International Journal of Self-Directed Learning

Volume 1, Number 2- Fall 2004

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The *International Journal of Self-Directed Learning* is published by the International Self-Directed Learning Symposium Group. It is a refereed, electronic journal founded to disseminate scholarly papers that document research, theory, or innovative or exemplary practice in self-directed learning. It will be published biannually. Submission guidelines can be found at http://www.sdlglobal.com.

International Journal of Self-Directed Learning
College of Education, CO 138
Florida Atlantic University
500 NW California Boulevard
Port St. Lucie, FL 34986
IJSDL@fau.edu

Preface

This second issue of the *International Journal of Self-Directed Learning* reflects the diversity of research and application of self-directed learning in education and training, as well as efforts to explore the varied terms used to refer to SDL and concepts aligned with it. The articles also examine roles and responsibilities of trainers, learners and instructors and report the results of a field test of the translation of an assessment instrument.

The issue begins with Hiemstra's refinement of a lexicon for SDL, an attempt to identify the wide range of terminology used in reference to the phenomenon. It is followed by Hoban and Hoban's examination of the conceptual similarities and differences among and between self-esteem, self-efficacy, and self-directed learning.

These two globally-focused articles are followed by three articles which explore the implementation of self-directed learning strategies in various settings. McCauley and McClelland's research was conducted in undergraduate and post-graduate classes in physics at The University of Limerick, Ireland. Thompson and Wulff worked with graduate students in a technology class and undergraduates in chemistry at a private college in the United States. These studies are followed by a report of integration of SDL strategies in a statewide staff development project working with teachers to enhance their use of technology in the classroom by Hanor and Hayden.

Long and Agyekum's article explores learners' perceptions of instructors' and learners' roles in both graduate and undergraduate settings. Kops and Pilling-Cormick focus on the changing roles of trainers in Canadian organizations with training environments that support a self-directed approach to training. The final article, by Park, assesses language bias in the *Learner Autonomy Profile*.

Reflecting conceptual struggles, efforts to produce a comprehensive lexicon for the field and understand perceptions of roles and responsibilities, research and implementation efforts in various settings, and instrumentation, this issue provides a sampler of the varied developments in the vital arena of research on self-direction in learning.

We hope that the sharing of these efforts through the IJSDL will contribute to further research and understanding.

Huey B. Long and Lucy Madsen Guglielmino, Co-editors

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SELF-DIRECTED LEARNING LEXICON

Roger Hiemstra

ABSTRACT

The importance of a lexicon in defining a discipline or field of study is discussed, followed by a comparison of two in-depth studies of the most frequently used terms, concepts, and associated derivatives in self-directed learning research.

A nephew that graduates with a PhD in math may have a difficult time explaining to his uncle, a PhD holder in sociology, what his dissertation is all about. A daughter working in the field of human geography will receive looks of incomprehension from her parents, both college graduates, when she describes her research in Indonesia on the migration patterns in and out of the mega urban regions by various cultural groups. A physician that specializes in fetal enzyme deficiencies must work very hard to help the expectant parents understand why special treatments involving vitamin therapy are required. The adult educator's self-directed learning research may be overlooked by an elementary school teacher looking for explanations of behavior in the classroom.

In essence, what separates one discipline from another, even sub-disciplines within a broader discipline, is the lexicon and literature base that is developed. Such knowledge enables scholars and eventually practitioners to talk with each other, communicate about their specialty, and continually expand their understanding. In many ways, though, such a developing and often specialized language and literature can exclude people outside the specialty from understanding a developing knowledge base.

Self-directed learning (SDL) as a sub-specialty primarily within the field of adult education is no different. For example, in the three to four decades since the initial scholarship of people like Cyril Houle, Malcolm Knowles, and Allen Tough, literally hundreds of terms, concepts, and definitions associated in some way with self-direction in learning have been developed.

Gerstner (1992) provides a useful discussion of the origin of the term "self-directed learning" from a linguistic viewpoint. She includes a graphic representation from an onomastic approach where the concept is identified and then the various words associated with it are described. Carre (1994) presented a synthesis of the self-directed learning research in France which included information on terminology and definitions. Hiemstra (1997) looked at accumulating self-directed learning terminology during the first eight International Self-Directed Learning Symposia.

This article provides an update of the latter research effort. As this new journal's inaugural issues are launched and become part of the knowledge base, it is anticipated that the language and literature associated with self-direction in learning will continue to expand and evolve.

WHAT'S IN A WORD?

A conference held on the University of Georgia campus in 1986 began an odyssey that has developed considerable interest, knowledge, and scholarship related to SDL. Now referred to as the International Self-Directed Learning Symposium (ISDLS), this annual event resulted, in its early years, in an edited book containing many of the conference presentations. The first eight books from prior symposia, 1986 through 1994, served as a primary database for the initial research (Hiemstra, 1997). A modified content analysis was utilized. Merriam (1991) defines content analysis as "a systematic procedure for describing the content of communications . . . [a] major concern has been measuring the frequency and variety of messages" (pp. 116-117). In this effort, messages, as the unit of analysis, included single words, groups of words, analogous words, and related concepts. The normal content analysis protocol was modified in that categories of meaning were not sought nor was there an effort to do any hypothesis testing.

The protocol used in the initial research involved a graduate assistant experienced with SDL reading through the first symposium book (Long & Associates, 1988) and developing those words, terms, and concepts that in her view represented a universe of separate meanings. The researcher then examined this list and made some clarifications. Next, the revised list served as the foundation for another experienced graduate assistant to reanalyze the first book. A few new terms were developed and agreed to by these three individuals during this process.

Then the remaining books (Long & Associates, 1989, 1990, 1991, 1992, 1993, 1994, 1995) were analyzed and new terms added as they emerged. A frequency count was maintained throughout the analysis effort. A secondary source of data consisting of one other book was used for comparison purposes. It was written by several people, most of whom had participated in the symposia over the years (Confessore & Confessore, 1992). Several new terms were used in the Confessore and Confessore book, indicating the dynamic nature of the field and the continued evolution of SDL language. Comparisons between the ISDLS books and this latter book can be found in Hiemstra's 1977 work.

Words were counted each time they were used with only a very few exceptions. For example, if a word, term, or phrase was repeated three times in a paragraph it received a frequency count of three. However, words or terms displayed in tables, figures, or reference sections were not counted. In addition, a clearly redundant term (e.g., Self-directed Learning Readiness Scale followed immediately by SDLRS in parentheses) only received a frequency count of one. On the other hand, if later in that same sentence SDLRS was again used another frequency count was added. Normal associations between concepts or acronyms were made. For instance, "SDLRS" and "Self-Directed Learning Readiness Scale" were counted as the same term when recording frequencies. As another example, autodidaxy and autodidactic learning were counted as the same term under the heading of autodidactic learning as they were assumed to be closely associated terms, but used slightly differently according to the preference of the author. In other words, each would receive a count of one each time it was used but under the same heading.

In preparation for this current article, follow-up research was completed to determine the lexicon that had developed since then. This was accomplished by analyzing a portion of the next eight

ISDLS books (Long & Associates, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003). [A portrayal of all book and chapter titles that have been developed from these symposia, 1986-2003, is shown in Hiemstra (2002)]. The same modified content analysis procedures described earlier were utilized. However, only 46 chapters, less than a third of the 151 chapters in these eight books, were randomly selected for inclusion because of time and resource limitations. This is an obvious limitation, so the data comparisons shown below need to be considered in light of this.

Table 1 compares the research findings from the two research efforts. The first data column portrays the most frequently used SDL terms, concepts, and associated derivatives from the first eight books and the second column shows the frequencies from the second eight books. [Raw data representing frequency counts on all terms found in both studies are available from the researcher: rogerhiemstra@hotmail.com]

Table 1. Most Frequently Used Self-Directed Learning Terms, Concepts, or Associated Derivatives

Term, Concept, or Derivative	# in 1986-1994 (137 Chpts.)	# in 1995-2003 (46 Chpts.)
Autodidactic (learning)	209	12
Autonomous learning	92	45
Learning environments	0	146
Learning projects	231	47
OCLI (Oddi, 1984)	102	2
SDLPS (Pilling-Cormick's, 1996)	0	273
SDLR (S-D learning readiness)	188	151
SDLRS (Guglielmino, 1977)	1299	346
Self-directed learner	436	67
Self-directed learning	2833	1159
Self-direction in learning	182	163
Self-education	105	0
Self-efficacy	107	151
Self-planned learning	118	44
Self-regulation/regulated learning	38	64
Self-taught adults	109	0

There were some noticeable changes in the second eight-year period given the limitations obvious from using only a partial database for the research. Autodidacticism, learning projects, self-directed learner, self-education, and self-taught adults appear to have diminished in their usage given the sample selected for the second period. The use of language referring to the two most popular instruments in the first eight-year period, the OCLI and the SDLRS, diminished. Another instrument, the SDLPS, had not been developed by 1995, but it did receive considerable mention in the sample selected for the second time period.

The term self-directed learning, by far the most popular term in the first period as might be expected, appears to have even increased in use during the second period. Another term, self-

direction in learning, also appears to have increased in frequency if a weighting is added to the third column to approximate a total if all chapters had been selected. Three other terms, learning environments, self-efficacy, and self-regulation appear to have been used frequently during the second time period.

As was noted in the 1997 study, an amazingly large number of terms were found. There were 205 different terms used in the initial eight books, and another 53 words were introduced in the second eight-year period. The SDL sub-field is rapidly reaching the point where a discipline-specific thesaurus is needed. Fascinating, too, is the number of creative ways the term "self-directed learning" actually can be said. Following is a list of some of them:

Assuming primary responsibility	Self-educated
Asynchronous learning environment	Self-guided learning
Independent learner	Self-managed learning
Individual responsibility toward learning	Self-regulated learning
Inner directed	Self-taught
Intrinsically motivated learning	Solitary learning
Isolated learning	Student generated learning
Learning without a teacher	Teacherless individual learners
Self-acquired knowledge	Unsupervised learning

The second eight-year period also brought some interesting new terms associated with SDL, although not unexpected given the technological developments occurring between 1996 and 2003. These included such terms as distance learning, e-learner, e-mentoring, self-directed learning in an on-line environment, virtual learner, and web-based learning. The next eight years of research and scholarship related to SDL and future work beyond that no doubt will bring many new words, concepts, and even surprises.

CONCLUDING THOUGHTS

This new journal, along with the annual International Self-Directed Learning Symposium, should help bring about those new research perspectives and continue the growth in the knowledge base for some time to come. For example, future research is needed to better understand the lexicon associated with SDL. An analysis of the language used in all chapters of the most recent annual books might reveal important new terms. In addition, there are many other books, journal articles, dissertations, web pieces, and other sources in North America that should be examined. Another large untapped source of information about SDL language, terms, and concepts are the many scholarly resources outside of North America.

This article did not examine very much of the SDL literature outside of North America, and none of the literature in other than English, to understand the influence it is having on an expanding SDL knowledge base. There are obvious cultural, governmental, and societal differences throughout the world that impact the way in which learners perceive their ability to take personal responsibility for learning endeavors. A sharing of such differences, especially across language barriers, is needed. Future research also must carry out an analysis of the impact such literature is having on a worldwide understanding of SDL.

This new journal can serve as an important outlet for those scholars throughout the world who are willing to share expertise, research findings, and insights regarding the impact self-direction in learning is having on individuals, organizations, and even societies. There no doubt will be challenges in terms of language differences, cultural expectations, and even the limitations the journal will have in terms of numbers of articles that can be accepted. However, challenges often are a means for expanding the quality of our intellectual development. It will be exciting to watch this sharing, growth in knowledge, and intellectual development unfold.

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Roger Hiemstra is professor and Chair Emeritus of Adult Education at Elmira College. He has been an adult education professor since earning his Ph.D. in 1970. Published widely, he is a member of the International Adult and Continuing Education Hall of Fame, and co-author (with Ralph Brockett) of *Toward Ethical Practice: A Guide for Adult and Continuing Educators*, Krieger Publishing, 2004. (rogerhiemstra@hotmail.com)

SELF-ESTEEM, SELF-EFFICACY AND SELF-DIRECTED LEARNING: ATTEMPTING TO UNDO THE CONFUSION

Sheila Hoban and Gary Hoban

ABSTRACT

The constructs of self-esteem, self-efficacy, and self-directed learning have been used by educators and psychologists alike to explain human behavior and learning. While all three constructs have been a significant force in helping us describe how people learn and how we, as educators, can enhance their abilities to learn, research indicates that the distinction among the constructs is often blurred and that there is a perception that each is a pre-requisite for the other. This paper explores the definitions of self-esteem, self-efficacy and self-directed learning and examines how these three constructs are separate but interrelated. Finally, ideas for increasing students' motivation and readiness for learning, including self-directed learning, are offered, based on the three constructs studied.

The constructs of self-esteem, self-efficacy, and self-directed learning have been used by educators and psychologists alike to explain human behavior and learning. While all three constructs have been a significant force in helping us describe how people learn and how we can enhance their abilities to learn, there has been a tendency to blur distinctions among the terms and to suggest that each is a pre-requisite for the other. Perhaps the greatest blurring of distinctions occurs when one considers self-esteem, often thought of as being the foundation of self-efficacy and self-directed learning. This blurring of the distinctions among the constructs can only lead to confusion when one tries to discover ways to help people understand how they learn and to motivate them to become learners, self-directed or otherwise. It is not unusual to confuse self-esteem with self-efficacy, to substitute one's sense of self-worth for a sense of ability or competence validated by success experiences. This confusion extends to self-directed learning whenever the assumption is made that one can or cannot be a self-directed learner unless he or she has high self-esteem and high self-efficacy.

Almost a generation has passed since all three of the constructs have become staples in the literature of psychology and learning. In fact, self-esteem is a construct that has been used since 1890 when it was introduced by psychologist William James (Reasoner and Gilberts, 1992; Mruk, 1999). High self-esteem, perhaps because it has been considered in so many aspects of life beyond the scope of education, is almost accepted as a fundamental aspect of what it means to be a person. High self-esteem virtually defines one's perception of his or her worthiness to do or be anything while low self-esteem is the opposite, a lack of worthiness. Yet self-esteem continues to be an elusive construct with multiple definitions. Self-efficacy is not so much worthiness as it is a perceived sense in one's ability to actually do something successfully. High self-efficacy suggests one has the belief that he or she can indeed do what he or she needs or wants to do while low self-efficacy is the converse. Self-efficacy, like self-esteem, is a construct that can be applied to many endeavors in life—from self-improvement (stopping smoking, losing weight, etc.) to ways to enhance one's ability to be a learner.

Self-directed learning is an even more elusive construct that lends itself to a multitude of definitions. In the end, though, it is a construct that moves away from the traditional notions of education and instruction and places the responsibility for learning on the individual, regardless of the methodology of instruction. While there have been self-directed learners from the beginning of educational history, it is in the recent past that this construct has come into prominence, especially for adult learners, as they embark on educational endeavors such as online instruction that take them beyond traditional classrooms and schedules and instructional delivery models.

There has been research over the past decade that has dealt with what appear to be the inter-relationships of self-esteem, self-efficacy, and self-directed learning. Some of it has been presented at the International Symposia for Self-Directed Learning over the years. For the most part, this research has demonstrated a strong if not significant relationship among the constructs. These inter-relationships, however, may also have led to confusion over what these constructs are and how they influence each other. More to the point, since self-esteem is often confused with self-efficacy, if not in definition but in effect, the question arises as to whether or not the constructs operate as independent variables when they interact with self-directed learning. And this question leads to considerations of other issues such as:

1. Must one have high self-esteem in order to have high self-efficacy, regardless of the endeavor?
2. If one has low self-esteem, does it follow that one will have low self-efficacy, regardless of the endeavor?
3. Could one have low self-esteem in one area of life but high self-efficacy in another area of life?
4. If one is a successful self-directed learner, must one have high self-esteem and high self-efficacy in all areas of endeavor or could one have high self-efficacy for self-directed learning but low self-esteem in general?

While these questions are by no means exhaustive, they are the kinds of issues that are raised when the confusion over the constructs exists. It is not likely that any definitive resolution or even elimination of the confusion can be achieved, but it is hoped that reflection upon it and any subsequent dialogue that results will contribute to a greater clarification of how educators can use what they know about the constructs to enhance learning for their students.

In reviewing the literature to examine these questions, the authors found shifting definitions of the constructs of self-esteem, self-efficacy, and self-directed learning which merit acknowledgment. It is the authors' conclusion, however, that there are distinguishing characteristics of each construct and that the constructs do indeed stand as independent variables when discussing learning. To keep the following discussion focused, the authors have adopted the following operational definitions of the constructs.

Operational Definitions

Self-esteem. Often self-esteem is viewed solely as being an affective quality, “feeling good” about oneself whether one has merited such feelings by behavior or not. This

conceptualization of self-esteem has led some researchers to discount the value of self-esteem as a construct. For purposes of the present discussion, the authors operationally define self-esteem based on the Mruk (1999) model. This model defines self-esteem as a person's self-perception based on the two components of worthiness and competency. Self-esteem is defined as authentic when a person exhibits a positive level of competence and a congruent, positive feeling of worthiness. Defensive self-esteem, which occurs when there is a lack of congruence between competency and feelings of worthiness, is distinguished from authentic self-esteem.

*Self-efficacy***.** Based on Bandura (1977), self-efficacy is defined as one's confidence that he or she has the ability to complete a specific task successfully and this confidence relates to performance and perseverance in a variety of endeavors.

*Self-directed learning***.** Based on Knowles (1975), self-directed learning is defined as a process in which individuals take the initiative to identify their learning needs, formulate learning goals, identify resources for learning, choose and implement learning strategies and evaluate learning outcomes.

Throughout this paper, the authors will examine selected research relating the constructs of self-efficacy and self-esteem to self-directed learning in terms of these operational definitions and then consider what the implications of these relationships are. Finally, it is their intent to consider how these constructs and relationships can be used to enhance self-directed learning.

SELF-ESTEEM

Although self-esteem is one of the most widely studied individual variables in both psychology and sociology (Wells and Marwell, 1976), as a construct it is often poorly defined. A search of the PsychInfo database on January 15, 2003 yielded 10,745 sources when the keyword "self-esteem" was used alone. When the keyword "self-esteem, definition of" was used, there were only two sources cited and the only relevant article was written in 1965. Similarly, a review of books on the subject of self-esteem indicates most of the development of the concept of self-esteem was done in the 1960s and 1970s. The large number of citations involving self-esteem indicates it is still a widely studied variable, although its definition may vary from researcher to researcher.

To begin a study of self-esteem, it is important to look at the historical development of the concepts of the "self" and "self-esteem." William James is considered to be the earliest psychologist to look at the "self" and his writings are still used to understand the concept of self-esteem. James (1890, as cited in Wells and Marwell, 1976, p. 15) stated, "A man's self is the sum total of all that he CAN call his." James' belief was that the self was entirely conscious and a person's self-esteem was dependent on how well his/her achievements fulfilled his/her aspirations (Wells and Marwell, 1976). This idea of self-esteem being a product of an individual's evaluation of how well he or she measures up to self-imposed standards has been used in a number of self-esteem studies.

