, lifelong learning and increasing attention to individuals learning how-to-learn and how-they-learn become critical processes in producing performance improvements. Self-directed learning must be included in the repertoire of skills students gain from their participation and presence in the formal education setting. They must gain the skill of learning how to learn in order to survive and thrive in the workplace. Educators have the responsibility to their communities and their students to prepare them to be these successful workers, leaders and learners (Poliakoff, 2006).

Changing Perceptions Among Parents and Communities

Since parents are exposed to these changing needs in their worksites, it is logical that their perceptions would carry over into their expectations for their children's education. Teacher-parent relationships have morphed substantially. Today's parent has specific family values and beliefs and the teacher must present more universal values and norms (Schlechty, 2005).

Some parents are taking measures that reflect their rejection and dissatisfaction with public education. As an outgrowth from home-schooling, *unschooling* is emerging as a belief and practice that circumvents the traditional classroom, curriculum and textbooks for a more child-directed learning process. "Unschooling is an educational approach that follows the philosophy of letting children decide what they want to learn, when they want to learn, and making that learning an organic part of daily life" (*Education Week*, n. d.). Parents who are engaging in this practice are inclined to argue that the rigidity of the school schedule and classroom stifle the inherent curiosity of children, causing them to lose their natural love of learning (Davis, 2006; Saulny, 2006). One Chicago group of unschoolers has over one hundred registrants, and groups are active in San Francisco, Connecticut, and the Ozarks. Technology is enabling this option by providing access to tremendous amounts of information in packages and presentations that add form, structure and relevance to the search for self-direction in learning.

The potential complication for public schools is that parents will become increasingly responsive to approaches that provide education and knowledge outside of the expensive and confining school building (Schlechty, 2005). Employing elements of self-directed learning to provide engaging work for students may be effective from both an educational and community relations perspective. "If we can get students hooked on school for one reason, we might be able to change that reason later--a version of bait and switch" (Sergiovanni, 1999, p. 11).

Including more self-directed learning in the curriculum can alleviate the dissatisfaction of those in the unschooling movement and increase the satisfaction of those who, through exposure in the workplace, have already recognized the need and the value of these skills. The path for education revision appears to lead to and through self-directed learning.

CONCLUSIONS

"What is important now is how teachers turn to 'teaching how to learn' " (Bolhuis, 1996, p. 11).

Educators should understand effective learning tendencies in adults and prepare students to use these processes. However, changing existing curriculum and behavior patterns in teachers and students is a massive undertaking. It requires comprehensive planning; a risk-taking, opportunistic attitude; a commitment to change and improvement; and systematic and

simultaneous adjustments to the instructional environment and practices (Thomas, Strage, & Curley, 1988).

Segments of the community that may have never been exposed to the concepts cannot be expected to welcome this change. The probability that the community will embrace the ideals and outcomes of any educational system without having been engaged in collaborative development of the goals and values is inconceivable (Schlechty, 2005). Attempting to introduce them without a productive community partnership effort to examine their importance to the students could be an exercise in futility for school administrators (Cunningham, 2004; Decker & Decker, 2003). Self-directed learning concepts must become part of the community vocabulary and values as they become a greater part of the culture and philosophy of educational institutions.

The impact on the preparation of educational administrators must also be considered. Colleges and universities with preparation programs for educational leaders must adapt their curriculum offerings to meet this need. Directing instruction toward self-directed learning is a non-traditional element in public school curriculum and philosophy. The scope and complexity of the self-directed learning process interwoven with the diversity of the student population exemplifies the tremendous shift in focus and intensity that will be required to support teachers in their professional development to promote and encourage self-directed learning oriented instruction.

Traditionally, whether in corporations, government, or education, there has been a great deal of emphasis on control. The notion of self-direction starts to erode that application or illusion of control (Webster, 2006). Enabling educators to make these changes will take a deep paradigm shift in their preparation, changing the focus from control to empowerment of the students. Designing a course to increase the student's capacity requires attention to the learning process rather than the transfer of information. This requires far more creativity and ability on the part of the teacher.