Several theorists look at self-esteem as existing only in relationship to others. Cooley (1902) coined the term *looking glass self*, referring to his belief that a person's self-concept is

determined by other peoples' reactions to him or her (Wells and Marwell, 1976). George Herbert Mead (cited in Forman, 1988) put the notion of self and self-evaluation in a social context. He believed that a person takes on the roles and attitudes of the groups of which he or she is a member. He stated:

> So the self reaches its full development by organizing these individual attitudes of others into the organized social or group attitudes, and by thus becoming an individual reflection of the systematic pattern of social or group behavior in which it and the others are all involved… (p. 9.)

In other words, Mead sees individuals taking on the values of the people in their living groups (family, school, and church, for example) and evaluating themselves against these group standards.

As social psychologists were developing their theories, several neo-Freudian psychoanalysts were also exploring the concepts of the self and self-esteem. They developed their theories from their clinical practices, based on patient cases. Harry Stack Sullivan agrees with Mead on the social roots of personality development and places emphasis on a person's awareness of other peoples' evaluations of him/her. Sullivan postulates that individuals continually guard against a loss of self-esteem, which would produce anxiety (Coopersmith, 1967). Karen Horney also explores the social context of self-esteem development, notably in the parent–child relationship. Dysfunctions in this relationship that produce a low self-esteem include domination, indifference, lack of respect, disparagement, lack of admiration, lack of warmth, isolation and discrimination (Coopersmith, 1967).

Alfred Adler is noted for his emphasis on inferiority as a basis for a person developing a low self-esteem. He defines the term "organ inferiority" to describe an actual physical disability that a person might have, such as blindness, or muscle weakness, which causes him/her low self-esteem. He also believes that no one escapes childhood without some feelings of inferiority, whether it is from "organ inferiority" or feelings of social inferiority. Like Horney, he emphasizes the importance of parental acceptance and encouragement as a way to compensate for these weaknesses. Interestingly, Adler believes that children who are pampered will have an unrealistically inflated value of their self-worth, becoming self-centered and demanding (Coopersmith, 1967). This idea becomes important as we explore the definition of self-esteem and the behaviors associated with it.

Two other researchers who have significantly contributed to the development of the construct of self-esteem are Morris Rosenberg, a sociologist, and Stanley Coopersmith, a psychologist. Coopersmith studied the development of self-esteem in pre-high school age children. He sees self-esteem as involving both a self-evaluative and affective (feeling) component. He developed a self-esteem inventory that has been widely used in research. Coopersmith looks at true self-esteem (people who actually feel worthy) and defensive self-esteem (people who actually feel unworthy, but deny these feelings) (Wells and Marwell, 1976). The concept of defensive self-esteem is further developed by Mruk (1999).

Rosenberg also developed a self-esteem inventory, the Rosenberg Self-Esteem Scale, a 10-item Likert scale in which respondents mark "strongly agree" to "strongly disagree." Sample items include "On the whole, I am satisfied with myself" to "I certainly feel useless at times" (Rosenberg, 1979). This scale has been validated through many studies and is still widely used today. In his work on self-esteem, Rosenberg (1979) offers one of the few clear definitions of what self-esteem is and what it is not:

> In the present discussion, self-esteem signifies a positive or negative orientation toward an object. When we characterize a person as having high self-esteem, we are *not* referring to feelings of superiority, in the sense of arrogance, conceit, contempt for others, overweening pride: we mean, rather, that he has self-respect, considers himself a person of worth. Appreciating his own merits, he nonetheless recognizes his faults, faults that he hopes and expects to overcome. The person with high self-esteem has *philotimo*, not *hubris*; he does not necessarily consider himself better than most others but neither does he consider himself worse. The term "low self-esteem" does not suffer from this dual connotation. It means that the individual lacks respect for himself, considers himself unworthy, inadequate, or otherwise seriously deficient as a person. (p. 54)

In this definition, Rosenberg clearly distinguishes between a true self-esteem and what is often considered pseudo-self-esteem. Often the confusion lies in interpreting individual behaviors such as arrogance or conceit as self-esteem, when in reality they are symptoms of pseudo-self-esteem.

In the late 1960s, when both Coopersmith and Rosenberg were conducting their research on self-esteem, a third researcher, Nathaniel Brandon, explored the humanistic aspects of self-esteem (Mruk, 1999). Brandon (cited in Mruk, 1999) saw self-esteem as an existential need:

> Man experiences his desire for self-esteem as an urgent imperative, as a basic need. Whether he identifies the issue explicitly or not, he cannot escape the feeling that his estimate of himself is of life-and-death importance. No one can be indifferent to the question of how he judges himself; his nature does not allow man this option. (pp. 127-128)

This profound statement describes self-evaluation and self-esteem as a basic motivator for human behavior. Brandon also was the first to define self-esteem as equal measures of worthiness and competence. Brandon (cited in Mruk, 1999) states,

> Self-esteem has two interrelated aspects; it entails a sense of personal efficacy and a sense of personal worth. It is the integrated sum of self-confidence and self-respect. It is the conviction that one is competent to live and worthy of living." (p. 20.)

As exemplified by the Rosenberg quote, theorists distinguish behaviors based on authentic self-esteem from those based on pseudo-self-esteem, often called defensive or discrepant self-esteem. Mruk (1999) offers a model of self-esteem, based on the components of worthiness and

competence that is helpful in distinguishing high and low self-esteem from what he terms defensive self-esteem. Figure 1 helps illustrate this concept.

Figure 1. Mruk Self-Esteem Matrix (Mruk, 1999, p. 165)

Worthiness

Defensive Self-esteem, Type I Narcissistic Self-centered -10 -5	+10 High self-esteem +5 Authentic Medium Self-esteem 0 +5 +10
Competence Negativistic Depressed Low- self-esteem	Overachieving *Competence* Antisocial -5 Defensive self-esteem, Type II -10

Worthiness

Figure 1 depicts a model of self-esteem that accounts for defensive, or pseudo-self-esteem. The upper left of the quadrant, Defensive Self-esteem, Type I, indicates the possibility that some people would see themselves as worthy, but not have a sense of competence. These people are vulnerable when their competence is called into question; they brag about minor accomplishments; they become very defensive when given negative feedback; and blame others for their problems (Mruk, 1999). At a level which psychologists would consider clinically significant, this becomes narcissistic personality disorder. The American Psychiatric Association's Diagnostic and Statistical Manual, IV (DSM IV) (1994) describes the criteria for narcissistic personality disorder:

> A pervasive pattern of grandiosity (in fantasy or behavior), need for admiration, and lack of empathy beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:
>
> 1. Has a grandiose sense of self-importance (e.g., exaggerated achievements and talents, expects to be recognized as superior without commensurate achievements).

2. Is preoccupied with fantasies of unlimited success, power, brilliance, beauty, or ideal love.
3. Believes that he or she is "special" and unique and can only be understood by, or should associate with, other special or high status people (or institutions).
4. Has a sense of entitlement, i.e., unreasonable expectations of especially favorable treatment or automatic compliance with his or her expectations.
5. Is interpersonally exploitative, i.e., takes advantage of others to achieve his or her own needs.
6. Lacks empathy: is unwilling to recognize or identify with the feelings and needs of others.
7. Is often envious of others or believes that others are envious of him or her.
8. Shows arrogant, haughty behaviors or attitudes. (p. 661)

Mruk (1999) also defines Defensive Self-Esteem, Type II as when a person has a high level of competence and a low sense of worthiness. This leads to overachieving in hopes of overcoming feelings of inadequacy. Mruk (1999) defines the extreme clinical form of this as Antisocial Personality Disorder, when a person will resort to aggression and violation of the rights of others to gain recognition. Mruk's (1999) definition of defensive self-esteem can be compared to Coopersmith's (Wells and Marwell, 1976) earlier definition of defensive self-esteem as feeling unworthy but denying it. Mruk's model further classifies and differentiates types of defensive self-esteem and offers a model of how these constructs affect behavior. This is important because behaviors associated with both Type I and Type II Defensive Self-esteem can often look like authentic self-esteem at first glance.

It is also important to distinguish between authentic and defensive self-esteem because frequently critics of self-esteem cite behaviors and attitudes more descriptive of defensive self-esteem as proof that self-esteem programs are not effective. For example, Colvin (2000) questioned the use of self-esteem programs in the schools. He states that researchers have yet to find a link between self-esteem and academic performance. He states that over 10,000 published articles have attempted to make that link, but have failed. In fact, he suggests that self-esteem may actually be harmful. Colvin goes on to note that in a Harvard Mental Health Letter, Carnegie Mellon University psychology professor Dawes stated, "The false belief in self-esteem as a force for social good can be not just potentially but actually harmful. There's definitely a rethinking going on.'" (p. 29). Colvin (2000) cites the shootings at Columbine High School as a possible example of self-esteem gone wrong. He cites entries from Eric Harris' (one of the shooters) diary indicating he had a hyper-inflated view of himself and thought himself superior to just about everyone. Yet this attitude is far more consistent with Mruk's (1999) definition of defensive self-esteem and DSM IV (1994) definition of narcissistic personality disorder and antisocial personality disorder.

Looking at the developmental history of self-esteem, one can see three themes emerging from the work of the researchers. The first theme is that self-esteem is comprised of both an affective (emotional) component and a self-evaluative component. The second theme is that self-esteem contains the components of worthiness (affective) and competence (manifested in behavior). The

third theme is that there is a clear distinction between authentic self-esteem and defensive self-esteem, although the two are often confused when evaluating resulting behavior.

What are the implications for education? Mruk (1999) points out that people with defensive self-esteem, type I (high self-regard but low competency) are the very ones that critics of self-esteem training in the schools are concerned about. They fear that these people will have a high self-regard, but a lack of basic competencies in age-appropriate academic endeavors. Colvin (2000) goes as far as to say that teaching people high self-esteem may be harmful. Reasoner (2000), a proponent of self-esteem training in the schools, offers insight into the dilemma:

> The kind of self-esteem I am referring to is not derived from "warm fuzzies," "happy feelings," or lots of "happy face stickers." It is quiet confidence in one's potential and involves both feelings of self-efficacy as well as self-respect. It is based on the development of multiple skills such as the skill of self-examination and self-acceptance, interpersonal skills, goal-setting skills and systemic skills. (p. 30)

Reasoner very clearly links self-esteem with confidence and with self-efficacy, consistent with the competence component of self-esteem. The next section will analyze the components of self-efficacy, especially as it is applied to education.

SELF-EFFICACY

The construct of self-esteem with its many dimensions appears to exist independently of self-efficacy. Whether it exists as a pre-requisite to attaining self-efficacy or is strongly related to self-esteem, as Reasoner suggests, is open to discussion.

The construct of self-efficacy is most associated with the work of Albert Bandura. In 1977, Bandura observed that in terms of the construct of self-efficacy one could execute specific behaviors to produce a desired outcome. One's self-efficacy is one's confidence that he or she has the ability to complete a specific task successfully, and this confidence relates to performance and perseverance in a variety of endeavors.

Bandura (1977) identified four factors that can raise or lower self-efficacy, which, as has been noted above, can be more clearly directed toward real capability as opposed to perceived competence. One of these factors is the *mastery experience*. Mastery of a specific task has the greatest influence in promoting high self-efficacy in the future, while failing has an equal but opposite effect. The second effect, *vicarious experience*, refers to observing a model and imitating the model. If the person observing the model judges himself or herself to be like the model in the ability to successfully complete a task, he or she will be able to raise his or her self-efficacy. Again, the converse holds; seeing the identified-with model fail despite a high level of effort lowers the person's perception of his/her own efficacy. The stronger the similarity between the person and the model, the stronger the model's success or failure will be on the person's perceived self-efficacy.

Verbal persuasion is also a factor in helping a person raise his or her self-efficacy with encouraging words. The converse is also true; criticism provides a deleterious effect on a person's perceived self-efficacy. Indeed, it is much easier to undermine self-efficacy beliefs than it is to increase them by verbal persuasion. If a person does not have a successful mastery experience after being positively verbally persuaded, he/she will revert to his/her previous level of efficacy belief (Bandura, 1995). Efficacy builders, in addition to verbal persuasion, structure situations for success, so the person can experience mastery, increasing his/her sense of self-efficacy. Success is measured by self-improvement rather than defeating another (Bandura, 1995).

There are also *physiological and emotional states*, which suggest that the level of arousal (such as anxiety or lack of it) an individual experiences affects whether or not one has high or low self-efficacy. A person can interpret his/her physiological response to stress--muscle tension, rapid heart rate, and sweaty palms--as indicators of poor performance. In addition, mood affects perceived self-efficacy; positive mood enhances perceived self-efficacy while a depressed mood diminishes it. (Bandura, 1995). Bandura believes that perceived self-efficacy plays an important role in how people cope with stress. He argues that it is not the stressor, per se, that causes the stress reaction, but rather the person's belief that he/she will not be able to cope with it that leads to diminished self-efficacy. He sees perceived self-efficacy as a factor in the worrisome, threatening ruminations of anxiety and depression. He believes that it is not the frequency of disturbing thoughts that is the problem as much as the thinker's belief that he/she has no control over them (low perceived self-efficacy). Thus, Bandura sees a guided mastery treatment in being effective in helping a person cope with his/her anxiety provoking thoughts. (Bandura, 1995).

Bandura also addresses the importance of self-efficacy in intellectual and academic achievement. He links it to the concept of self-regulated learning, which is necessary for life-long self-directed learning (Bandura, 1995). Zimmerman (in Bandura, 1995) offers this definition, "Perceived academic self-efficacy is defined as personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performance" (p. 203). Bloyd, Hoban, and Wall (1995) adopted Schwarzer's (1992) operational definition of self-efficacy that has served as a foundation for research relating self-efficacy and self-directed learning over the years:

> Unlike self-esteem, which is a global concept, self-efficacy refers to one's confidence that he or she has the ability to successfully complete a specific task. Self-efficacy is not perceived as an "all-or-nothing" phenomenon, but rather as a percentage (e.g. an individual may be 80 % confident in his or her ability to get an A on a physics examination). The construct of self-efficacy has been widely used to explain willingness to engage in specific behaviors, perseverance in those behaviors when faced with adversity and successful completion of the behaviors. (Bloyd, Hoban & Wall, 1995, p. 199)

Bandura (1992) writes, "The stronger the perceived self-efficacy, the higher the goals people set for themselves and the firmer the commitment to them" (p. 10).

There has been other evidence that self-efficacy can be a strong factor in understanding performance in academic endeavors as well as endeavors in other fields. Lent, Brown, and Larkin (1984), for example, found that academic self-efficacy predicted academic performance in science and engineering programs as well as perseverance in these demanding programs. Schwarzer (1992) noted that self-efficacy often has had an impact on performance and perseverance independent of actual ability levels.

Self-efficacy, as has been noted, is not global; rather, it is domain or content specific. Consistent with Bandura's 1997 observation cited above, Pajares (1996) maintained that one's self-efficacy is domain specific. In other words, one has self-efficacy for one thing, perhaps mathematics but not another, writing. This was also confirmed in the studies of Bloyd, Hoban, and Wall (1995), who studied self-efficacy in writing; Wall, Hoban and Sersland (1996) and Hoban and Sersland (1997) who studied self-efficacy and mathematics with different learner populations; and Hoban and Sersland (1999, 2000), who investigated the relationship of self-efficacy to readiness for self-directed learning

In these latter studies, in fact, Hoban and Sersland discovered that it was not unusual for an individual to have self-efficacy in one domain but not another. On the other hand, sometimes the student's self-efficacy did not reflect his or her capability. Some reported themselves to have high self-efficacy in all academic endeavors, even though, using objective measures such as standardized tests, that was not the case. This global self-efficacy may suggest the confusion students had between determining their overall feeling about their self worth (self-esteem) as opposed to their perception of their actual capability. In other words, students actually thought they were more capable than they really were because they equated their capability with their assessment of their worth. For example, Bloyd, Hoban, and Wall (1995) noted that men considered themselves to have as high or higher self-efficacy than women when asked about perceived capability for writing even though the women actually performed at a higher level. In their study of self-efficacy and mathematics, Wall, Sersland and Hoban (1996) found that women rated their self-efficacy as lower than men but actually performed on a standardized mathematics assessment instrument at or above the level of the men. This may be a gender issue that may, in the end, be more related to self-esteem than self-efficacy, with the confusion of self-worth actually interfering with an honest sense of perceived capability, which is a critical component of self-efficacy. Interestingly enough, though, Hoban and Sersland (1999), when working with a middle school population, found that the students' self-efficacy did not suggest a misconception of their capabilities and a false self-efficacy. Perhaps with a younger population there is no confused sense of worth and competence.

Pajares (1997) reaffirms these observations. He cites other studies relating to writing that essentially confirm what Bloyd, Hoban, and Wall found in their investigation of writing capability and Hoban and Sersland found in their studies of self-efficacy and mathematics—that there can be a disconnect between their perceived self-efficacy and their actual performance. Pajares (2000) further observes that it is important to keep the construct of self-concept (which could be construed to be self-esteem) distinct from the concept of self-efficacy.

The sensitivity to context and greater specificity afforded by self-efficacy assessments have resulted in findings that point toward the superiority of self-efficacy over self-concept beliefs as

predictors of related academic outcomes (Bandura, 1997; Bong and Clark, 1999, Pajares, 1996; Schunk, 1989, 1991). Graham and Weiner (1996) observed that Bandura's argument that self-efficacy has been a much more consistent predictor of behavior and behavior change than have any of the other closely related expectancy variables cannot be disputed. Self-efficacy and self-concept represent different ways of thinking about one's self. As distinct psychological constructs, they should be understood, defined, and used differently.

More simply put, self-efficacy can operationally be defined as perceived capability that can have an influence on mastery. It is dependent on mastery and is related to success in a variety of endeavors. It can be raised and lowered, dependent upon situations and personal experiences. It is not a global construct, as self-esteem is generally thought to be, and is grounded in success or failure. Because it is not a global concept, it can be examined in any number of contexts, specifically learning and self-directed learning.

THE RELATIONSHIP BETWEEN SELF-ESTEEM AND SELF-EFFICACY

Schwarzer's (1992) observation that self-efficacy has an impact on performance and perseverance, independent of actual ability levels, suggests how self-efficacy can easily be misconstrued for self-esteem. A person who thinks he or she can may actually be able to do something that otherwise he or she should not be able to do—almost a variation on the childhood classic *The Little Engine that Could.* If one believes that success is possible, then perhaps it is. Or is it?

Mruk (1995) discusses the difficulty in separating the constructs of the self: self-esteem, self-efficacy, self-regard, self-love, self-respect, self-acceptance, self-image and self-concept. He states:

> Another possibility is to see this complexity as a necessary, even vital aspect of self-esteem research. It simply reflects the fact that self-related phenomena coexist in an intricate, multidimensional, interlocking network of structures that depend on each other for existence. Although this condition is not an excuse for poor research or analysis, it does set the parameters by which we work and therefore limits the kind of certainty we can realistically expect (p. 34).

Judge, Erez, and Thoreson (2002) did intensive research, including a meta-analysis and three descriptive studies to examine the relationship between self-esteem, neuroticism (emotional stability or emotional adjustment), locus of control and generalized self-efficacy. They hypothesized that these traits are not independent traits, but rather are components of a larger, second-order trait. Results confirmed their hypothesis that a second order factor contributed much of the variance among the measures. They suggest that neuroticism in its broad sense is the second order factor under which the traits of self-esteem, generalized self-efficacy and locus of control are subsumed. They recommend that measures of neuroticism on personality inventories be expanded to include measures of subjective self-worth and competence. They also suggest that the vast literature studying these four traits should be integrated.

Reasoner and Gilberts (1992) discuss five essential factors constituting self-esteem: security, identity, belonging, purpose and competence. They observed that students with high self-esteem would have most of the attributes of confidence, security and belonging resulting in feeling competent in the school efforts. The opposite is true for students with low academic self-esteem.

In the self-esteem inventory that Reasoner and Gilberts (1992) describe, the competence subscale reveals a student's sense of inner controls over his or her behaviors that allow him or her to be successful at school. Academic performance, of course, is a key indicator of being successful at school. Thus, competence, or perceived competence, which would translate into mastery of academic content and application, would appear to be a part of a student's self-esteem. Reasoner and Gilberts rank purpose and competence as the higher order of self-esteem and note, citing Ladd (1989), that the strong relationship between high self-esteem and school performance has been well documented in the research literature.

The aspects of purpose and, especially, competence sound very much like self-efficacy, but the question remains—are they similar or is self-efficacy different, in its own way, from self-esteem? Bandura (1997) would argue that they are different:

> The concepts of self-esteem and perceived self-efficacy are often used interchangeably as though they represented the same phenomenon. In fact, they refer to entirely different things. Perceived self-efficacy is concerned with judgments of personal capability, whereas self-esteem is concerned with judgments of self-worth. There is no fixed relationship between beliefs about one's capabilities and whether one likes or dislikes oneself. Individuals may judge themselves hopelessly inefficacious in a given activity without suffering any loss of self-esteem whatsoever, because they do not invest their self-worth in that activity (p. 11).

Mruk (1999) addresses this potential confusion in his discussion of the link between self-esteem and behavior. Using his conceptualization of self-esteem as consisting of both worthiness (affective) and competence (behavior), he argues that behavior and self-esteem are closely related through the competence portion of the definition. He observes, "The strongest, or at least most measurable, evidence of a causal connection between self-esteem and behavior occurs in the terms of the competence dimension of self-esteem, because that is more behavioral than affective" (p. 99).

Mruk points out that those who would dismiss self-esteem as nothing but a "feel good" concept are referring only to the worthiness aspect of self-esteem, which is its affective component and ignoring the second, equally important component of competency. He quotes Seligman (as cited in Mruk, 1999) as an example of an incomplete definition of self-esteem, "What California (and every state) needs is not children who are encouraged to feel good, but children who are taught the skills of doing well—how to study, how to avoid pregnancy, drugs, and gangs, and how to get off welfare" (p. 99).

Mruk respectfully disagrees with both Bandura and Seligman, in their views of self-esteem as a unidimensional construct consisting of the worthiness component only. He argues that criticizing the concept of self-esteem as affective only, while ignoring the competency aspect

(and its resulting behavior) is looking at only half the picture. He does posit a clear link between competence and worthiness and ultimately proposes a theory that the two are inter-related to the degree that one's worthiness and one's competence can influence each other and determine whether one has high or low self-esteem. In the end, it would appear that despite efforts to keep the constructs distinct, as often as not perceived competence is substituted for actual capability.

The above discussion has looked at a number of theories of both self-efficacy and self-esteem. It is evident that there is not yet a consensus for conceptualizing self-esteem or self-efficacy. Mruk's (1999) matrix of self-esteem, including both worthiness and competence, is, in the authors' judgment, the most complete model for operationalizing the construct of self-esteem. It is apparent that the competence (behavioral) portion of self-esteem is inevitably linked with the concept of self-efficacy as operationally defined (in the introduction to this paper) based on Bandura. These variables are separate, but interrelated.

IMPLICATIONS FOR SELF-DIRECTED LEARNING

John W. Gardner, a former U.S. Secretary of Health, Education and Welfare, stated in 1963, "The ultimate goal of the educational system is to shift to the individual the burden of pursuing his [sic] own education." (as cited in Zimmerman, 1995). There is a clear mandate for self-directed learning. Bandura (1995) states that as the world shifts from an industrial society to an information society, education is more important for a person to live a full, engaged and productive life. He further states:

> The rapid pace of technological change and accelerated growth of knowledge are placing a premium on capability for self-directed learning. Good schooling fosters psychosocial growth that contributes to the quality of life beyond the vocational domain. A major goal of formal education should be to equip students with the intellectual tools, efficacy beliefs, and intrinsic interests to educate themselves throughout their lifetime. (p. 17)

Bandura clearly links self-efficacy to self-directed learning:

> Efficacy beliefs play a vital role in the development of self-directed life-long learners. Students' belief in their ability to master academic activities affects their aspirations, level of interest in intellectual pursuits, academic accomplishments, and how well they prepare themselves for occupational careers… (p. 17)

Even if one acknowledges, as Gardner clearly does, that self-directed learning was and will continue to play an important part in education and even if one agrees with Bandura that self-efficacy is related to self-directed learning, it is necessary, first, to define that construct. Unfortunately, that is not easy. Self-directed learning, perhaps even more so than self-esteem and self-efficacy is an elusive concept. Perhaps the most encompassing definition of self–directed learning can be found in Candy (1991) who writes:

> In self-direction many of the enduring and at times contradictory preoccupations of education converge. Self-direction is at once a social and psychological construct, a philosophical ideal, and a literal impossibility; an external manifestation and an internal tendency; both the beginning and the end of lifelong learning; the foundation stone and the keystone of a learning society; a supplement to and a substitute for the formal education system; a vehicle for the mastery of established knowledge and for the transformation of personal understandings; simultaneously a process and a product, a precondition and a purpose. (p. 424)

The continuing elusiveness of a definition has been apparent in the International Symposia on Self-Directed Learning papers that have been published over the years. In "Understanding Self-Direction in Learning," Long (2000), writes, "Reams of paper have been used over the past 30 years to attempt to explicate and understand self-direction in learning....Definitions are too numerous to list." Long (1987) also defined self-directed learning as "a personally directed purposive mental process accompanied and supported by behavioral activities involved in the identification and searching out of information." (p. 3) Knowles (1975) defined self-directed learning as:

> A process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. (p. 18)

In his discussion of the definitions of self-directed learning, Long (2000) identifies four conceptualizations that influence how one thinks about this construct. One of these conceptualizations is "...the psychological concept based on my ideas of self-control over the cognitive process of learning" (p. 14). Among the dimensions that affect one's definition of self-directed learning are the primary dimensions of motivation, metacognition, and self-regulation and the secondary dimensions of choice, competence, control, and confidence.

In their definitions, both Candy and Long, among others, open the door to the suggestion that the entire process of self-directed learning is a most complex endeavor which somehow allows for the intertwining of self-esteem, self-efficacy, and self-directed learning. What this intertwining is and how strong it is or should be is open to discussion.

It was noted above that Colvin (2000) observed that there is little relationship that can be established between self-esteem and academic performance. On the other hand, it has been consistently demonstrated that that self-efficacy has proven to be a powerful predictor of academic success (Schwarzer, 1992). It would definitely appear that there is a powerful link between self-efficacy and learning in different domains, including self-directed learning. It would also appear that there is strong link, but perhaps not as direct, between self-esteem and self-directed learning.

Over the years Guglielmino and others have demonstrated the validity of a readiness for self-directed learning. This has been done consistently and with powerful results through the use of Guglielmino's *Self-Directed Learning Readiness Scale (SDLRS)* (1988). Through the venue of

the International Self-Directed Learning Symposia, Hoban and Sersland (1999, 2000, 2001) have presented their findings relating self-efficacy and readiness for self-directed learning. Hoban and Sersland, after reflecting on their previous work with self-efficacy in writing and mathematics (described above), developed a self-efficacy for self-directed learning instrument designed to measure the degree to which students could assess their efficacy to be successful self-directed learners. Their instrument proved to have a great deal of validity and reliability in the different settings in which it was used and yielded a high correlation with the Guglielmino *SDLRS*. Those findings have led them to conclude that there is indeed a self-efficacy for self-directed learning, that it can be measured and that it can be enhanced when it is found wanting. Of course, the usefulness of any instrument of this nature is dependent on honest self-reporting which does not confuse self-efficacy with self-esteem and ultimately contaminate efforts to help individuals become self-directed learners.

DISCUSSION

The work of so many of those who have applied the concept of self-efficacy to learning confirms Bandura's postulation of the link between self-efficacy and self-directed learning. That seems undeniably clear. What is less clear, though, is the nature of the link between self-esteem, self-efficacy, and, ultimately, self-directed learning. The evidence suggests that there is, nonetheless, a link.

We posit that there is indeed a link between self-esteem in its competency component and self-efficacy, as much of the literature cited above affirms. Bandura (1995) explores the concept of self-regulatory behaviors (an aspect of self-directed learning) as necessary for life-long learning. These behaviors involve self-regulation of motivation, feelings and social determinants of learning as well as the cognitive determinants of learning. In other words, Bandura believes a student can and will study despite a lack of motivation on a particular day because he or she can regulate his or her behavior. The degree to which his or her self-esteem allows this to happen, of course, is open to question. Also, Bandura further proposes that students who have high efficacy in their belief they can regulate their behavior will also have higher efficacy to master academic achievements. And, as the research has shown, mastery experiences contribute to raising self-efficacy which, in turn, influences performance and competence—almost a circular process.

We also acknowledge that there is a very real danger in over-relying on a false sense of self-efficacy created by a false sense of self-esteem—sometimes descending to the level of narcissism—in helping people become self-directed learners. There are those learners who cannot envision they need help and will self-report high self-efficacy scores on measurement instruments because they fear that their perception and the perception of others of their self-worth is at stake. In contrast, those with low self-esteem may self-report lower self-efficacy than they actually possess because it is consistent with their lower sense of lower self-worthiness. Examples of this are the previously mentioned studies of Bloyd, Hoban and Wall (1996) where men perceived themselves to have as high or higher self-efficacy as women for a writing task although the women's' performance was actually higher. Another example is the Wall, Hoban and Sersland (1996) study in which women rated their self-efficacy for mathematics as lower than that of men but actually performed at an equal or higher level. This is the kind of confusion that ultimately is harmful and will impede efforts to assist self-directed learners.

The following research questions were posed at the beginning of this paper:

1. Must one have high self-esteem in order to have high self-efficacy, regardless of the endeavor?
2. If one has low self-esteem, does it follow that one will have low self-efficacy, regardless of the endeavor?
3. Could one have low self-esteem in one area of life but high self-efficacy in another area of life?
4. If one is a successful self-directed learner, must one have high self-esteem and high self-efficacy in all areas of endeavor or could one have high self-efficacy for self-directed learning but low self-esteem in general?

When we revisit these questions, we must conclude that, although there are no definitive answers, there are research-based conclusions that could be made. We do not believe that one must have high self-esteem to have high self-efficacy, or vice-versa, even though that might be the ideal. Bandura (1997) distinguishes between self-efficacy as applied to a specific endeavor, whereas self-esteem is more global. We believe that one could have low self-esteem in general (especially in the affective component) and yet have high self-efficacy in educational endeavors and be a successful self-directed learner. Helping this come about, though, will call upon all of our skills as teachers.

One of the ways teachers can enhance self-esteem, self-efficacy and self-directed learning is through the use of cognitive behavioral therapy (CBT). CBT is based on the recognition that cognitive events (thoughts) mediate behavior and the individual is an active participant who can exercise control over his/her behavior (Myers and Yelich, 1989). This is based on the work of Beck (1976), who states:

> For a good part of their waking life, people monitor their thoughts, wishes, feelings and actions. Sometimes there is an internal debate as the individual weighs alternatives and courses of action and makes decisions. Plato referred to this phenomenon as an "internal dialogue." (p. 38)

Beck further states that maladaptive self-monitoring can take the form of either overmonitoring, causing inhibition which stops action or undermonitoring, which leads to lack of impulse control. Bandura (1997) looks at self-regulation through metacognition (thinking and evaluating one's thoughts). He views self-regulation as an important trait for the self-directed learner. Meichenbaum and Bommarito (cited in Meichenbaum & Asarnow, 1979) used the concepts of self-regulation and metacognition to develop a self-instruction program to help students who were having difficulty reading. Students were taught self-statements to use while reading that were modeled by a trainer. The results of the study indicated a significant improvement in the reading group which had learned self-instruction over a placebo group. This and several other studies confirm the efficacy of CBT in enhancing student self-efficacy and learning. It is a powerful tool for developing self-directed learners.

What does all this mean? In attempting to undo the confusion, there is always the danger we have confused matters even more. We hope that this is not the case. What needs to be investigated further is the nature of the links that exist among the constructs and to determine how the positive linkage can be used to help learners and how the negative impediments to linkage—or worse, the false linkages—can be discarded. In addition, there are several variables, such as cultural differences, gender differences and age cohort differences that this paper did not address. These are issues for further research endeavors.

Most people would agree that a psychologically healthy person may be more ready to reflect honestly on his/her self-efficacy for a given task and have a greater readiness for self-directed learning than one who is not psychologically healthy. Most educators are not clinical psychologists nor should they need to be. Even so, understanding the dynamics of how people view themselves, assess their capabilities as learners and monitor their behavior will help us to become better educators.

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Sheila Hoban teaches behavioral health nursing as an Associate Professor at California State University, Chico. She is also a licensed clinical psychologist. Dr. Hoban has studied the importance of self-directed learning in motivating clients in the clinical setting as well as teaching students in the educational setting. (shoban@csuchico.edu)

Gary Hoban is the Graduate Dean at National University, San Diego. Dr. Hoban has published numerous articles on the relationship between self-efficacy and self-directed learning. (ghoban@nu.edu)

FURTHER STUDIES IN SELF-DIRECTED LEARNING IN PHYSICS AT THE UNIVERSITY OF LIMERICK, IRELAND

Veronica McCauley and George McClelland

ABSTRACT

This article reports on two SDL studies of undergraduate physics students and postgraduate science students at the University of Limerick, Ireland. Initial studies (McCauley and McClelland, 2001) indicated that the majority of undergraduate physics students are 'average' and 'below' in their readiness to self-direct their learning. Our further investigations lend credence and further support these findings. Results also indicate that small interventions of the nature described here are not successful in evoking large changes, yet they are successful in the exploration of change. The authors propose that an intervention on a much greater scale is warranted, throughout not only the full course, but, in time, across all courses, which all play a part in forming students' models of learning.

A university education should consist of more than students passively receiving information, even though that is what happens in most traditional classroom settings. On one side, there is receiving the information, the easy part; and on the other, there is assimilating the information, fitting it all together, a much more difficult task. Can we assume that once our students reach this stage in their education, that they are ready to synthesise the information given to them? Are university-level students ready to teach themselves? According to Wilcox (1996), universities need to prepare learners to engage in self-directed learning (SDL) processes, not only to improve and enhance their current learning skills, but also to prepare them for lifelong learning beyond the institution's walls.

There is much confusion about what qualifies as SDL; professors and teachers are often confused about what supports and stimulates a SDL environment (Long, 1991b). SDL is a difficult construct to define largely because of the complexity in attempting to encompass a range of elements such as behaviours, perceptions, thought, experience, and communication into a single concept (Grow, 1991a).

According to Knowles (1975) SDL is a process in which "individuals take the initiative, with or without the help from others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluation of learning outcomes (p. 18)." A detailed literature review (McCauley, 2002) revealed that most SDL definitions seem to be derived in some part from this description. As this definition was also the most descriptive and commonly cited in the literature, the authors chose to use this as a guideline for implementing the process.

AIMS OF RESEARCH

This paper builds upon preliminary research findings (McCauley and McClelland, 2001) that arose from a yearly SDL readiness study and a pilot SDL intervention. These studies were

carried out on undergraduate physics students at the University of Limerick, Ireland. Results indicated that over two-thirds of students from both studies were 'average' and 'below' in readiness to self-direct their learning, and this statistic did not change from the first through the fourth year of their primary undergraduate degree program.

In order to further investigate these findings, a main intervention was proposed, followed by an SDL readiness survey of postgraduate students within the College of Science. The main aim of this paper is to report on the SDL readiness findings from both surveys, and also to explore whether there is any correlation between the undergraduate SDL readiness score and students' self-opinion of their learning style.

Hypotheses formulation and testing was the approach chosen as an investigative technique. This method helped to categorise research questions which arose out of the earlier undergraduate studies, the aim being to find evidence that would support or contradict each statement. Martin (1997) also used this approach and it proved to be a clear and concise method of exploring the key research questions. Results are presented and explored through discussion.

EVALUATION RATIONALE AND TECHNIQUES

According to Robotham (1995), the first step in attempting to develop a learner's ability to self-direct is to assess the current level of self-direction that the individual is able to exhibit. One of the ways in which this quality may be quantified is by using an assessment instrument known as the *Self-Directed Learning Readiness Scale* (*SDLRS*).

The *SDLRS* is a self-report instrument developed by Dr. Lucy Guglielmino while at the University of Georgia. It is a widely used and well-respected instrument (McCune, 1988; Long, 1991a; Guglielmino and Klatt, 1993; Harvey and Harvey, 1995) and according to Guglielmino and Klatt (1993), the instrument has been used with more than 40,000 adults and in over 150 research projects, including more than 50 master's theses and doctoral dissertations.

Although the scale has been largely criticised by Field (1989, 1990), his assertions towards the validity and reliability of the scale were strongly refuted by Guglielmino, Long and McCune (1989). These authors review separately many of Field's (1989) claims, and construct several well-referenced arguments in their defence, further reinforcing the Scale's validity. Guglielmino (Guglielmino, Long and McCune, 1989) states that "there are some problems inherent in the development of any scale" (p. 239) and that constructive criticism is welcome. Although one study questions the soundness of the assessment tool, over seventeen other studies prove its validity, reinforcing and strengthening its ability to assess one's readiness to self-direct learning. The latest in-depth analysis (Delahaye & Choy, 2000) reinforces this view.

Four research techniques were employed in gathering data for these studies: (a) *SDLRS* questionnaires (used in the postgraduate study and also as a method of assessment, pre- and post-main intervention); (b) discussions with and observation of students; (c) a research diary, which was a reflective journal; and (d) structured interviews carried out at the end of the main intervention. Students were asked to volunteer 15-20 minutes to discuss their views regarding the intervention.