School and district-wide revision of professional development programs for teachers must also be adapted to endorse and encourage acquisition of techniques and strategies for teaching self-directed learning. Establishing effective programs to meet these needs can only be accomplished with full involvement of the community that sends the students, trains the teachers, provides the resources and sets the expectations. (Bolhuis, 1996).

As we position teachers and school districts to respond to the direction of the local and global workforces to a research- and knowledge-based economic structure, educators must adjust the way they contribute to their preparation. The genesis of this revision is based, not on the requirements of any corporation, but on the current and future needs of the students.

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THE INDEPENDENT LEARNING CENTRE IN THE SECONDARY SCHOOL CONTEXT: HOW DEEP WAS MY LEARNING?

Patricia Carmichael

The establishment of an Independent Learning Centre in an Australian secondary education context has resulted in a paradigm shift to a truly student-centred approach to education. Of interest in this particular study (a) is whether the skills and strategies taught in this centre have resulted in deep learning and (b) the extent to which these skills have been transferred to the wider curriculum. The results indicated that the accomplishment of these goals was dependent upon the interplay of several factors that include: student confidence, ability, volition, and the demands of the task.

The teaching and learning undertaken at the Independent Learning Centre (ILC) offers unlimited opportunities to students as part of the secondary curriculum that reflects the change in pedagogy of the 21st century. Since its inception in 2004, the pedagogical practice has resulted in a paradigm shift to a truly student-centered approach to education. The establishment of the ILC is a natural extension of the library. This new area provides a new learning space and has created a physical focus for personalized teaching and learning within the college.

Each middle school student is required to undertake a semester-long Negotiated Independent Learning Unit (NILU) as part of the unitized curriculum. The NILU is a research-based or problem-based project that utilizes independent learning skills and strategies as cognitive scaffolding. The ILC appears to be a unique teaching and learning environment; however, accountability is required in any teaching and learning environment. Whether the ILC program proves beneficial for students dictates its future.

PURPOSE

The purpose of this exploratory study is (a) investigate whether deep learning has occurred as a result of the teaching and learning of independent learning skills and strategies as practised at the ILC and (b) to explore whether the skills and strategies that have been gained from undertaking a NILU have transferred across the wider curriculum. In this exploratory process, approaches to measuring the depth of the learning will also be considered.

CONCEPTUAL FRAMEWORK

Does deep learning result from the teaching and learning of independent learning skills and strategies, as practised at the Independent Learning Centre? To answer this question first requires an understanding of the context in which independent learning occurs. Students in the middle school range in age from 12 to 16. Major changes occur in their physical and psychological development during this period. Major changes in their cognitive development also follow. It is in this context that the teaching and learning of independent learning skills and strategies must be realized. It is the developmental process of acquiring the skills and strategies of self-directed learning that is of importance in the secondary context.

Secondly, there seems to be general consensus as to the definition of deep learning. Long (2005) describes several attributes of a deep learner. The learner: (a) derives enjoyment from the activity; (b) searches for meaning in the information; (c) often personalizes the task by relating it to his or her own experience; (d) relates bits and parts of the information, relates evidence to conclusions, and relates the whole to previous knowledge; and, (e) develops theories and forms hypotheses (p. 4). It is this process of synthesis and application of that knowledge to solve problems and construct new meaning that is most often viewed as deep learning (Fitzgerald, 2007; Murphy & Alexander, 2002; Newmann & Wehlage, 1993; Sims, 2006; Todd, 2007b). Candy (1991) described independent learning as "a process, a method and a philosophy of education whereby a learner acquires knowledge by his or her own efforts and develops the ability for inquiry and critical evaluation…" (p. 1).