Both (b) and (c) were carried out in a very informal manner. Student opinion was accounted for and general behaviour and the flow of the lesson were noted daily in the form of *positive points, negative points* and *suggestions for improvement.*

MAIN INTERVENTION

As a result of preliminary findings (McCauley and McClelland, 2001) and a detailed literature survey, a main intervention was devised, based on the foundation of the pilot intervention. It is important to emphasize here that the main lecture course was taught in a traditional lecture format and that the interventions were offered as a supplementary tutorial.

The Participants

Second and third year undergraduate physics students participated in this intervention. Gender, course type and age statistics from the pilot (autumn semester, 1999) and main (spring semester, 2000) interventions are summarised in Table 1 below.

Table 1. Descriptive statistics for the pilot and main interventions

Intervention	**N**	**Gender**	**Course Type**	**Age**
Pilot	24	71% (M); 29% (F)	75% (AP); 25% (SE)	96%: 17-19
Main	30	60% (M); 40% (F)	73% (AP); 27% (SE)	92.5%: 19-21

The data illustrate that both undergraduate samples were very similar regarding gender and course type. Approximately two-thirds of both samples were male, one-third being female. Also the majority of the students (approximately three-quarters) were following the Applied Physics (AP) degree program, with the remainder studying Science Education (SE). However, there is a distinct age group difference, where the majority of the pilot sample are aged between 17 and 19, and the majority of the main sample are aged between 19 and 21.

Intervention Design

The main intervention evolved from the pilot intervention in terms of structure, subject and pedagogy. The session format changed from eight, two-hour tutor sessions to four tutor sessions and four self-study sessions, carried out alternately, every second week. The aim was to encourage students to take time to self-direct their learning within the support structure of a classroom. The new subject area, "Space and Time" explored quantum mechanics, hydrogenic wave functions and special relativity. Finally, a new model was added to the pedagogical design. The pilot intervention used both the Constructivist model of Cognition (Redish, 1996) and the Staged SDL model (Grow, 1991a, 1996). As interactive learning techniques were successful in improving undergraduate learning (Hake, 1998), aspects of Mazur's (1993) Peer Instruction Model were incorporated as well. An increased selection of computer-based learning software programs was also made available. A description of the pedagogical design is given below.

The Constructivist Model of Cognition. This model was effective in encouraging students to question their learning styles. The tutor acknowledged the fact that students would come to the session with previously formed mental models and beliefs regarding their approach to learning and the content to be learned. Although it is difficult to change an existing mental

model, the tutor encouraged students to think about previous learning experiences. In the opening session, students were invited to discuss their preferred learning styles, and although many admitted that they liked to be given the specific relevant information needed to pass the exam, they also acknowledged that this information was often soon forgotten. The main message from the students was that 'real' learning took place after class, and that studying alone and/or in groups helped commit this information to memory. The tutors' aim was therefore to encourage students to move away from being satisfied with passively receiving information, and to question the content and process used. This process was reinforced using Mazur's Peer Instruction technique described below.

Peer Instruction. Mazur's model of Peer Instruction was incorporated into the intervention by using his technique of teaching by questioning. Students were asked conceptual questions intermittently throughout the sessions. They were then given time to consider the questions and come up with an individual answer. Following this, they were encouraged to discuss and debate their answer with their peers in an attempt to work through and improve their understanding. The tutor explained key concepts throughout the session, to avoid any common misunderstandings. As the sessions progressed, the tutor reduced lecture time and increased student discussion in order to encourage more student-based interaction within the class. This process assumes that the student with the correct answer for the correct reason will usually have a stronger case than a student who has the incorrect answer for the incorrect reason. This model invited lively discussion and student interaction. Many of these conceptual questions were in the form of self–tests composed of a series of multiple choice questions designed to assess the student's understanding of content.

Staged Self-Directed Learning Model. As the sample contained a mixture of different abilities and stages of readiness for SDL, it was difficult to match teaching style to student stages, as suggested by the Staged SDL model. Therefore, we decided to begin the intervention by teaching towards the dependent learner, gradually changing teaching style, from coach to guide, to facilitator and finally consultant. The tutor encouraged the students to work through their tasks by themselves, yet with the knowledge that there was a support structure if needed. The main aim was to attempt to affect and mould learning style, encouraging the students to move from dependency towards autonomy.

Although this intervention also emphasised computer-based learning, we are only going to focus on the SDL aspects of the intervention in this paper.

The following hypotheses, derived from the pilot study are elaborated upon in the discussion:

> Hypothesis 1: There will be no statistically significant difference between levels of SDL readiness before and after exposure to the main intervention.
> Hypothesis 2: There will be no statistically significant difference between the pilot and main intervention SDLRS scores.
> Hypothesis 3: There will be no statistically significant relationship between gender and the levels of SDL readiness of the main sample.
> Hypothesis 4. There will be no statistically significant relationship between age and the levels of SDL readiness of the main sample.

Hypothesis 5. There will be no statistically significant relationship between course of study (Applied Physics and Science Education) and levels of SDL readiness of the main sample.
Hypothesis 6: There will be no statistically significant relationship between final module grade and levels of SDL readiness of the main sample.

POSTGRADUATE STUDY

Having previously carried out a yearly SDL readiness study on undergraduate students (N=53), for comparative purposes, we then decided to investigate the SDL readiness of postgraduate students (N=51). Gender and age were also explored. The sample consisted of research students within the Departments of Life Sciences (LS), Physics, and Chemical and Environmental Science (CES).

The gender statistics indicate that the gender ratio within the LS and CES Departments are very similar: 1/3 male, 2/3 female; and that the Physics Department sample contains the reverse composition: 2/3 male, 1/3 female. The age statistics indicate that 88% of the sample are within the 23-29 age group, with each department containing a mixture of first, second and third year postgraduate students.

For this new study, four more hypotheses were proposed:

Hypothesis A: There will be no significant relationship between levels of SDL readiness and gender within the postgraduate sample.
Hypothesis B: There will be no statistically significant relationship between levels of SDL readiness and the age of the participants within the postgraduate sample.
Hypothesis C: There will be no significant difference between the SDLRS scores of the Life Science, Physics or CES Departments.
Hypothesis D: There will be no statistically significant difference between levels of SDL readiness of undergraduate and postgraduate students within the College of Science at Third Level.

DATA ANALYSIS

Complete data sets were used for comparative analysis between samples (e.g. pilot study sample and main study sample; main study sample and other populations). For comparison within samples, matched pre- and post-test data was used (e.g. *SDLRS* pre-score and *SDLRS* post-score; *SDLRS* scores and age, gender etc.).

In the statistical analysis of our data, we used a number of different tests. The Independent Samples T test was used to compare the pilot study with the main study, *SDLRS* pre- and posttests, *SDLRS* scores and gender, and *SDLRS* scores and course. Pearson's Product Moment Correlations were used to determine if there was a relationship between *SDLRS* scores and age and *SDLRS* scores and grade. The one-sample T test was used to examine the *SDLRS* scores of the study sample in relation to the mean reported for the average adult American population; and

a one-way ANOVA was used to compare *SDLRS* data by departments. Further details are outlined below.

RESULTS AND DISCUSSION

Main Intervention

Hypothesis 1. There was no significant difference between pre- and post-SDLRS scores in the main intervention, indicating that the intervention had no impact on the SDL readiness of these students. We therefore, cannot reject the null hypothesis of equal means.

Although this outcome may have been anticipated, due partly to the fact that this intervention was only a supplementary part of the main instruction of the course (which was predominantly the traditional lecture model), and the short time span, the authors still view it as a successful pedagogical exploration. Results indicate that 68.1% of undergraduate students from the combined interventions (pilot, 65% and main, 70.5%) are 'average' and 'below' in their ability to self-direct their learning, encompassing quite a dominant percentage of the population. Therefore, a larger intervention on a more extensive scale may be warranted, in order to substantially change levels of readiness for SDL.

Table 2. Increase/Decrease in *SDLRS* Scores (Pilot and Main Studies)

SDLRS Scores	N	Increase	Decrease	No Change
Pilot	24	N=12 (50%)	N = 4 (17%)	N = 8 (33%)
Main	30	N=16 (53%)	N = 6 (20%)	N = 8 (27%)

Table 2 indicates that although there was no significant increase in the overall *SDLRS* scores on completion of the interventions, the percentage increase in score far outweighs the percentage decrease in score. Results indicate that approximately one-half of each sample, in both the pilot and main interventions, increased their *SDLRS* score, indicating a positive result. Only one-fifth of each sample decreased in their readiness score and approximately one-third remained the same.

Hypothesis 2. There was no significant difference between the *SDLRS* scores when the pilot and main studies were compared. This was somewhat expected, due to the apparent similarities of both groups, further confirming the findings of previous undergraduate studies (McCauley and McClelland, 2001), which indicated that there was no change in undergraduate SDL readiness from the first year through the fourth year of the sampled degree programs.

The main sample achieved a mean *SDLRS* score of 215.80, sd 22.96. This score not only reflects the scores of previous undergraduate physics studies (mean score $_{\text{(yearly study)}}$ = 214.2,sd 21.88 and mean score $_{\text{(pilot study)}}$ = 218.25, sd 21.65); it also reflects scores from other undergraduate studies cited in the literature. For example, Beitler (2000) carried out a SDLRS survey on undergraduate business students (juniors and seniors) from the University of North Carolina, Greensboro, US, whose mean SDLRS score was 213.7.

The mean *SDLRS* score for Americans is reported as 214, sd. 25.59. This mean has been used for comparison purposes in various studies (Jones, 1992; Bulik and Romero, 2000 and Choy and Delahaye, 2000). Results indicate that there is no statistically significant difference between our main undergraduate sample and this population.

Hypotheses 3, 4 and 5. Results indicate that there is no significant difference when *SDLRS* scores are categorised by gender or age. We therefore cannot reject the null hypothesis of equal means. Statistics also show that there is no significant difference between *SDLRS* scores when the sample is categorised by course (Applied Physics and Science Education). The Science Education students scored slightly higher overall than the Applied Physics students, yet no significant difference was found.

Similar results were also found in a study carried out by Warner, Christie and Choy (1998) on their Australian sample, where results indicated that there were also no significant differences in the SDL readiness of their sample when categorized by age, gender or course.

Hypothesis 6. Results indicate that there is a significant correlation ($r=.32$, $p=.034$) between the main sample's *SDLRS* score and their end of module grade. We must therefore reject the null hypothesis of equal means. This result indicates that those students who earn a higher-grade average are more likely to have higher levels of readiness for self-direction. A further test was carried out to see if there was any correlation between SDL readiness levels and the sample's current QCA grade (the Irish equivalent of the GPA, an accumulative end of term grade value for all exams carried out to date for each student). The QCA levels indicate an upward trend, in comparison to one's increasing SDL readiness, yet this correlation is not significant.

As part of the interview for the main intervention, the students were shown four different categories of learner and were asked to indicate and explain which category best described them. The categories were classified according to four types of learner which are described in Grow's (1991b) Staged SDL Model: *Dependent, Interested, Involved* and *Self-directed* learners.

Results indicate that none of the sample who carried out the interview sessions (undergraduates from the main study) feel that they are 'Dependent' learners. This statistic seems to contradict the sample's readiness to participate in SDL activities, as 27.5% of this sample scored 'below average' and 'low' in their SDLR. Of the sample 56% did claim to have been dependent learners in the past, yet believed that this role had diminished on entering post-secondary school education.

Three-quarters of the sample believe that they are 'Interested' and 'Involved' learners. This statistic may be compared with the fact that 43% of the sample scored 'average' in their ability to self-direct their learning. Approximately one-fifth of the sample feel that they are 'self-directed' in their learning, which may be compared with 29.5% of the sample who scored 'above average' and 'high' in their ability to self-direct their learning.

Overall, there seems to be loose correlation between self-opinions and actual results, although the participants seem to be of the opinion that they are more self-directed than the *SDLRS* indicates.

Postgraduate Study

Hypotheses A and B. Results show that there is no significant difference between male and female scores within and between departments in relation to their *SDLRS* score, although males (mean score = 227.14, sd 25.45) score slightly higher than females (mean score = 219.82, sd 25.56). Our findings also show that there is no significant correlation between the age of the postgraduate population and their *SDLRS* score. Therefore we cannot reject the null hypothesis of equal means for either of the two hypotheses, reflecting similar findings as those reported in the undergraduate studies.

Hypothesis C. The mean *SDLRS* scores for each department are very close: Mean Score $_{(LS)}$ = 227.80, Mean Score $_{(Physics)}$ = 231.44 and Mean Score $_{(CES)}$ = 222.83. Results indicate that there are no significant differences among the departments' *SDLRS* scores. Further analysis shows that the majority of students from each department (LS: 60%, Physics: 55% and CES: 52%) scored 'above average' and 'high' in their ability to self-direct their learning, indicating that the majority of this group are ready to succeed in a SDL environment.

Hypothesis D. The distribution curve of the postgraduate sample (mean score = 227.66) is similar to that of the undergraduate main sample (mean score = 215.80), yet the mean *SDLRS* score has shifted to the right, indicating that the postgraduate sample scored significantly higher than the undergraduate distribution. The results indicate that 45% of the sample is 'average' and 'low' in their SDL readiness, leaving the majority (55%) of the students to be 'above average' and 'high' in their ability to self-direct their learning. As there is a significant difference (t=-2.36, p=.02) between the postgraduate and undergraduate samples' ability to self-direct their learning, we therefore cannot accept the null hypothesis of equal means.

This may be explained by the fact that this unique group of students have had a much more rigorous experience of SDL from the outset. Students have been subjected to Stage 4 SDL teaching methods (as indicated in Grow's Staged SDL model). According to Grow (1996), the role of a Stage 4 teacher is more of a consultant than a mentor. He compares their role with that of many graduate professors/supervisors, which he describes as follows: "They set a challenge, then leave the learner largely alone to carry it out, intervening only when asked to help…and then not help meet the challenge, but help empower the learner to meet the challenge. They supervise the learner in a project or thesis, stay far enough away for the student to progress alone, but remain available for consultations."

Grow's description above clearly depicts the role of a supervisor over postgraduate research. For this reason, it is more likely for a postgraduate student to take on a more self-directed role, as this is the environment in which they are required to work. Consequently, it is not surprising that the mean score of the postgraduate sample (227.66) is practically the same as that of the meta-analytic investigation of 29 studies (n=4,596) cited by Guglielmino (2002) and McCune, Guglielmino and Garcia (1990). The latter study was carried out on mostly college students,

grad students and professionals in the U.S., where the overall mean *SDLRS* score was reported to be 227.7.

CONCLUSIONS

SDL Readiness of Undergraduate Students

Our research shows that there was no significant difference in SDL readiness when data was categorized by gender, age and department, as is reflected in the general literature. Our studies indicate that the majority of undergraduate physics students scored 'average' and 'below' on the *SDLRS*, also reflecting similar studies cited in the literature on undergraduate/college students, lending credence to these statistics.

Results indicate that although there was no significant increase in the samples of their SDL readiness on completion of the interventions; approximately 50% of both the pilot and main samples increased their score. The results also show that students with higher grade averages are more likely to have higher levels of self-direction, which may be an interesting avenue to explore in future studies.

Self-Placement in Grow's Typology as Compared to SDLRS Scores

Overall, there seems to be some correlation between the main sample's SDLRS scores and their self-opinions of their learning approach based on Grow's typology. However, results indicate those with lower levels of readiness were of the opinion that they are more self-directed than the SDLRS indicates. No students were willing to classify themselves as dependent learners.

SDL Readiness of Postgraduate Students

Results indicate that there is no significant correlation between gender, course type or age, and SDL readiness score among postgraduate students, reinforcing similar findings in the undergraduate sample, and samples cited in the literature. The majority of postgraduate students are 'above average' and 'high' in their SDL readiness, implying that they are at a stage where most of the sample is ready to self-direct their learning. Consequently, the postgraduate sample scored significantly higher than the undergraduate sample in terms of their SDL readiness, which is not surprising due to the nature of their work, maturation and changes in expectations and methods of instruction.

In Summary

The research reported in this paper indicates that the undergraduate physics students studied here are not, in general, well prepared to self-direct their own learning. This result leads us to further question our teaching techniques. Currently, the majority of lecturers still use the traditional format of teaching and assessing learning: giving information to a passive audience, assuming that they will take the time after class to assimilate and make sense of it all. What happens if our students do not take the time to synthesise this information? What happens if they find it an easier solution to rote learn the relevant information, in an attempt to merely succeed within the

set exam format, and focus on short-term memory? Should we be satisfied knowing that the majority of our students may resort to these measures, as they have not received the training to do otherwise?

Interventions are required in order to teach students how to self-learn and progress from rote learning to understanding, not only throughout their undergraduate education but also beyond. Results from our postgraduate sample indicate that these students are ready to participate in self-learning activities. Methods of independent learning may be a factor in encouraging students to progress further in their education, with or without the support of others.

Results indicate that interventions of the type described here were not as effective as initially anticipated in raising levels of SDLR by the metrics used. The literature indicates that SDL is extremely desirable at this level, but there is very little supporting literature on how it can be achieved, and the extent of intervention required. The authors suggest that previous learning experiences (in secondary level education) may be responsible for establishing dependency among students. Traditionally delivered courses at university in the main reinforce habits of passive and dependent learning. In order to break these habits of dependence, an extensive interactive intervention is warranted. Although small interventions are welcomed to explore possibilities; larger-scale interventions are necessary, not alone in one module, but across all modules, in order to help mould and support one's learning model. This would require a deliberate, planned, coordinated and monitored effort on the part of a Department and Course Team, with consequent implications for faculty time and resources. Further research is required in this area before definite conclusions can be drawn.

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Veronica McCauley is a lecturer in science education at the National University of Ireland, Galway. Her primary degree was in science education, which instigated doctoral research in Self-Directed and Computer-Based Learning. Following this, she has carried out postdoctoral research in initial teacher education and interactive learning environments at the University of Limerick (Ireland) and Harvard University (Cambridge, USA). (veronica.mccauley@nuigalway.ie)

George McClelland is a Senior Lecturer in Physics and Head of Department, Course Director for the B.Sc. (Ed) Physical Science degree, and Director of the Lucent Science Teacher Initiative in the University of Limerick. Current research interests include physics education and initial science teacher education. (george.mcclelland@ul.ie)

IMPLEMENTING GUIDED SELF-DIRECTED LEARNING STRATEGIES (GSDL) IN INTERMEDIATE- AND ADVANCED-LEVEL CHEMISTRY COURSES

Tracy Thompson and Sherry Wulff

ABSTRACT

This action research project, based on instructor-observed learning problems connected to student self-direction skills in two different chemistry courses at Alverno College (Milwaukee, WI), sought to resolve those problems and improve the teaching-learning environment by systematically implementing Guided Self-Directed Learning (GSDL) strategies. The action research approach incorporated a mentor relationship, a structure for developing, implementing, and monitoring curriculum-focused GSDL strategies, and an on-going process of instructor and student reflection. Initial findings suggested that a systematic implementation of curriculum-focused GSDL strategies has solid potential for supporting students' growth as autonomous learners and for enhancing the teaching-learning environment. The lead author, a physical science instructor, was the instructor and the second author was the mentor to the instructor regarding instructional methods.

This action research project began over a year ago within the ability-based, liberal arts environment at Alverno College (Milwaukee, WI), a small, private college with all-women undergraduate programs and co-ed graduate programs. In the spirit of productive collegial conversations, the instructor and the mentor began a consideration of college pedagogy that crosses the disciplines of chemistry and communication. Through discussions, the instructor and mentor assisted one another in thinking carefully about course content, teaching practice, and students' learning. For example, the instructor and mentor shared teaching-learning successes and challenges linked to the two different disciplines and to the courses, e.g., chemistry for nurses, organic chemistry, advanced media studies, and communication ethics. The instructor and mentor also explored content issues such as personal and professional distinctions between morals and ethics when applying frameworks from science and humanities.

The goal of Alverno College's ability-based curriculum (as articulated by the Alverno 1994 institute and brochure) is the development of each student as an educated, mature adult with such personal characteristics as a sense of responsibility for her own learning and the ability and desire to continue learning independently; self-knowledge and the ability to assess her own performance critically and accurately; and an understanding of how to apply her knowledge and abilities in many different contexts

The goal provides a strong context for self-directed learning. Given that college goal, conversations between new instructors and mentors quite naturally turned to the topics of student competency in self direction and the development of learner autonomy within and across disciplines. The instructor and the mentor examined educational problems and possible solutions linked to student self direction, responsibility, and reflection as components of learning.

At times, the instructor and the mentor assumed a natural, inherent student self-direction and were surprised by student frustration in content areas that were new or different. Sometimes the instructor and mentor wondered why students didn't eagerly embrace learning options or use different sets of resources and later found that students seemed unaware of options or the range of resources available to them. At other times the instructor labeled the approach for an assignment or an assessment as self-directed learning and was surprised by students' immediate apprehension or concern about having to do "everything alone."

In response to the instructor's request for pedagogical methods that cultivate student self-direction, responsibility, and reflection, the mentor began to share strategies based on Guided Self-Directed Learning (GSDL), a pedagogical approach modifying self-directed learning concepts and processes by emphasizing the use of explicit guides within a "continuum of instructor-student responsibility and action during learning experiences" (Wulff, 2000, p. 1). The mentor and instructor discussed potential resources and tactics for involving students with guides; targeted points of teacher-student accountability and positive methods for developing awareness and responsible actions; and considered techniques and formats for self-assessment reflections that reinforce and extend student learning. The instructor and mentor considered the potential that various learning guides, accountability methods, and self-assessment techniques hold for developing student (as well as teacher) self-direction, responsibility, and reflection that contribute to lifelong learning autonomy.

Stemming from this productive exchange, the instructor explored how GSDL, might work in two of her chemistry courses. The goal of this action research, was to make meaningful instructional changes that enhance student learning (Grundy, 1987) in intermediate and advanced level chemistry courses. This article reviews the origins of GSDL and discusses the action research structure and findings.

GUIDED SELF-DIRECTED LEARNING (GSDL)

GSDL evolved from a rich personal learning experience that the mentor had with ten graduate students in an instructional design course titled Technology: Using Tools in Instructional Settings in Spring, 2000. In an effort to support technology education for students with a broad range of technology competence, the mentor attempted to implement a self-directed learning (SDL) process drawing from Knowles (1975), Long (1991 & 1998), Hrimech, (1995), and Keirns (1999), along with Bulik and Romero (2000). The mentor held four basic assumptions about self-directed learning and graduate students:

- Graduate students knew how to be self-directed in technology learning contexts.
- Graduate students could be assigned a reading or two about self-directed learning and would 'know' and embrace the process.
- Graduate students would know how to follow through to meet course outcomes and project criteria once the self-directed learning process was set in motion.
- Graduate students would naturally want to be independent and would immediately enjoy being independent.

The assumptions proved to be naive. Moreover, graduate students had their own assumptions about self-directed learning. Several students believed that self-directed learning was equivalent to "learning alone" and were quite concerned about how or where to begin their learning and project work. One student believed that having others help her learn reflected low self-efficacy. Other students were apprehensive not only about "learning alone", but about learning "new-to-them" technologies. Attempts to adjust the SDL approach mid-semester by listening to and acting upon student concerns and frustrations were not productive. Fortunately, despite the naïve assumptions, the graduate students established individual processes of self-direction and, in the end, constructed a rewarding learning experience.

Below is a collection of several excerpts from students' final self-assessment essays in which they described how they initially felt about SDL and how they worked through these feelings to demonstrate self-direction within the course. An important dimension for all of the graduate students was their use of reflection to clarify and make productive 'sense' of their self-directed learning experiences:

> *From fear to self-challenge:*
> During the time of my learning and trying to produce results that I thought would be worthy of my project, I felt the fear and de-motivating factors of not knowing and wondering if I would ever know. … What was it that I needed to sustain me in my quest to become… to think outside the box with the creativity and self-direction I [knew] I had in me? (This student went beyond project criteria through several key self-challenges, such as learning additional software and software functions to heighten the creative dimension of project content.)
>
> *From hesitancy and resistance to personal responsibility:*
> The theme of SDL has been a prominent one in our course of study this semester. … my initial reaction to the concept of SDL in this class was similar--hesitancy and resistance. Perhaps this is because of the traditional classroom environment I was schooled in, the 'Sage on a Stage' arrangement (Wulff, Hanor, & Bulik, 2000, p. 11). Maybe it's the uneasiness to be expected with disequilibrium (Fosnot, 1996), or possibly just my own lack of desire to accept the personal responsibility of SDL. (This student successfully accepted personal responsibility by completing a project of quality with solid instructional design value.)
>
> *From a love/hate perspective to higher self-efficacy and a conscious approach to self-direction:*
> The title of this reflective paper [Have a Coke and a smile … even if it fizzes in your nose] captures the love/hate relationship that I had with my learning experiences this semester. I compared it to enjoying a nice cold refreshing soft drink that can zap you when you aren't expecting it. I can now truly smile about the experience, even in spite of the fizz-factor. … conscious self-directed learning was not something that came easy to me in the past. I was never one to sit down and read an instruction manual or dabble with something until I figured it out. I liked learning from others and then dabbling only once I had established a comfort level with the subject… Upon reflecting on this strategy, using others to

help me learn showed my un-appreciation for disequilibrium and low level of self-efficacy regarding my perceived ability to be successful at self-directed learning.

From 'exhaustion' to a 'larger' learning experience:
Self-directed learning can be an exhaustive experience although it did hone my thoughts toward reflection. I have given a lot of consideration to the concept of self-directed learning. I have often considered myself self-directed because I enjoy learning. I now realize that this type of activity requires a lot of focus. … I think to be successful at self-directed learning the individual must feel that they have made the major contributions to the process… If I had a choice, I would not have elected to learn technology in a self-directed manner. Although I learned a great deal and I am inspired to develop in the area [of technology], I could have saved myself a lot of time and frustration if there was someone to step me through the process. If I were more comfortable with the subject matter, maybe the challenges would have been smaller but so would the learning.

From lack of direction to a clear focus and structure:
At first in my self-directed activities I found I was looking at many areas of interest, diverging into various theories and possible applications for the [project] I was about to develop. I felt a lack of direction. Disequilibrium set in. There seemed to be no logic to the way I was proceeding. I felt that I was just going off in all directions. I was feeling a lot of tension with not having a solid direction for my activities. I felt like I was standing in sand not on bedrock … Self-reflection revealed to me that I needed to establish a structure of how I was researching the development of instructional design, and the possible use of [a] new technology as a self-directed learning tool. My reflection also revealed that I was not to be a passive student waiting for the instructor to create this structure that I felt I needed. I was to be autonomous; it was my responsibility to structure both my learning and the development of [my project].

From general confidence to a deeper understanding of self-directed learning:
I have always considered myself to be a self-directed learner. However, as I challenged myself to experience and learn technology, I found that I needed to use different strategies. Learning a new technology using a self-directed approach required me to create a plan of action for my learning and application for the new knowledge. I needed to consider what outside resources not only supported the direction of my project, but also supported my learning goals. I found it essential to reflect on what I was learning and how I would apply the new knowledge to my own experiences. Without the direction and immediate application of knowledge, the learning experience was incomplete and lost.

The graduate students' subsequent recommendations (from the final self-assessment essays and a final class discussion) centered on several key points:

1. Provide specific background information about SDL procedures and processes that relates to project procedures and processes.
2. Connect SDL goals to project, course, and program outcomes.
3. Develop access to a selection of diverse, explicit guides or resources for projects.

These recommendations along with observations and reflections about their learning process and project outcomes encouraged reconsideration of future implementations of SDL in technology-based courses. Review of Knowles (1975) description of SDL as well as Kuriloff's (2000) view emphasizing the need for guidance in thinking about and analyzing information prompted more focus on three key learning dimensions: (a) the 'guide' component of SDL, (b) the importance of connected reflection, and (c) the role of student as well as instructor responsibility.

Over the past two years working independently and with colleagues (Burke & Wulff, 2002 & Wulff, Burke, &Hurley, 2001), the following working definition and description of GSDL has evolved. GSDL is *a continuum of instructor-student responsibility and action during learning experiences*.

In a variable manner dependent on the learning context and learner needs, the instructor guides as students develop self-direction in content-practice fields. For example, at the start of a learning experience, an instructor may be more directive, providing a framework of procedures for student practice and collection of resources. Towards the end of a learning experience, the instructor might decrease the amount of direction, asking students to construct a framework of procedures and draw from a collection of resources they found. In a course situation, the instructor would most likely have on-going guides for learning experiences, such as established outcomes for student learning and criteria for assessing student products.

Three Key GSDL Strategies include:

1. *Explicit Guides* offer a *concrete* range of available, practical resources with opportunities for choice to meet *diverse* learning styles. The instructor reviews advantages and disadvantages of different resources and guides relative to learning styles, usability, project criteria-outcomes, and perhaps personal and professional interests. The instructor *consistently* notes resources in a number of ways, such as a resource handout reinforced by a list on assignment sheets as well as by instructor on-going references to resources.

2. *Personal Reflections* build in occasions for personal project 'thinking' and self-evaluation. These can be brief or extensive, private or public, in-class or out-of-class, oral or written. Students (and their instructors) consider which occasions for reflection might be most beneficial for student productivity and understanding of project quality. At times, sharing reflections can reveal shared problems and successes, which may locate learning needs, assist project revisions, and contribute toward the development of a learning community.

3. *Shared Construction* determines how students might contribute to the construction of content knowledge throughout a course of learning. When would it be appropriate for students to 'teach one another'? How should student-to-student instruction be monitored in a manner that increases learning and decreases 'negative' pressure? When would it be

appropriate for students to determine specific content themes, assignment or project schedules, project options and/or criteria? This provides an opportunity for the student to develop a *strategic focus* for learning.

Among other key GSDL strategies, the above three were highlighted in order to explore their potential for resolving the pedagogical concerns identified in two different chemistry courses. As a result, explicit guides and reflection opportunities for students were developed. To a lesser degree, opportunities for shared construction were considered.

PROJECT DESCRIPTION – LEARNER AND PURPOSE

Throughout the course of this action research project, attention and reflection were focused on the process of developing, implementing, and monitoring curriculum-focused GSDL strategies. The instructor journaled her reflections to understand her development as a student of self-directed learning. Through interactions with students and her instructional mentor, she became aware of the larger context of self-directed learning.

Sample

Two sets of students participated in the action research project. One was an intermediate level chemistry class of 36 students. This nursing chemistry class (100 level) consisted exclusively of women, 56% Caucasian, 19% African American, 14% Asian, 8% Hispanic, and 3% Middle Eastern. Approximately 36% were nontraditional-aged students (returning adults). Thirty-three students received final 'grades.' The second class, an advanced chemistry course (300 level) had six female students with either chemistry and/or biology majors. All were Caucasian, traditional-aged college students. One was a mother of two young children.

Purpose/Problem

From the perspective of a first year teacher at the college, which has a different student population and curriculum philosophy, the students' commitment to their studies appeared to vary. Some students seemed highly reliant on the instructor, for all the procedural and content dimensions of a course, while others seemed more independent. Regardless, students appeared to not access 'help' aides until last-minute assessment preparation. Furthermore, in examination situations, many students were not able to articulate how they applied key concepts to the analysis of chemical problems.

The perceived lack of commitment by students to their progress in their chemistry courses frustrated the instructor. In Alverno's ability-based, non-graded system, faculty may support their students' variability in rates and ways of learning by providing opportunities for reassessing exams or revising projects. However, instead of preparing appropriately for exams by taking advantage of available resources: readings, study guides, assignments or outside help from instructors and study group monitors, it appeared that students relied on the reassessment opportunity. Students in intermediate level chemistry courses seemed passive in and out of the classroom. They often reassessed on exams and relied on one-on-one tutoring with the instructor after examinations and before reassessments.

Reflection about teaching and learning in this environment yielded several questions. For example, did the instructional approach need modification to maximize chemistry learning in a non-graded, ability-based curriculum? Did students' approach to learning need development? What were the challenges of teaching and learning without grade incentives?

Motivation to question teaching practices; to improve the teaching-learning environment; to support the development of student self-direction in learning; and to improve the classroom environment resulted in this exploration. Consultation across departments, exploration of various teaching and learning strategies and a deeper understanding of Alverno's curricular approach resulted in initiating the GSDL approach in chemistry classes.

INSTRUCTOR SELF GUIDES/STRATEGIES

The instructor utilized an instructional mentor and the students as resources to guide the development of a different approach to chemistry instruction. Through the interplay of the mentor, the students' feedback, readings and self-reflection, the instructor altered her instructional approach.

Mentor

With the help of a veteran of Alverno's unique instructional approach, the instructor developed a self assessment tool that would encourage students to be self-directed and responsible. In an intermediate chemistry course, it was difficult to motivate students to read and complete their assignments. The mentor helped the instructor construct a motivating mid-semester self assessment that might turn the class around.

The self assessment was designed to reflect Alverno's "Capacities of a Successful Intermediate Student" as defined by a college committee in 1996. The committee (and a resulting college guide) outlined the expected abilities and responsibilities of the intermediate student. The expected abilities and responsibilities include: (a) participates as an active and independent conscious learner, (b) successfully adapts to the academic environment, (c) adopts the professional role, (d) develops intellectual habits, and (e) accurately self-assesses using criteria.

The instructor and mentor reflected on the definitions and possible criteria and behavioral expectations and developed a two-part self-assessment to be used prior to mid-semester examinations. The resulting discussion led to the development of student-generated behavioral expectations for the learning environment: The learner comes to class prepared, asks for feedback, seeks help, practices analysis, participates in class, and observes deadlines.

Students were asked to provide evidence and examples of meeting or not meeting these expectations. They were also asked to develop an action plan to meet expectations. In general, students who had worked diligently throughout gave examples of how they had met these criteria whereas students who had not met the criteria asserted that they would improve. Although this exercise had no other supporting activities, it did appear to give some students a "wake-up" call. During the second half of the semester, some students were more responsible in their actions and

more active in classroom participation. They were more diligent about completing readings and assignments prior to class. They more regularly sought the help of their classmates or the instructor. Furthermore, discussions and small group work in the classroom were more productive.

The mentor and instructor continued discussions about this and other chemistry classes. The mentor suggested that the instructor use a Guided Self-Directed Learning (GSDL) approach with students and supplied a working definition. The mentor and instructor brainstormed the form this approach might take before the instructor developed strategies for the students and guides for herself.

The mentor continued to provide guidance and suggested the use of the Guided Self-Directed Learning (GSDL) approach and the instructor and the mentor explored implementation strategies. The mentor listened, gave information and opinion, and reinforced and summarized the instructor's ideas. The mentor gave the instructor direction in self assessment techniques and feedback on course strategies. Most significantly, however, the mentor allowed the instructor to see the reciprocal nature of GSDL. The instructor became a student engaged in the process of guided self-directed learning.

Students

The instructor developed as a student of self-directed learning and as a facilitator in the classroom, with students as her guides. Student reflections, self assessments, informal conversations, analyses on web based assignments and examination performance provided the reciprocal feedback needed for the instructor to become a better facilitator of learning. Periodically during the semester, students completed self assessments addressing GSDL as a learning approach. In general, students appeared to have a good sense of the meaning of 'guides.' They seemed to understand their responsibilities, as well as the instructor's, in the continuum of instructor-student interaction. They understood that one of their responsibilities was to inform the instructor how the class could be enhanced for them personally. It was the instructor's responsibility to respond to student input.

In addition, informal conversations with students helped the instructor to continually adjust her approach to GSDL. For example, some students in the intermediate nursing chemistry course suggested more lectures and web-based visual aids during group study. The dynamics in the course flowed between small group discussion and analysis to large group guided direction. The classroom appeared lively at times, students discussing how to use chemical concepts to approach a practice problem. Other times, the classroom was quiet and sharply focused on the lectures provided. The learning interaction was akin to an accordion, which is drawn in and out as it is played. It is the interplay between the drawing in (group interaction) and drawing out (individual independent learning) that makes the music.

Self Assessment and Reciprocal Learning

The feedback from an in intermediate level chemistry student indicated continued dependence with requests for the instructor to enhance the GSDL approach with "more handouts with

specific outlines of the ideas required to master new concepts, more time spent in class focusing on material prior to assessments, other media, two assistants for large numbers of students working together with the instructor to clarify ideas and answer questions….and a list of websites."

The instructor's initial response to this student's feedback was disappointment. However, later the instructor grasped the message that the student was providing her own list of supportive guides. The instructor, learning from her student, made an effort to include more visual guides in the classroom. In particular, students were able to see three-dimensional, animated representations of protein structure through the use of a chime plug-in and a biochemistry website. The instructor reviewed all the class handouts to check for their efficacy as resources and began to think about modification for the next semester. This feedback and other experiences learning reciprocally from the students provided an opportunity to learn from the students and become a better facilitator of learning. Students learned about themselves as self-directed learners, about chemistry and about communication through improved facilitation.

Through the students, the mentor and readings by Long (1998) and others about what characterizes a self-directed learner, about what it means to be a guided self-directed learner and about the paradigms of self-directed learning, the instructor gained depth of skills. Interactions with both the mentor and the students enhanced the depth of understanding of the meaning of GSDL. The instructor became a self-directed learner of this GSDL method.

STUDENT GUIDES

Students operate from their own perspective and experience and can make use of resources in varying degrees depending upon their experience. The use of explicit guides fostered common practices for mastering the information available in the various levels of chemistry courses and common expectations. The guides are only effective when students visualize and take action with them. How this is done may vary at beginning, intermediate and advanced levels of coursework.