In the ILC program, the student designs the learning journey to suit his or her learning preferences, goals or needs. The freedom to choose personal goals and interests also provides the motivation for learner engagement. The ILC program frees the student and teacher from the constraints of the content-driven curriculum. As Hiemstra (1998) stated:

> We contend that the process of providing opportunities for learners to assume control is equally as important, if not more important, than the actual content because of the ever-declining half-life of much of knowledge and the value in helping learners how to learn. (p. 9)

Intrinsic goal orientation is often associated with deep learning, compared to extrinsic goal orientation, which is often associated with shallow learning undertaken to meet externally imposed standards (Heinstrom, 2006; Long, 2005; Lonka, Olkinuora, & Makinen, 2004). The need for intrinsic motivation is a key component of the ILC program, as is the use of prior knowledge, because it is from this base of personal knowledge and experience that the whole NILU takes its reference. The ILC program is an amalgamation of many areas related to self-regulatory learning (SRL) and guided inquiry (GI) or problem based learning (PBL). GI is founded on the belief that learning is a process of personal and social construction (Fitzgerald, 2007; Newmann & Wehlage, 1993); PBL is a specific task-based approach that teachers can utilize to support the development of SRL (Paris & Paris, 2001); therefore, the ILC program can be viewed as both a goal and a process (Oxford Centre for Staff and Learning Development, 2007).

While the learner focuses on the achievement of personal goals or needs, which is the motivating factor (Pintrich & De Groot, 1990), the teacher guides the learner through the process that will enable those goals to become a reality. This process is based on the proposal that deep learning is co-creation, or co-construction (Sims, 2006; Todd, 2007a).
The freedom of the ILC program can be liberating and exhilarating as well as an unfamiliar and sometimes a daunting learning pathway for the learner and often the teacher. As one ILC teacher commented, "Be prepared!"

The Negotiated Independent Learning Unit (NILU)

Nine necessary skills and strategies for independent learning, that were noted as common by a number of educators (Hiemstra & Sisco, 1990; Knowles, 1975; Long, 2005; Paris & Paris, 2001; Paris & Winograd, 1990; Savoie & Hughes, 1994), have been incorporated into the generic scaffolding of the NILU.

Accompanying each skill is the ILC program's response in terms of processes and procedures students follow in the generic scaffolding of the NILU. It could be viewed as a tool kit for the development of independent learning skills and strategies. The nine student skills and strategies and the NILU approach to developing them are detailed below. All are presented in terms of what students should be able to do.

1. *Make choices of learning modes.* All students complete the 'VARK: A guide to learning styles' questionnaire (Fleming & Bonwell, 2006) and they are encouraged to use this knowledge to frame their research and outcomes.

2. *Learn through experience.* Students build upon the knowledge they already have about a particular area of interest and develop this interest into a research project. This prior knowledge is useful when deciding on the topic and developing the hypothesis or challenge.

3. *Set personal learning aims*. All students negotiate their own Independent Learning Units. The units take the form of a contract: the students formulate their own goals and organize their own learning journeys in the given time scale to attain their goals. Learning styles and the associated strategies are incorporated to help them on their journeys.

4. *Decide when best to work alone or collaboratively and when to seek advice*. When students brainstorm with other students and staff to explore ideas for their research, a hypothesis or challenge that will result in the engagement of deep learning, confusing issues are sorted out at the outset. Teachers must be prepared to be part of the journey. This is co-creation (Sims, 2006; Todd, 2007a). As one teacher commented, "Enjoy the journey. Try to inspire and direct. Don't limit students by imposing your expected outcomes."

5. *Think creatively*. Students brainstorm with other students in the ILC and the teacher. They tap other peoples' knowledge. Students are encouraged to be creative and follow their own interests and learning style.

6. *Plan and organize work*. Students state in their contracts the goals they have set for themselves, defining their research topics posed as a problem or challenge. This challenge must be attainable for the student, taking into account the abilities of the student. The process is assisted by modeling of concept mapping to determine their research pathways and presentation of note taking strategies that help each student to select appropriate information. The students record this process in a research journal.