Explicit 'Guides' Approach

In both the intermediate and advanced level chemistry courses, Wulff's (2002) definition of GSDL was provided to students on the first day. The students and instructor discussed the definition (a continuum of instructor-student responsibility and action during learning experiences), brainstormed the meaning of the guides, and generated lists of support resources for the course, including: (a) a carefully designed schedule with action headings for each day; (b) assignments placed throughout the course that support analysis and communication; (c) explicit guide/support resources including specific readings and problems from the text, terms for use with indices and glossaries, reference to previous assignments, handouts and classes; (d) peer assistance through small group discussion/problem solving; and (e) an assistant in the classroom. Frequent reference to these guides helped students see their purpose and to help establish strategies for their use.

Psychological Paradigm

Students in 100 level classes had difficulty learning how to study. When one poorly performing student wanted assistance, it was suggested that she attempt sample problems and submit solutions for feedback (taking a more active role in her learning). Another 300 level student was extremely passive in the classroom and unable to pass exams, perhaps related to her lack of interest in the material and lack of participation in discussions. Improvement for the 100 level student was marginal and non-existent for the 300 level student. It was hoped that if the instructor could create excitement about the use of the guides and evoke the imagination of the students to make them their own to use, students would become engaged in their own learning. Further reading led to Long's (1998) psychological paradigm for learning and his belief that "learning is a self-initiated, self-directed, and self-regulated cognitive process whereby the learner can choose to ignore instruction, to merely absorb it by casual attention, to carefully memorize without critical reflection, or to seek to change or create an understanding of information" (p. 9). At all levels (introductory, intermediate and advanced), but perhaps most importantly at the introductory level, students need to learn to take charge of their own learning.

Guides in the Intermediate Level Chemistry Course

The intermediate level nursing chemistry course required that students become proficient in analyzing the structures of organic and biological molecules. A total of six examinations were given. Guide/support resources took the form of web-based assignments, study guides and peer-assisted learning. In addition, students reflected on their role in the GSDL approach through a set of self assessments. Self assessments and reflections were to help students see their development as autonomous learners. In one such self assessment, students were asked to identify how they had taken responsibility for their learning and how they would further develop self-direction in the course. The use of guides/support resources was a consistent reply. Students often saw responsibility as being prepared for class by completing readings and assignments ahead of time.

One student noted that, "Before, study sessions, optional assignments, and teaching assistants were superfluous to me. Now, however, I try to use every resource available to me to better comprehend the material…. Assignments are not required. Sometimes I have done them, and sometimes I have not. Completing all of them is a goal." Another student reflected that "The most rewarding experience is when I actually understand the material and am able to assist peers to understand." Another noted that "The ability for everyone to learn close to the same speed would take the class into a different level of learning." Yet another student noted that "I have taken responsibility for my learning by studying more, changing my attitude and attending study groups…. I decided to do something about my unsuccessfulness… and learn something in the process." Another student acknowledged that she struggled with "frustration that encourages confusion" and committed to reducing her stress level. Another student reported requesting her family's cooperation by "developing a quieter environment" and reducing home responsibilities.

These examples demonstrate that students can take more responsibility for their learning and learning conditions with some coaching provided by the guides. One student recognized that optional assignments had value and ignoring them had consequences. In many cases, students identified the opportunity to explain concepts to their classmates as a resource and demonstration

of responsibility. This provided an opportunity for deeper understanding and improved performance on exams. Students perceived their responsibility to be engaged in the course content. Some students saw responsibility as changing their attitudes and changing situations external to the class. It appeared that students saw responsibility on a continuum including use of available guides, attention to requirements, investment in genuine understanding, and an appropriate mental state in order to maximize their learning. These students moved on the continuum of exercising more initiative in their learning.

Instructor Perceptions of Student Learning in the Intermediate Level Chemistry Course

In general, student involvement and responsibility appeared improved over the previous semester. The group study format required students to become less reliant on the teacher-directed mode and more able to access the continuum of instructor-student responsibility in the learning process. Students' analyses in web-based assignments and on examinations seemed to be a great improvement over those on examinations in the previous semester. Responses to problems were detailed and complete. Students were able to explain the step-wise process used to solve problems and provide support to their approach through the integration and explanation of chemical concepts. For example, one question on the final exam involved a basic concept used throughout the semester. A student having a solid understanding of this concept would solve this problem. A typical response from a student in the previous semester showed an accurate illustration accompanied by a brief explanation. A typical student in the subsequent semester drew an accurate illustration along with a more detailed answer:

> Certainly, this difference cannot solely be attributed to GSDL, as other factors are involved (a different group of students, additional web based assignments, group work, the instructor's additional experience with the curriculum etc.), but students' explicit reference to guides and self assessments addressing GSDL, autonomy in learning and instructor-student responsibility enhanced the classroom environment.

During the final class period, students were provided a list of guide/support resources used in the course and asked to comment on whether these resources were helpful. Were they useful in studying, preparing for examinations and becoming more self-directed? Overwhelmingly, students attributed their success in the course to three things: web-based assignments with instant feedback, additional assistants in the classroom, and the opportunities to interact in small group sessions. However, there were some who said they benefited most from lecture and encouraged me to continue to include lecture in addition to group activities. There were mixed reviews about the utility of the text, some students pointing out that they never used it and others saying the text was a valuable resource in their studies. Although students were given readings and text problems with each section covered, there was no external incentive to do these readings and problems other than deeper understanding of the key concepts and additional practice with chemical problems. The text was not well integrated into the classroom activities. Learning from the students, the instructor plans to integrate the text with the course work.

Guides in the Advanced Level Chemistry Course

The advanced level organic chemistry course required that students become proficient in analysis and in using various models in ascertaining outcomes in chemical transformations. A total of five examinations were given. For each of the sections, supplementary material, including strategies for approaching content and analysis, was provided. It was hoped that students would use strategies learned in one section in the subsequent sections. Additional guides included examination directions (given prior to assessment) and computational models. In addition, examinations included self assessment questions addressing how students used course strategies. A mid-semester self assessment addressed responsibility, autonomy and suggestions for the *instructor.*

The self assessments addressed strategies traditional to the practice of organic chemistry and introduced in the course. Students approached self assessment in different ways. There appeared to be four main purposes for self assessment. Some students addressed the questions directly, documenting their learning and providing examples of strategies they had used in tackling the course material. In addition to addressing self assessment questions, some students used the self assessment as a place to vent frustrations. Self assessments also illustrated progress in the course. It was possible to see how student attitude and approach changed over time. Finally, it appeared that student self assessment reflected a student's increased awareness of how she learned and how guides supported her learning. Students reported organizing a flow chart and using flash cards. One discussed her confidence, disappointment, frustration and sense of being overwhelmed. One student noted that she was "not sure how to prepare for the assessments" while another said, "by now I don't know how" to study appropriately. One student noted that she developed her "own system" to visually picture a process.

Instructor Perceptions of Student Learning in the Advanced Level Chemistry Course

Reflecting on the use of GSDL in the advanced level organic chemistry course was difficult. The perceived difference in the attitude of the six students and the small size of this class made it more difficult to see patterns. Although explicit guides were presented throughout the semester (handouts, text readings, practice problems, index/glossary terms, class assignments and activities, examination directions and self assessments) it appeared that some students didn't or couldn't recognize or use them as resources for learning. Was the students' ability to use the guides overestimated? Was it assumed that some of the explicit reference to when and how to use strategies would not be needed in this advanced level course? In one case, it was as if the student had put up a barrier from the first day, announcing her perceptions about the difficulty of the course and her expectations of the instructor. These perceptions appeared to stand in the way of her understanding and enjoyment of the concepts presented. With two other students, it seemed as if it was just the timing in their life. Perhaps the desire to use resources provided was not there.

However, three students (50%) seemed to approach the course with perhaps a bit of anxiety, yet they were ambitious and determined. They were not necessarily top students in terms of ability,

but they were the top students in terms of attitude. These students embraced the approach and found meaningful ways of incorporating content and methods. For the other three students, the course became a struggle. Was the issue 'readiness to accept responsibility'? Would additional guides have assisted them in being psychologically ready? Long's psychological paradigm of self-directed learning provided a framework to observe learners poised "to change or create an understanding of information," learners who wanted to "carefully memorize without critical reflection," "absorb it by casual attention," and learners who chose "to ignore instruction." In most instances, students fit nicely into one of these categories, but instead, their attitides and actions appeared as a continuum. (Long, 1998, p. 9)

FINAL REFLECTIONS

The instructor became a student of teaching strategies that engaged student's self-directed learning. Teaching students to learn became as important as teaching the subject matter. The instructor reflected on successes, including providing a set of guides/strategies for student learning and assisting students in understanding their mutual responsibilities for learning. The instructor plans further development to explore the psychological aspects of self-directed learning and find guides for addressing and conquering barriers to learning. Desiring to understand how best to serve students with different learning strategies and difficulties including those related to developmental disorders led the instructor to explore learning style differences and universal design (Burgstahler, 2002). Universal design means "the design of instructional materials and activities that makes the learning goals achievable by individuals with wide differences in their abilities to see, hear, speak, move, read, write, understand English, attend, organize, engage, and remember." It includes flexible curricular materials and activities that provide alternatives for students with differing abilities which are built into the instructional design and operating systems of educational materials. Although universal design appeared to have a strong emphasis on a person's physical ability, it seemed to address a cognitive ability as well (*attend, organize, engage, remember*).

Delivery methods emphasize the need for multiple modes of delivering content. Although this approach bears little or no reference to student responsibility and autonomy, the idea of providing multiple modes for learning correlated well with the guides used in the GSDL approach. What's more, universal design recognized that students process information differently and sometimes this means processing at different rates (Barnett, 2003). The tenets of universal design supports Alverno's curriculum approach and the newer design of the chemistry courses.

Continuous study of Guided Self-Directed Learning and application of this approach in courses will include individualizing approaches so that students with different learning styles, attitudes and abilities will be successful in the analysis and communication of course concepts, and that they will be guided in their development as self-directed learners.

CONCLUSION

Green (1999) captures the challenge and infers the significance of action research, which "demands that we show a willingness to step outside our usual frames of reference, that we question our habitual ways of seeing and that we constantly seek out fresh perspectives on the

familiar" (p. 120). This instructor's action research project as documented in this paper demonstrates her ability to interrogate and move beyond her customary pedagogical "frames of reference" and enhance her students' learning through an exploration of strategies from GSDL for effective instructional design and practice.

This implementation of GSDL centered on developing and making available explicit guides for learning. These guides along with multiple opportunities for reflection and attention to shared construction of learning content appeared to influence student perceptions of learning responsibilities and successes. Through reflective journaling, the instructor articulated three significant insights:

1. The potential that GSDL has for reciprocal learning between teachers and students.
2. The importance of guide visualization, i.e., a guide's effectiveness is directly related to how students perceive and/or imagine the usefulness and usability of a guide followed by students' subsequent use of that guide.
3. The potential connections between GSDL and universal design.

The instructor's second insight, guide visualization, offered a reciprocal learning point for the mentor affirming the shared learning among students, the instructor and the mentor. There will be further exploration of visualization of guide utility as well as student motivation to use guides. On a similar note, the links between GSDL and universal design offer another point of reciprocal learning. Of course, this action research project is limited by the assumptions of the instructor and mentor, its size, the educational environment, and time among other factors. Even so, the instructor and student voices expressed in this paper suggest the potential of GSDL to support student development of self-direction and learning autonomy across disciplines.

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Tracy Thompson is an Assistant Professor of Physical Science at Alverno College in Milwaukee, Wisconsin. (tracy.thompson@alverno.edu)

Sherry Wulff is an Associate Professor in the Professional Communication Department at Alverno College in Milwaukee, Wisconsin. (sherry.wulff@alverno.edu)

USING REFLECTIVE PRACTICE AND SELF-DIRECTED LEARNING TO ADVANCE GROWTH IN EDUCATIONAL TECHNOLOGY

Joan H. Hanor and Katherine L. Hayden

ABSTRACT

The emergence of communicative technologies has initiated a variety of teaching and learning environments that were not previously possible. The increasing use of technology for educational purposes triggers the amplification of particular forms of learning, challenging educators to identify essential skills, concepts and information that will assure students' success within educational settings as well as within society. Technology challenges us to think critically about the nature of learning and to investigate its potential for radically altering the learning environment. In this article we address ways in which an educational partnership applies elements of reflective practice and self-directed learning to maximize professional growth in educational technology. We capitalize on the characteristics of reflection and self-directed learning as suggestions for applying a learner-centered approach to the design of professional development in educational technology.

What are some measures we can take as educators to advance growth and assure sustainability within a professional development program for educational technology? This was a question we asked ourselves when the state of California provided the opportunity and funding to design a professional development program for educational technology for K-12 teachers and administrators. Through collaborative discussions with university and K-12 educators, we gathered input from colleagues, reviewed relevant literature, reflected on our own teaching, and thought about the essential features of successful professional development. We looked within our university mission statement that reads…

> The mission of the College of Education Community is to collaboratively transform public education by preparing thoughtful educators and advancing professional practices. We are committed to diversity, educational equity, and social justice, exemplified through reflective teaching, life-long learning, innovative research, and ongoing service. Our practices demonstrate a commitment to student-centered education, diversity, collaboration, professionalism, and shared governance.

From our research, we selected two components to inform our program design: reflective teaching and self-directed learning (SDL). Since our program involves both teachers and administrators we expanded our definition of reflective teaching to the more inclusive wording of reflective practice. We established a goal to provide processes of self-directed learning to educators themselves as learners, as well as to those wishing to enhance the self-directed learning skills of their own students and staff. In the next section we outline the application of essential factors of SDL into a professional development program and give a specific example of a resource we developed for participants—a Professional Growth Action Plan. In this paper, we discuss how applications of reflective practice can help inform the self-directed learner's choices in planning personal learning, enhancing learning skills, or obtaining new knowledge. The

curriculum material and organizational schemes that we share are meant to give an idea of how these components effectively support learning through technology.

CONCEPTUAL FRAMEWORK

Self-Directed Learning

Many of our ideas and resources have emanated from research in North America over the past twenty-five years on self-directed learning (SDL). This research indicates that, while most adult learners prefer to take considerable responsibility for their own learning, their opportunities for personal involvement are limited by traditional training that controls content or process through didactic approaches. In this paper we examine the assumptions made within a professional development program that is built on the premise that adult students are mature learners who flourish in settings where considerable independence is expected or permissible. Much research has already been done to identify organizations that have adopted a self-directed orientation to the delivery of training in the workplace (Long & Morris, 1995). Malcolm Knowles (1975) focused attention on the idea of self-directed learning as a teaching technique that could be incorporated in planning professional development for educators. An exploratory study completed by Guglielmino and Nowocien (1998) recommended an increase in teacher participation in the planning for and implementing of their own professional development. They recommended teachers be offered a variety of options from which to choose based on the readiness levels for self-direction (p. 104). The teachers in their study, including beginning teachers, were found to be at above average readiness levels for self-directed learning (p. 103).

What are some ways in which learners can assume or increase control over certain aspects of their learning, in other words, become more empowered? We have studied diverse frameworks to identify a variety of teaching and learning process components in which learners can make their own decisions (Bulik & Romero, 2000; Hanor & Hayden, 2001; Hiemstra, 1997). Drawing from an extensive analysis of SDL components as proposed by Hiemstra (1997), essential elements of SDL were identified as appropriate to the design and implementation of professional development for educational technology. A complete description of these elements can be found at http://home.twcny.rr.com/hiemstra/montreal.html. Some central areas are: a) assessing needs; b) setting goals; c) specifying learning content; d) pacing the learning; e) choosing the instructional methods, techniques, and devices; f) controlling the learning environment; g) promoting introspection, reflection, and critical thinking; h) instructor's/trainer's role and i) evaluating the learning.

Reflective Practice

Reflective practice has been shaped and defined through the lenses of several philosophical and pedagogical theories, including constructivism. Constructivism supports active learning in which learners reflect upon their current and past knowledge and experiences to generate new ideas and concepts. As early as the 1930s, Dewey was defining reflection as a proactive, ongoing examination of beliefs and practices, their origins, and their impacts (Stanley, 1998). In its concern with personal growth and liberation from values that can limit growth, reflective practice reflects a humanistic element (Kullman, 1998). Critical pedagogy, with its examination of

underlying power bases and struggles, and American pragmatism, which emphasizes the role of experience in the implementation, testing, and refining of ideas, also shape the concepts of reflective practice, particularly in the United States (Brookfield, 1995).

Reflective practice engages professionals in an ongoing cycle of self-observation and self-evaluation to better understand their own actions and the reactions they prompt in themselves and in learners (Brookfield, 1995; Thiel, 1999). The goal is not necessarily to tackle a particular problem or question identified at the start, but to observe and improve practice in general on an ongoing basis.

SAMPLE/POPULATION

In partnership with North County Professional Development Federation, CTAP Region IX, CTAP Online, San Diego County Office of Education, and over 22 school districts, California State University San Marcos initiated a series of twelve-month, 120-hour professional development programs to enable the effective use of technology for teaching and learning. Teachers and administrators grades K-12 were invited to attend. During a period of three years over 2000 educators participated.

PROCEDURES

As professors in the College of Education, we are committed to our mission statement addressing the transformation of education. Yet as some have noted, many educators are reluctant to change. One way we might increase the involvement of educators in school restructuring is to study those people in schools who already play key roles in the change process (Urban, 2000). This knowledge may be applied to provide clues as to how to reach those educators who are not currently involved in school reform. With this in mind, a concerted effort was made to accommodate the varying needs of administrator participants in the program

Providing Opportunities for Self-directed Learning

Self-directed learning strategies are applied throughout the program in the choices participants can make for their activities and for the types of products they will create for their students. When learners have choices about their learning, we find they are more motivated and set higher goals for themselves than when these are preset by curriculum planners.

A professional growth action plan provides one platform for planning a course of learning. Within a 120 hour-long professional development program in educational technology, participants are encouraged to design the majority of their own learning. Forty hours of face-to-face interaction are provided; then participants plan an additional 80 hours of growth through the development of a *Professional Growth Action Plan*. With the support of a program mentor, and often in conjunction with other team members from the same site or district, goals and objectives are customized to meet local needs as well as those needs identified by participants through processes of self-assessment. Individual decisions are made for appropriate pacing, selection of professional growth activities, timelines, and methods for accountability. The array of professional development activities includes online courses, onsite help and mentoring,

participation in multi-site videoconferencing, team collaboration and participation in online threaded discussions. Within the plan, participants include how they intend to monitor their progress and what evidence will document their growth.

The *Professional Growth Action Plans* are modified as participants change direction or adjust the goals they originally developed in the early stages of the program. Instructors continuously encourage different opportunities and provide individualized learning experiences depending on the needs of their mentees. Another self-directed learning application is to offer a wealth of resources and events that allow participants to create a program meeting their needs. Some choose to work alone and many choose to meet with a team of teachers or at a workshop to support each other and share experiences.

SAMPLE PROFESSIONAL GROWTH ACTION PLAN

Name_____
School _____
Grade & Subject _____
Daytime phone _____
Evening Phone _____
Email_____

Consider your learning preferences and scheduling priorities in relation to the variety of activities provided by the ILAST Partnership. Your plan must include a selection of professional development activities, a projected time commitment, and methods for documenting and demonstrating your growth and competencies. You may want to consider using lesson plans, web pages, instructional materials, contributions to online discussions, lesson implementation, preparing a professional portfolio, video recorded lessons, written or anecdotal records of progress, observations by peers, mentors or principals, self-analysis and reflective practice.

Month	Activity	Anticipated Hours	Actual Hours	Total	How activity is documented	Reflections

Figure 1. Sample Professional Growth Action Plan

One success story from an instructor reports:

> [After a mini lesson on inserting graphics] this participant went home that night and worked on his PowerPoint for 4 hours! He brought the presentation to the institute the next day. His colleagues and I were amazed at how quickly he

> applied these new skills and was able to produce a rich teaching and learning tool which he used in his classroom the next week.

Promoting Reflective Practice

From the start of the ILAST (Improving Learning for All Students through Technology) professional development program model, participants are asked to reflect on their experiences and prior knowledge. In the opening session, each person shares an experience that exemplifies student learning using technology. Although these responses are not recorded, the instructors are able to identify levels of use and understanding of applying technology for student learning. Throughout the program, participants reflect at the end of each session on what parts of the training have worked and what parts they will apply to their teaching. These comments help participants synthesize their learning. Instructors review participant responses and utilize them to guide decisions about follow-up activities and support.

Another reflection tool is an online discussion board where participants share insights and ideas in response to having read research articles or having applied a piece of software. This tool encourages collaboration, provides opportunities for participants to learn from and support each other, and helps build a common base of knowledge.

Figure 2. Example of Implementation of Reflective Practice

One Teacher's Reflective Practice

Over a period of ten months, Ms. X participated in a series of Educational Technology Regional Workshops that promoted reflective practices. She compiled an electronic portfolio, using a process that asked her to reflect on, analyze, and synthesize her work. It includes her reflections as both teacher and learner; lists her accomplishments; copies of lesson plans, handouts, and other materials she has created or adapted and used; and written reflections on journal articles, classroom events, conversations and/or collaborations with colleagues, email or online correspondence, and workshops attended.

This year, she is assigned to teach a grade 6 class at her usual intermediate level. For the first time, she will have three computers in her classroom, as well as access to the media-learning lab once a week. She decides to focus her reflective effort on tracking her work with technology with this new configuration.

Throughout the program the process of reflective practice builds participants' confidence to consider changes in approaches and strategies for their professional work. One participant reported to her instructor,

> I am enjoying the discussions online through Tapped-in and have become a mentor for Jigsaw teaching for 3 other teachers online … I feel all of these are helping me become a more well-rounded individual as well as a more effective teacher.

ASSESSMENTS AND ANALYSIS

Assessments, both online and paper, are used at the end of each day of face-to-face instruction as well as at the end of the institute. Participants are asked to reflect on the experiences of the day. Many participants chose to complete the online form while at the Technology Institute; many who had access to computers at home or at work chose to allow a longer timeframe for themselves by completing the survey at home. For purposes of this paper, we limited our study to participant responses to the following question: "What worked for you as an adult learner?" Use of the online survey enabled the sorting of responses by question, by participant, and by institute. Responses were then tabulated by topic in order to identify those mentioned most frequently. Table 1 presents a sampling of responses from one day of one institute.

Table 1: Evaluation Results for: ILAST Institute: 202 Day: SEP-06-2002

Results for survey question: What worked for you as an adult learner?
All the paperwork was well organized. An agenda was provided along with all other necessary materials. The green page was a very good idea.
Each person having their own computer and the instructors being willing and patient with those who needed help with things.
The constant changing of tasks and continually moving along was very helpful.
Lots of resources. Time to explore.
Hands on integration of the technology--being able to use it, rather than just being told about it or using handouts, is essential for me.
I liked having the laptops available so that I could work at my own pace where I felt comfortable and when appropriate. I appreciated the ability to experience web sites for myself instead of watching someone else.
Visual and auditory input. The projector and screen works well for me, because I am very visual. The pacing was very good. The "green sheet" is very effective and a good idea. Having a person next to me who could help when I was confused. Having a mouse as I am not at all familiar with a laptop. Also exploring sites.
Hands-on applications and exploring Internet sites on my own.
Having hands-on experience with websites and resources.
Being able to have time to explore was effective for me.

As an adult learner I need to have hands on opportunities, especially when dealing with computers.
I really enjoyed all the interaction with the other participants and the presenters.

RESULTS

Reflective Practice

Participants stated that having time to practice, explore and plan projects was important to them as adult learners. They also felt that hands-on practice was critical to their success. These were the most repeated comments. Other important factors were the pacing and working with peers and colleagues.

Helpful Technology

Based on participant survey responses, the technology applications and tools that were helpful to them as adult learners were Backflip, development of search techniques, Lesson Plan Builder, Filamentality, rubric builders and the ILAST web page of resources.

Self-directed Learning

Our study confirms prior findings by Hanor and Hayden (2001), which indicated that many educators are proponents of self-directed learning as a methodological approach. Participants felt their instructors were helpful and provided valuable guidance. They felt they had some say in what they took back to their classroom and how they planned their follow up hours.

Readiness Levels

As documented by Oja (1993), we found that effective professional development must provide for different levels of involvement in self-directed learning. Without personality and metacognitive traits for self-directed learning, individuals may not seek educational experiences based on their learning needs. We realize that learners develop independence at differing rates. Some participants are ready for independent learning and use program requirements and learning activities to enhance or supplement personal learning. Others require guidance in setting goals, determining learning activities, and self-evaluating their progress. Strategies can be employed to support a spectrum of readiness levels. These include the development of a learning contract, or professional growth action plan, that provides a fairly prescriptive path or allows considerable freedom. Another strategy would be the development of online assessments that offer time for reflection and application.

The program enabled self-directed learners to plan their professional development to best meet their own personal learning styles and needs. As a learning contract, the *Professional Growth Action Plan* provided the flexibility to support detailed planned activities step-by-step while still allowing the freedom for those more ready to self-direct their learning process.

DISCUSSION

According to a RAND research study in California, "Staff development efforts are generally not designed in ways that enable teachers' professional development" (Lieberman & Miller, 1991, p. 61). Teachers often evaluate staff development efforts as having insufficient meaning and relevance to their classroom practices and providing inadequate follow-up to permit integration of new ideas and methods into professional activities. The California Change Agent Study found that: "…who originated a project did not matter. What did matter was how project planning was carried out….Motivation of district managers was a 'signal' to teachers about how seriously to take a project and its goals" (Lieberman & Miller, 1991, p. 63). "Concrete assistance from individuals skilled in project methods along with frequent team meetings to clarify objectives and provide support were proven to be indispensable as teachers attempted to put plans into classroom practice" (Lieberman & Miller, 1991, p. 65).

Reflective practice offers advantages and useful options for addressing professional development issues. It encourages professionals to generate and share their insights and theories about teaching and learning and adds credibility to the journey. Meeting with a mentor and/or group of team members supports the sharing of reflections and serves to enable and encourage change as the learner applies knowledge to instructional practice. Reflection helps to transcend traditional views of "school knowledge" (Schon, 1987) to one of *knowing-in-action*.

When adopting a reflective perspective for professional development, learning and change, participants alternate acting and reflecting. The progress from knowledge to action, from knowing to verbal or written expression, ties theory to practice. In this way, practical knowledge is developed, one's colleagues become a part of the reflection, and community-based knowledge is formed.

This interactive mechanism is readily enabled and supported within communicative technology-rich environments in which the instructors' role is one of support and counsel rather than supervision. By breaking down the separation of research and practice, the act of reflection activates and encourages artistry by helping learners and teachers become more competent in the indeterminate zones of practice.

Coordinating this artistry with the use of technology provides greater sources of insight and encourages inventive thinking. While technology may play a vital role in the educational process, it is generally agreed that we must focus first on the learning and then apply technologies to help learners acquire the knowledge, information, and skills they need. The systematic improvement of learning and teaching depends not only on choice of technologies but also on the commitment and participation of many stakeholders in the design and implementation of a technology plan. As we examine our experiences and reflections, this purposeful collaborative aspect and its relation to planning are becoming increasingly more familiar.

Education currently places much emphasis on standards. Indeed, as our program was in the developmental stages, the International Society for Education (ISTE) published national standards in technology for teachers and administrators. Within standards-based education, some

educators may suggest that the processes we advocate may not apply to their particular teaching because their content is regulated by standards, must be taught in a particular sequence, or is too advanced for novice learners. However, it is our belief that the process of providing opportunities for learners to assume some control in their learning is equally as important, if not more important, than the actual content. This is especially true when working with technology because of the accelerated increase in technology applications and constant updating, which require ever-changing information and skills for effective technology use. The value in helping learners identify a plan for their learning and direct their own path toward their learning goals has critical importance in today's world.

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Joan H. Hanor is an Associate Professor at California State University San Marcos. Her research interests include the aesthetics of learning with technology and its impact on issues of equity and diversity. As Director of ILAST: Improving Learning for All Students through Technology, she applies emerging technologies to the continuum of professional development.
(jhanor@csusm.edu)

Katherine L. Hayden is Assistant Professor at California State University San Marcos and coordinator for a professional development grant called ILAST (Improving Learning for All Students through Technology). Her dissertation focused on videoconferencing and constructivist learning environments. Her research interests include professional development in educational technology, online learning tools and learning communities.
(khayden@csusm.edu)

UNIVERSITY STUDENTS' PERCEPTIONS OF INSTRUCTOR AND LEARNER TASKS: PHASE TWO

Huey B. Long and Stephen K. Agyekum

ABSTRACT

This study is based on a survey of 30 undergraduate college of education students from a southern university in the United States. Respondents were invited to identify what they perceived to be the five most important learner tasks and the five most important instructor tasks, with the most important listed as number 1 and the least important as number 5. The identified tasks were obtained from the students at two different times; at one time the learner tasks were obtained and at another time the instructor tasks were obtained. This procedure was used to prevent contamination of the two lists. Data obtained in this study were compared with the results of an earlier survey of 13 graduate students enrolled in a master's degree program that emphasizes self-direction. One major purpose of this study, referred to as phase two, was to compare the findings between the two groups. Up to 150 different learner tasks and 150 instructor tasks were possible. Approximately 60 substantively different learner tasks were identified and 80 different instructor tasks were reported. The findings for each category are discussed and a general discussion precedes the conclusions. Eight conclusions concerning this sample are noted. Seven comparative conclusions based on phase one and phase two studies are provided. Among other conclusions, it is noted that the students showed greater consensus concerning learner tasks than for instructor tasks. It is also noted that students in phase two more often identified tasks conducive to self-direction than did the students in phase one. Other differences are also noted.

It is assumed that human perceptions of reality will influence human behaviors in related areas. Therefore, since student control and choice have been identified as important elements in learner assumption of responsibility for learning, it is likely that learner perceptions of instructor and learner tasks may affect student-learning behavior. Based on Choy's (2001) observation that the literature on learner ideas about responsibility is limited, Long and Agyekum (2002) investigated the learner perceptions of learner and instructor tasks. Using a small sample of 13 adult graduate students engaged in a masters degree program that placed emphasis on self-direction, and a sample of 30 undergraduate students, Long and Agyekum sought to determine if the two groups of students reported similar perceptions. The findings, however, revealed only limited agreement among the students' perceptions of important tasks. Long and Agyekum reported that students in their sample revealed restricted agreement upon the important instructor and learner tasks. Though limited, agreement on instructor tasks was greater than agreement on learner tasks. The identified tasks could be classed as psychological and action tasks, with the former comprised of attitudinal elements and the latter referring to procedural activities. Psychological tasks were mentioned more frequently as student tasks and procedural activities were more often identified as instructor tasks.

Long and Agyekum's (2002) findings appear to be consistent with tendencies of institutions to focus on instructor characteristics in course evaluations. Many student evaluations focus on how pleased the students were with the instructor. An evaluation used at the University of Oklahoma includes 15 items. The first 4 relate to student gpa, grade expected, reason for taking the course, and attitude toward the subject matter. The final 3 items address workload and compare the

instructor with other instructors at the university. Eight of the 15 items are concerned with the instructor's activities. Not a single item addresses the students' perception or evaluation of their performance or effort.

A paradox emerges from the literature. While the literature concerning learner responsibility may be limited, there is a voluminous body of literature concerned with teacher responsibilities and tasks (Long, 2002). Most of that literature focuses on education at the K-12 level (Bouchard, 1998) and attempts to identify, describe and promote a wide array of things that teachers should do in the childhood classroom. The consequence of much of the research and philosophy about teacher classroom behavior is to ignore the role that learners should play in learning. This should be no surprise, as the instructor is seen as a key actor in most discussions of teaching and learning. The one-sided nature of this position has been pointed out by Bouchard (1998), Bulik (1998), and others.

Indirectly Bouchard and Bulik indicate that we should have a better understanding of learner tasks as well as instructor tasks. While they are interested in self-directed learning outside of the classroom, they imply that there is a relationship between learners' experience with classroom learning and autonomous learning. Citing Willensky (1990), Bulik (1998) notes the need for students to accept greater responsibility for learning. Bulik's work emphasizes the learners' tasks of critical thinking and problem solving. Bouchard indicates that students engaged in self-directed learning encounter difficulties because they have learned to rely on teachers' task performance. Specifically, students are socialized to expect, if not desire, teachers to set goals and to identify and organize materials. Bouchard's findings revealed two kinds of tasks as previously noted by Long (1987, 1988, 1989): psychological and pedagogical.

CONCEPTUAL FRAMEWORK

A voluminous body of literature is concerned with teacher responsibilities and tasks. It appears that educators have been keen on identifying, describing and imparting an array of teacher actions in the classroom. It is suggested that teacher failure in some, if not many, of the identified tasks will result in student failure. Recent reform literature has implied that the disappointment with American public schools is directly attributable to teacher failure. Long and Agyekum's (2002) findings, however, indicate that such assertions are one-sided. Problems in learning are not solely attributable to failure of teachers to responsibly conduct their classrooms. In some instances, learners are said to learn despite the actions of teachers rather than because of them.

Educators and trainers interested in self-direction in learning should be especially interested in the concept of student responsibility and learner tasks. At least one concept of self-directed learning (Long, 1987) identifies private and public actions of learners with learning. But the topic of learner tasks and responsibilities has received little research attention.

It is theorized that students in typical classroom settings can engage in self-directed learning. More specifically it is posited that effective classroom learning is in reality a result of greater self-direction rather than dependence upon the instructor. If this is the case, student perceptions of important learning tasks vis-à-vis perceptions of important instructor tasks should be helpful in linking self-direction to classroom learning. Bouchard (1998) indicates that problems

associated with identification of teacher and learner tasks is found in the research methodology that establishes an *a priori* list of tasks. Therefore, this inquiry is based on an open qualitative research design with no predetermination of important tasks. This paper reports the results of a follow-up to the preliminary investigation into perceptions of learner tasks. This inquiry is referred to as phase two.

SIGNIFICANCE OF THE STUDY

The significance of this inquiry is practical and theoretical. The practical significance is found in the application of the eventual results in classroom teaching and training. If we assume that self-direction in learning is largely the result of learner control and responsibility, it is important to understand student perceptions of instructor and learner tasks. If adult students demonstrate little awareness of the learning tasks, that is, the kinds of things they should do to facilitate learning, we should be exploring methods to correct that problem. This research should point us in that direction.

The theoretical significance of the inquiry is found in the implications that the results may present for current theory of teaching and learning, especially self-directed learning. For example, what kinds of instructor tasks are most important? Are they procedural or personal? What do the data imply? Similarly, what kinds of learner tasks are most important? Are they attitudinal or process based? And how do the different kinds of tasks interact? What can be inferred by student perceptions of learner tasks?

RESEARCH DESIGN

This paper reports the results of the second phase of a potential multi-phase inquiry. This second step was designed to obtain perceptions of the five most important tasks (instructor and learner) as held by students enrolled in a traditional upper level university course. The students were asked, among other things, to list the five most important instructor tasks with the most important listed in descending order of importance from 1 to 5. Later the students were requested to submit a similar list of important learner tasks.

Sample

The sample was composed of 30 students who were enrolled in 2 traditional upper level college courses in a southeastern university. The instructional format is intensive and requires advanced reading and preparation prior to classroom activity. The class was racially mixed with approximately 65 % being Caucasian.

PERCEIVED LEARNER TASKS

Perceptions of the five most important learner tasks are provided in the following pages. The perceptions are presented by level: level one is the most important task as reported by the respondents. Level 5 is the least important of the 5 identified. An asterisk follows each task that appears to reflect important elements that are associated with learner psychological control. That

is, the task depends heavily upon learner volition. In the discussion these kinds of tasks are referred to as learner-dependent, or self-dependent tasks.

Level One Learner Tasks

Each of the 30 students identified a learner task. Fourteen of the tasks appear to be concerned with different activities or psychological aspects of learning. The perceived tasks identified by the students are as follows:

1. Pay attention in class and attend class.
2. Ask questions to gain a better understanding.*
3. Be a good listener.
4. Come to class, healthy, alert and prepared to learn.
5. Be receptive to information that is being taught.*
6. Respect the teacher.
7. Be active in lessons.
8. Desire to learn.*
9. Listen, pay attention & study.*
10. Have a willing attitude.*
11. Try! No laziness.*
12. Try as hard as possible to learn material.*
13. Pay attention to the teacher.
14. Do all assignments on time.*
15. Come to class prepared to learn.
16. Organize.*
17. Never give up.*
18. Be attentive (listen & be organized).*
19. Respect the teacher.*
20. Be willing to learn information.*
21. Respect others.
22. Study.*
23. Participate in instructional process.*
24. Ask questions.*
25. Be attentive.
26. Study.*
27. Pay attention.
28. Prepare for instruction.*
29. Evaluate your own actions.*
30. Listen and be attentive.

The most important learner tasks named by the students included 22 action/process tasks, 3 mixed tasks, and 5 attitudinal, being, or psychological tasks. Henceforth the latter are referred to simply as psychological tasks. Eighteen of the students identified student-dependent tasks that are based on student-initiated action (2, 5, 8, 9, 10, 11, 12, 14, 18, 19, 20, 22, 23, 24, 26, and 28). Eight of the 30 students focused on learner attention (1, 3, 9, 13, 18, 25, 27, and 30), while six respondents named a task related to studying and being prepared (4, 14, 15, 22, 26, and 28). The

greatest convergence of perceptions concerns the task of paying attention; 7 of the students identified such a task.