7. *Identify and solve problems*. This process is cyclical. The level of synthesis of students' research and gathered information relies to some extent on the challenge the students have set in regard to their goals and initial hypothesis. The continued reflection and problem solving is a crucial factor for the engagement in deep learning (Fitzgerald, 2007).

8. *Effectively communicate both orally and in writing*. The students must be able to articulate their progress and present their research topics. They must outline their goals and what they have done to reach those goals. They are actively engaging in metacognition. The audience is asked to question the students on their progress and clarify any confusing aspect of their research.

9. *Assess their own progress in reaching their goals and so engage in metacognitive processes.* All students engage in self-evaluation processes, which include progress reports presented to the class, self-evaluation questionnaires, and discussions with the teacher. At the final presentation students must assess their journeys and state whether they have in fact achieved what they set out to do. The students are actively engaged in metacognitive processes throughout the NILU.

These are the tools that allow the synthesis and transfer of knowledge and information to occur. This approach requires that the learners be actively engaged in building on prior knowledge by seeking new knowledge and be able to transfer new knowledge and skills to new circumstances. They must use the tools of independent learning to construct deep knowledge and deep understanding rather than passively receiving it (Fitzgerald, 2007; Newmann & Wehlage, 1993; Paris & Paris, 2001; Sims, 2006; Todd, 2007b).

Student Example

The following student example of a completed NILU illustrates how the student applied the generic framework. The student's interest was based on the soil quality of her family property in western Queensland. She wrote:

> My independent learning unit task is soil management/testing. My outcome will be knowledge in the area of testing and mineral deficiencies in soils. I hope to learn how to supplement cattle nutrition with minerals and how to test soils for deficiencies which lead to disease and disfiguration in livestock.

After initial research of soil chemistry, this student then organized work experience at a local soil testing company. As part of her NILU, she completed four days of work experience at

this company. What made this learning experience even more special for the student was the fact that she was following the analysis of her own soil samples from the family property. This student's learning preferences on the VARK (Fleming & Bonwell, 2006) were Read/Write, Visual. Her project culminated in a scientific soil report which brought together all her findings concerning the soil quality of her property (Carmichael, 2007).

The ILC program and the resulting learning experiences have offered students opportunities to gain content knowledge, workplace skills and workplace knowledge. It has offered an authentic challenge to these students and increased their independence. By applying independent learning processes and through guidance and collaboration with the teacher, they have been given the opportunity to construct authentic challenges that require higher order thinking skills and a complex level of synthesis.

The generic framework of a NILU appears to support the notion of securing a deep learning opportunity for students as a personalized developmental learning journey (Deci, Vallerand, Pelletier, & Ryan, 1991).

Transfer of Independent Learning Skills and Strategies

To explore how students have transferred the knowledge gained from undertaking a NILU, a triangulation approach was employed. Both quantitative and qualitative methods of evaluation were applied to both student and teacher participants.

Teacher surveys and teacher interviews were employed to gain an insight into how students applied independent learning processes and strategies specifically in the last assignment and generally in the wider curriculum and to what extent this occurred. Students were surveyed on completion of the NILU in first semester and surveyed again after the completion of their first research assignment in second semester. This second survey was designed to assess if they had transferred any knowledge gained from their experiences undertaking a NILU in first semester to their work in the second semester. The results of these two surveys were compared. Some items were adapted from the *Motivated Strategies for Learning Questionnaire* (Pintrich & De Groot, 1990). Specific items discussed are quoted within this paper. Complete copies are available from the author.

The *Tool for Real-Time Assessment of Information Literacy Skills* (Kent State University Libraries & Media Services, 2007) an external, standardized testing procedure, was also employed. It was used as a national benchmark to validate both student and teacher perceptions and observations of student independent learning skills in terms of information literacy competencies. The connection between independent learning skills, problem-based learning and guided inquiry has been discussed earlier.

Sample Population

Of the 77 students who undertook the NILU study (Survey A), only 44 students completed the second survey (Survey B). This occurred because in second semester only 44 students undertook courses of study that appeared to follow comparative scaffolding and cognitive requirements of the NILU. It was felt that a close comparison in terms of processes and

strategies was needed in order to conduct a valid comparison. Consequently, the study was restricted to students who undertook Study of Social Education (SOSE) Units 202, 303, 304, and Science Unit 302 in Semester II. A control group of 13 students who did not undertake a NILU, but who did undertake one of the above units was also involved in the study.

Three teachers who were involved and set those courses of study and the assignments were surveyed (Survey T) and interviewed after marking those units. These teachers had no prior knowledge that they would be asked to take part in this study.

Comparison of Results

Survey A results indicated that the great majority of students felt they had shown an improvement in the acquisition and mastery of both content (86%) and information seeking skills (83%), including time management (60%) and organizational skills (75%), an understanding of their learning style (84%), enjoyment of their learning (70%), and pride in their learning (82%). Results from these three main areas of learning styles, research skills, and affect will be discussed in this section.

Learning Styles. Students reported that knowledge and the application of their learning styles varied considerably between the two surveys; that is, between the two contexts of the ILC and general classroom. In Survey A, 84% of the students indicated they had gained a better understanding of what kind of a learner they were through their time spent in the ILC. Moreover, 77% indicated they used this knowledge to frame their NILU. Only 27% of students from Survey B, however, indicated they had actually used any learning style strategies to help them as they worked on the latest research assignment.

Many students commented that this latest research assignment "wasn't that kind of assignment," meaning the same as the NILU. By this they could mean that the latest assignment did not allow for personal choice to be exercised, or they could mean that the structure or process of the last assignment was not the same as the NILU. Indeed, one teacher remarked, ". . . choice to use their preferred learning style isn't always possible as shown by the biology assessment." So it appears that the rather dramatic drop in responses may actually equate to the demands of the task; it is difficult for students to respond positively to survey questions if the task does not accommodate for the outcome, learning styles, the knowledge or process skills, and strategies, or the freedom of choice in each of these elements.

It is prudent to realize that Survey A and Survey B were separated by a six-month time lapse. Students noted in their comments that they had forgotten a number of aspects concerning learning styles skills and strategies, and some just did not remember to apply them. Even though the teachers surveyed believed they had accounted for different learning styles in their classroom practice, the terms associated with learning styles were not actually articulated to the students in the research assignment's criteria and little or no allowance had been made for learning style differences in the outcome, process or final presentation of the second semester assignment. Only a small percentage of the students, 27%, remembered what kinds of strategies were suggested and were able to apply these strategies in the last research assignment.

It appears, however, that some students have retained a basic rudimentary understanding of what their learning preferences might be and some understanding of how they could use the strategies suggested to improve general study and learning. In both surveys, 66% of the students felt that they were able to apply the knowledge gained from learning style strategies for study purposes. Students were asked, in Survey B, Question 5, "How have you applied this knowledge to other subject areas?" In reply, 66% made comments such as, “I will practise the questions when studying for Math,” or “It has helped me take down notes, highlight things and by watching people do things.” They indicated a general use of the strategies, skills and knowledge of their learning preferences to assist in their learning.

Research Skills. In order to assess whether research skills acquired during the NILU had influenced later achievement, students’ research assignment grades were compared for students in both groups (those who undertook a NILU in Semester I, and those who did not). Although mean results of assignment grades gained by students who undertook a NILU, irrespective of subject, were marginally higher than mean results of assignment grades gained by non-NILU students, this difference was not statistically significant. Unfortunately the small sample sizes encountered in this study limited the usefulness of quantitative evaluation methods.

The majority of students who undertook Survey A felt their research skills had improved at the completion of the NILU. They realized that they had gained some skills and strategies for organization and time management and that this could help them in other areas of their academic studies. Students saw the value in these skills for further strategic application and they commented on the sense of autonomy gained:

> “It (the NILU) has increased my independence and given me skills for the future.”
>
> “I have learnt that planning and managing my work and time is a good start to a good assignment.”
>
> “The power to manage your own time and learning is important because when you go to UNI it will help with your organizing and researching.”

That there had been a noticeable positive difference in student research skills was supported by teacher survey results, teacher interviews and the TRAILS 9 test which found that 81% of students recognized how to use information responsibly, ethically, and legally; 69% of students were able to identify potential sources of information; and 68% of students knew how to develop, use and revise search strategies. After completing the latest assignment, 66% of the students believed that the research skills learnt in the NILU had assisted them later in academic endeavours.

Specifically, all three teachers agreed in Survey T that the students had transferred the following skills and strategies. They observed that students were now using CiteAce (Potter 2004), to set out their bibliographies, students were organizing information in more

appropriate ways (for example, under headings in research journals), and students appeared to be more knowledgeable or confident in their ability to use library resources. These observations were supported by student perceptions as reported in Survey B, where 54% indicated that they found it easier to set out a bibliography and manage their time and they also noted they felt more confident in their abilities to undertake research. In addition, 53% noted that they had tried to improve on their weaker areas of research skills for this last assignment.

That there were fairly strong swings and drops in student responses between Survey A and Survey B indicates that a student may feel very confident at the completion of the NILU, but it is only when the student actually puts the knowledge, skills, and processes into practice that a more discerning evaluation is made. It may be that the demands of the task in this instance do not accommodate the skills and scaffolding as taught in the ILC. In many instances the students did not recognize when and how to apply the independent learning skills and strategies learnt in the ILC, they did not choose to use them, or they just forgot to use them. As one teacher wrote, "Some possibly don't see the connection. Again, like different types of food to a young child, sometimes processes need to be presented a number of times and in different ways and in different situations for their value to be accepted." Also, the knowledge gained through the NILU is often compartmentalized. For example, when the students were asked whether the ILC had assisted them in other subjects, a student responded, "No. I try to keep my NILU and all my other school work separate."

Pintrich and De Groot (1990) found that motivational beliefs were not enough in themselves to affect academic achievement but a combination of self-regulating skills and strategies and volition were a more successful combination, "Students need to have both the 'will' and the 'skill' to be successful in classrooms . . ." (p. 38).

Affect. In the second survey, Survey B, only 37% agreed or strongly agreed that the skills obtained in the NILU provided them with the confidence to tackle their research assignment. Moreover, only 24% felt that the skills that they had learned in the NILU had enabled them to enjoy their subsequent research assignment. It would appear that the positive affect experienced by students in the NILU was not transferred to the wider curriculum to the desired extent.

Perhaps, as one teacher suggested, the NILU "was an artificial set-up." It could be argued, however, that the "artificial set-up" is actually in the general classroom and even though most teachers believe that they try to engage students in the enjoyment of learning and cater to individual differences, that it is still a very teacher-centered and teacher-directed learning environment with the tasks tightly constructed to meet particular outcomes. This argument seems to be supported by responses to Question 10 in Survey B, Understanding the Task: "How did you understand what you had to do (concerning the last assignment)?" Students at this stage are still very teacher-dependent, as 66% said they asked the teacher.

It appeared that students in general enjoyed their experience of undertaking a NILU, as they found it was easier to remain motivated when they were studying personal interest topics. As one student tellingly remarked, "Working in the ILC was a good experience. I think it is

important for everyone to choose something that they enjoy because it helps you do well because you are interested in it." According to Hunter and Csikszentmihalyi (2003) interest and enjoyment in learning are crucial for adolescent cognitive and psychological development. It is this kind of learning that makes the student feel self-worth and has important and positive effects on all aspects of learning.

Teacher Feedback Regarding Transfer of Skills. Teachers were asked directly if they thought the skills and the strategies that are taught as part of the ILC program had been transferred and, further, whether such skills had resulted in deep learning. Comments from the teachers provided some important insights into the issues concerning the development of independent learning skills in middle school students.

In some cases the very tasks set by teachers in the wider curriculum limit the ability of students to use their independent learning skills and so also limit their ability to engage in deep learning. As one teacher remarked when asked if students had engaged in deep learning, "Yes, if these tasks engage the students in more than a superficial review of the information."

In other cases the scaffolding provided by the teaching of independent learning skills enabled students to break free of the myopic focus on the here and now, and so enable them to think. The Head of Science related a discussion with an eleventh grade biology student with a broken arm and shoulder, who had worries concerning not being able to write and complete the assignment: "I use my [NILU] strategies and my organization (in the log book journal); ...my deep thinking is coming from completing that, and it will make my task of writing my essay much easier."

Student and teacher surveys as well as teacher interviews provided the richest source of information as to what extent students transferred independent learning skills in the wider curriculum. That the demands of the task include those same processes and strategies, as taught in the ILC, to allow students to gain competency and proficiency through repetition and practice is of great importance if transfer is to occur.

CONCLUSION

The findings of this study support the conclusion that the acquisition of deep learning can result from the teaching and learning of independent learning skills and strategies, as practised through the ILC program. The resources, the physical environment, the technological facilities, the ILC program and the support of ILC coaches offer an optimum learning opportunity for students to engage in deep learning. That students work collaboratively with ILC coaches to form their hypotheses should ensure their task offers complexities of higher order thinking and synthesis to engage the student in deep learning. The majority of the topics presented for study were inspirational and give great hope for the future. The only limitations imposed on students are those of their own interests and volition.

The majority of students felt the NILU was a positive and worthwhile learning experience. They enjoyed learning about their area of interest, and they could see some usefulness of the processes for future studies. But did the students actually use the knowledge gained from

undertaking a NILU across the wider curriculum, and so reveal another level in the deep learning process?

While there is some evidence that they did, this study is restricted to a small group, and therefore has its limitations for statistical analysis. Secondly, keep in mind the context of middle school: this study reflects the developmental nature of the students' learning journey. Sometimes it takes a whole year of repetitive procedures for a student to realize the usefulness of the independent learning skills and strategies. Finally, the application of skills from the ILC in the wider curriculum may have been limited by the fact that life in the classroom is still very much a teacher-centred, teacher-directed environment. It may be that the student has not encountered the learning situation that demands those skills to be employed, is unable to recognize the opportunity to use them, or chooses not to use them. If we are looking for great improvements in achievement levels then we are probably missing the main point of the worth of the ILC program: that is, the students' opportunity to engage in learning about something they are very interested in and the pride and enjoyment such a program can elicit, contributing to the cognitive development of middle school students.

Although the group was small and so probably restricted in breadth of study, a great deal of insight was gained in terms of depth of study. A multi-dimensional picture emerges of student learning in terms of transfer of knowledge gained as a result of independent learning, leading to engagement in deep learning in the wider curriculum. The dimensions that frame whether or not students engage in deep learning are a sense of pride in their own abilities as independent learners and their ability to discern when and how they could apply independent learning skills and strategies should the task demand it and should they choose to do so.

RECOMMENDATIONS

Three major recommendations are offered:

1. Continuing teacher workshops are recommended to ensure teachers understand the pedagogy of independent learning and how to apply these skills and processes in each KLA. These workshops would promote the development of a learning community among the teachers, promoting reflection, sharing of effective practices and joint planning. This will allow students to gain competency and proficiency through repetition and practice.

2. The ILC program should be revised to focus on helping students become more aware of how they can transfer the knowledge gained in the ILC to the wider curriculum.

3. Further research needs to be undertaken as to how student interest can be used to build confidence and improve achievement levels and feelings of self-worth as a member of society. If we are to believe the studies of Hunter and Csikszentmihalyi (2003), then the ILC program could prove to be of great benefit to adolescent development. I firmly believe that the ILC program offers much more than this; it teaches students to learn to love learning again, through their own personal interests. Let's face it, the rest follows.

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