Level Two Learner Tasks

Each of the 30 students reported their perception of a second level learner task. It appears that 24 of the tasks are different. The tasks identified at this level are as follows:

1. Study daily.*
2. Review work.*
3. Practice good behavior.*
4. Read everything-especially instructions.*
5. Be an active participant during instruction.
6. Respect other students.
7. Receive positive reinforcement from teacher. (?)
8. Be respectful.
9. Focus on school work.*
10. Come to class prepared.
11. Believe in self.*
12. Participate in class activities.
13. Come to class prepared.
14. Be responsible for class work.*
15. Read required material.
16. Prioritize.*
17. Do your best.*
18. Be motivated.*
19. Study.*
20. Come to class prepared.
21. Pay attention.
22. Attend class.
23. Express reasoning and thinking process.
24. Study.
25. Respect self.*
26. Ask questions.*
27. Stay on task.*
28. Be prepared.
29. Follow directions.
30. Study and complete assignments.

The second most important task as identified by the students was an action task: 25 of the students named an action task; 5 listed psychological tasks (11, 14, 17, 18, and 25). There was a positive level of consensus on the importance of student study and preparation among the students, with 13 naming tasks of this type (1, 2, 4, 10, 13, 15, 19, 20, 22, 24, 28, 29, and 30). Perceptions of student responsibility once again accounted for a reasonable portion of the tasks, with 14 of them being self-dependent. They are as follows: 1, 2, 3, 4, 9, 11, 14, 16, 17, 18, 19, 25, 26, and 27. Of the 30 learner tasks the greatest consensus concerns class preparation (study) with 4 students agreeing on the task.

Level Three Learner Tasks

Thirty students each identified a task at the third level of importance; 22 of the identified activities seem to be different. The learner tasks identified at this level are as follows:

1. Be an active class member.*
2. Do examples and experiments for understanding.*
3. Practice.*
4. Follow instructions cooperatively.
5. Self-monitor learning.*
6. Have willingness to learn and be open to instructor's material.
7. Be exposed to a variety of activities. (?)
8. Follow instructions and rules.
9. Engage in depth processing (take notes, draw, make charts to understand)*.
10. Do all assignments to best of ability.*
11. Have a desire to learn.*
12. Follow golden rule in relationships.
13. Complete all assignments.
14. Develop good study habits and organize time.*
15. Complete all assignments.
16. Focus.*
17. Ask for help as needed.*
18. Set goals.*
19. Attend class regularly.
20. Respect and honor authority.
21. Complete homework.
22. Be attentive.*
23. Study.
24. Investigate information before acceptance.*
25. Be motivated.*
26. Complete homework and class work.
27. Breathe deeply.
28. Be open to new ideas and learning strategies.*
29. Hands on experiences. (?)
30. Be prepared.

The third most important student tasks included 22 action tasks, 6 psychological tasks, and 2 that were not classified (7 and 29). Sixteen students listed tasks related to study and preparation (2, 3, 4, 8, 9, 10, 13, 15, 17, 19, 21, 22, 23, 24, 26, and 30). Nearly one-half (14) of the students agreed on self-dependent actions (1, 2, 3, 4, 9, 10, 11, 14, 16, 17, 18, 22, 24, 28). The greatest consensus was on tasks that address completion of homework and following instructions

Level Four Learner Tasks

The 30 students identified 22 different tasks among the 30 listed below:

1. Work with other students to share knowledge.

2. Relate the information to a personal experience.*
3. Be a good role model.
4. Be inquisitive, eager to learn (have a positive attitude).*
5. Be able to apply information learned to a variety of real life situations.*
6. Accept all people and acknowledge their thoughts and beliefs.
7. Feel they are a part of the class.*
8. Don't quit.*
9. Respect others, including the teacher.
10. Participate in class discussions and activities.*
11. Listen…. Don't talk just for the fun of it.*
12. Be persistent when you have a question or want to share something.*
13. Ask for help when needed and make an effort even when you don't understand.*
14. Pay attention in class.*
15. Come to class or call if something serious comes up.*
16. Listen.*
17. Open their eyes and look outside the box.*
18. Ask questions.*
19. Follow class guidelines.*
20. Follow classroom guidelines.*
21. Take good notes.*
22. Be willing to ask for help.*
23. Do homework.*
24. Be self-disciplined.*
25. Have goals.*
26. Participate in class.*
27. Concentrate.*
28. Be motivated to learn.*
29. Observe others.
30. Ask questions when a concept is not understood.*

The fourth level learner tasks reported were almost evenly divided between action processes (15) and psychological tasks (12). The remaining three tasks were mixed. The most impressive aspect of the task perceptions at this level concerned the self-dependent tasks: 25 of the 30 students identified tasks that are within the learner's control. They included "be persistent," "be inquisitive… eager to learn," "don't quit," "listen," "ask questions," and so forth. The greatest convergence among student perceptions concerns tasks associated with asking questions and seeking answers (5 students cited such a task). Four were concerned with interpersonal tasks such as showing respect.

Level Five Learner Tasks

Thirty students listed perceptions of fifth level learner tasks. The greatest variation among the tasks at the 5 levels was found here; there are 26 different tasks in the following list:

1. Do homework.*
2. Participate in class discussions and do extra reading.*

3. Attend school regularly.*
4. Persist and practice to master difficult skills.*
5. Extend knowledge for personal growth.*
6. Never give up and always strive to reach goals.*
7. Be excited about learning.*
8. Work toward becoming a better student each day.*
9. Work on managing one's own behavior.*
10. Respect teacher and other students.*
11. Have supportive parents.
12. Accept responsibility for behavior and consequences.*
13. Attend class with open mind.*
14. Come prepared to learn.*
15. Be on time, inform teacher when a crisis arises.*
16. Inquire… what else do I need to know?*
17. Never give up…. desire to learn.*
18. Work with peers to learn.*
19. Be attentive (always).*
20. Respect peers.*
21. Study for tests.*
22. Be respectful.*
23. Contribute to maintenance of facilitative learning environment.*
24. Take responsibility for actions.*
25. Meet all necessary needs.
26. Attend class everyday.*
27. Learn, but have fun.
28. Read outside materials.*
29. Practice.*
30. Keep an open mind.*

The perceived fifth level learner tasks were also almost evenly divided between action and psychological elements: 12 action and 13 psychological. Four tasks are mixed and 1 could not be classified (11). Twenty-seven of the 30 students identified a self-dependent task under the learner's control. Three of the 30 students identified interpersonal relations as a fifth level task; 2 students agreed on the importance of personal responsibility.

Discussion of Student Perceptions

The 30 students revealed a surprising level of consensus compared with the first study (Long & Agyekum, 2002). The 150 individually submitted perceptions reveal limited consensus in levels 2-5. The greatest consensus occurs at the most important level (level 1) where 14 different tasks were noted: a mean of .466 tasks per student. The least consensus occurs at level 5: .866 tasks per student. When the 150 tasks are treated by categories according to similar intent, it appears that there are fewer than 60 substantively different learner tasks across all five levels. The task of attendance and preparation occurs at least 46 times in the total list, accounting for 30.66% of the tasks. Demonstrating respect, variously worded, occurs 14 times (9.3%). Also, the task of listening and being attentive is mentioned 14 times (9.3%); 10 times (6.6%) students mentioned

persistence, and 8 times (5.3%) the task of asking and inquiring was identified. Motivation was identified as a task 6 times (4%). Finally, the task of self-evaluation and reinforcement was mentioned 3 times (2%). Thus, 67.3% of the identified tasks are included in seven clusters.

The students in phase two also focused more on action tasks and less on attitudinal or being kinds of tasks than did the graduate students in phase one. Table 1 presents the data in a visual medium.

Table 1. Student-Perceived Learner Tasks by Type and Level of Importance.

Level	1	2	3	4	5	Total
Psychological	8	5	6	12	13	44
Action Process	22	25	22	15	12	96
Mixed Action-Being	3			3	4	10
Student-Choice/Initiated	18	14	14	25	27	98
Unclassified			2		1	3

Table 1 reveals that the student respondents most often identified student-choice or self-initiated tasks among the action process tasks. Of the 150 tasks, 29.3% are attitudinal or being in nature; 65.3 % of all of the tasks reflect learner control elements. Interpersonal tasks were identified by 16 students at some level: 3, 3, 2, 4, and 4 respectively.

Students identified tasks concerned with studying and coming to class prepared 39 times (26%); 14 times (9.3%) the importance of paying attention and listening was mentioned; 33 times (22%) the importance of doing homework and being prepared for class was noted.

Learner Profile. The following learner profile is suggested by the identified tasks. The learner demonstrates self-initiated activities such as being attentive, concentrating, desiring to learn, inquiring, setting goals, and being persistent. The learner has responsibility for studying, completing assignments, and being prepared for class. Once in class the learner should ask questions, apply the content, and practice good interpersonal relations.

TEACHER PERCEPTIONS

The 30 students also provided perceptions of the most important teacher tasks. The identified tasks are organized and presented below in the order of perceived importance – the most important tasks are level one tasks and the least important tasks are level five. Saturation was not achieved at five levels, however. The following findings indicate that the student respondents lacked the degree of agreement concerning teacher tasks they reported for learner tasks.

Level One Teacher Tasks

Because of duplications in the 30 tasks identified, it appears that 22 different tasks are named in the following list. See items 6, 8, 11, 14, 17, and 21. They all seem to address one kind of task rather than five. Items 8 and 14 combine love or care for the teaching profession with care for

students, but they are included with the other items (6, 11, 17 and 21). Other duplicates are 13, 19, and 22 and 23 and 30.

1. Learn student names.
2. Communicate expectations effectively.
3. Teach students.
4. Teach core curriculum.
5. Provide a quality education in a safe place.
6. Love their students. (8, 11, 14, 17 and 21)
7. Treat all students equally.
8. Have a love for students and career. (6, 11, 14, 17 and 21)
9. Make sure students feel safe and secure.
10. Set rules and procedures.
11. Care about students. (6, 8, 14, 17, and 21)
12. Focus on content, concepts and thinking skills.
13. Practice good management skills – rules and procedures. (19 and 22)
14. Care about job and students. (6, 8, 11, 17 and 21)
15. Treat all students fairly.
16. Set academic expectations.
17. Love students. (6, 8, 11, 14, and 21)
18. Be organized—be prepared.
19. Exhibit classroom management. (13 and 22)
20. Love the teaching profession.
21. Love students. (6, 8, 11, 14, and 17)
22. Use good classroom management. (13 and 19)
23. Set criteria and plan. (30)
24. Be firm.
25. Mentor students.
26. Educate the students.
27. Set the pace.
28. Maintain learning environment.
29. Be attentive.
30. Plan lessons appropriate to learning objectives. (23)

Of the 30 teacher tasks the respondents perceived to be of the greatest importance, 6 referred to the task of "caring for" students. Three of the above also included love for or care about teaching as a job or profession. One student mentioned love for the teaching profession, but did not include students as the object. Two (7 and 15) identified the importance of the teacher giving equal treatment to students. Three students said teachers should teach, educate, and mentor (3, 25, & 26) students. As a result of the identification of a similar task by multiple respondents, it is concluded that the 30 students provided 23 different level one tasks.

Nine students identified being type tasks (6, 8, 11, 14, 17, 18, 20, 21, 24, and 29). Twenty-one respondents identified action tasks, which include 5 student-focused tasks, 7 instruction tasks, and 9 classroom management tasks.

Level Two Teacher Tasks

The 30 students identified the following tasks as being the second most important teacher tasks. Five sets of duplicated tasks (6 and 22), (11 and 20), (18 and 26), (19, 23, and 28) and (4 and 12) reduce the number of different tasks to 24. Being fair is mentioned in items 21 and 24, but because 24 is a compound task, with two apparently equal parts, the two items are treated as two different tasks.

1. Provide icebreakers so students can learn other students' names.
2. Clearly state rules and consequences – be consistent.
3. Meet student needs.
4. Be a positive role model – encourage an inquiring mind.
5. Review student progress—make appropriate modifications.
6. Know students to be able to reach them. (22)
7. Believe all students can learn.
8. Have classroom management skills.
9. Recognize and meet special needs.
10. Appropriate classroom management.
11. Be enthusiastic. (20)
12. Be a good role model—behavior, ethics, thoughtfulness and enthusiasm.
13. Be professional—appearance, attitudes, laws and policies.
14. Establish procedures.
15. Have an open door policy.
16. Set rules.
17. Have an understanding of students.
18. Be interesting. (26)
19. Be prepared. (23, 28)
20. Be enthusiastic. (11)
21. Be stern, but fair.
22. Know students. (6)
23. Be prepared to present lessons. (19, 28)
24. Be fair.
25. Teach.
26. Make class interesting. (18)
27. Be flexible.
28. Be prepared. (19, 23)
29. Teach by hands-on experience.
30. Maintain classroom discipline.

The respondents' perceptions of teacher tasks at the second level of importance individually were slightly more diverse than first level task perceptions (24 to 22 different tasks). The 30 second level tasks clustered around fewer tasks when similar meaning was considered, however. Twenty-two respondents identified distinctive tasks. Five tasks as provided by the same number of respondents addressed the tasks associated with discipline, class rules, procedures, and so forth. Two students agreed on the importance of knowing students (6 and 22), two agreed on the significance of being interesting (18 and 26). Six psychological tasks were identified (7, 11, 17,

20, 24, and 27), and 24 tasks were action tasks. As was true for level one tasks, some respondents used being terminology that appears to be task based; see items 19, 23, and 28 concerning preparation. The 23 action tasks are similar to the three categories reported for Level 1 tasks: 5 student-focused tasks (1, 3, 5, 6 and 22), 14 instructional tasks (4, 8, 9, 12, 13, 16, 18, 19, 21, 23, 25, 26, 28, and 29) and 5 classroom management tasks (2, 10, 14, 15, and 30).

Level Three Teacher Tasks

The third most important teacher tasks identified by the students are as follows:
Five sets of duplicate tasks (1 and 27), (2 and 30), (8 and 28), (13 and 17), and (19 and 26) reduce the number of different tasks to 25.

1. Be available. (27)
2. Use teaching strategies appropriate to diverse learning styles. (30)
3. Be a good role model.
4. Maintain a clean and attractive environment.
5. Communicate student progress.
6. Educate the students.
7. Listen to students.
8. Have knowledge of subjects they teach. (28)
9. Teach to the best of their ability.
10. Develop relationships that foster mutual care and respect.
11. Be creative.
12. Relate definitions and concepts to students' prior experience.
13. Know students by name. (17)
14. Reinforce rules and procedures.
15. Follow syllabus closely.
16. Relate material to real world experience.
17. Know the students. (13)
18. Set rulers and consequences.
19. Genuinely care about students. (26)
20. Be prepared.
21. Be understanding
22. Respect each student.
23. Conduct evaluations and provide feedback.
24. Be consistent.
25. Comfort.
26. Develop a caring relationship with students. (19)
27. Be available.(1)
28. Be knowledgeable. (8)
29. Practice.
30. Adapt instruction to meet learning styles and circumstances. (2)

The 30 respondents provided 25 different perceived tasks at the third level of importance. Some of the students agreed on 10 tasks. Two identified the task of being available (1 and 26), and 2 agreed on the importance of teachers knowing their students (13 and 17), caring (19 and 26), and being knowledgeable (8 and 28). The list of third level tasks includes 5 psychological tasks (19,

19, 21, 22 and 26). Items 11 and 24 are believed to refer to instructional tasks. The remaining 27 action tasks are divided among student-focused, instructional tasks, and classroom management as follows: 9 student-focused tasks (1, 5, 7, 10, 12, 13, 17, 23 and 25), 13 instructional tasks (2, 6, 8, 9, 11, 15, 16, 20, 24, 27, 28, 29, and 30), and 4 classroom management tasks (3, 4, 14, and 18).

Level Four Teacher Tasks

The fourth most important teacher tasks as perceived by the 30 students are presented below. Three sets of duplicate tasks (1 and 3), (13 and 16), and (24 and 28) reduce the 30 items to 27 different tasks.

1. Be flexible and understanding. (3)
2. Listen to students (be caring).
3. Be flexible. (1).
4. Maintain well-organized records.
5. Provide a variety of learning activities geared to leaning styles.
6. Encourage and inspire students to follow dreams and reach goals.
7. Make students feel comfortable and open.
8. Have respect for every one.
9. Teach ethics and encourage respectful behavior.
10. Plan lessons and schedules.
11. Know subject matter.
12. Promote responsible attitudes for actions and consequences.
13. Treat all students equally. (16)
14. Provide help to students when needed.
15. Review material before each class.
16. Treat all students equally. (13)
17. Be there for students (interpreted as being supportive by investigators).
18. Promote group work.
19. Respect each student.
20. Reinforce classroom guidelines.
21. Be kind.
22. Evaluate student progress and problems.
23. Be available.
24. Be caring. (28)
25. Conduct administrative duties.
26. Devise student projects.
27. Classroom Management.
28. Demonstrate care. (24)
29. Follow directions.
30. Construct tests based on learning objectives.

Limited duplication among the 30 respondents' perceptions of fourth level teacher tasks resulted in identification of 27 different tasks. Six students reported psychological tasks (1, 2, 8, 19, 21 and 24). Note student 28 used action language to identify an action task that paralleled

psychological tasks 2 and 24. Collectively, five students emphasized caring, understanding and kindness, and two identified respect (18 and 19).

Thus, at the fourth level 6 (20%) of the students favored attitudes and behaviors related to caring, kindness, respect and understanding. Twenty-four action tasks as identified by the remaining student respondents are divided among nine student-focused tasks (6, 7, 13, 14, 16, 17, 22, 23, and 28), ten instructional tasks (3, 5, 9, 10, 11, 12, 15, 18, 26, and 30), and five classroom management tasks (4, 20, 25, 27, and 29).

Level Five Teacher Tasks

The least important of perceived teacher tasks are listed below. Two sets of duplicate tasks (7, 13, and 28) and (8 and 27) reduce the number of tasks to 27 different tasks.

1. Listen to students.
2. Provide opportunities for students to visit teacher.
3. Be a good motivator.
4. Communicate goals and accomplishments.
5. Maintain time-managed academic schedule.
6. Prepare students for the future.
7. Make learning fun and interesting. (13) (28)
8. Have a good sense of humor. (27)
9. Recognize student differences and appeal to diverse learning styles.
10. Develop positive communication.
11. Consider learning styles in lesson planning.
12. Promote deeper and broader understanding of mathematics and science.
13. Make lessons interesting. (7) (28)
14. React quickly and fairly to conflicts.
15. Prepare students for exams.
16. Don't stereotype students based on past performance.
17. Be able to teach.
18. Be organized—prepared to encourage involvement.
19. Be enthusiastic.
20. Create a classroom culture.
21. Be forgiving.
22. (No response).
23. Be flexible.
24. Be honest.
25. Baby sit.
26. Take field trips.
27. Have a sense of humor. (8)
28. Make learning fun and enjoyable. (7) (13)
29. Work with others.
30. Use varied assessment tools and procedures relate to diverse learners.

The respondents identified 27 different tasks among the 30 tasks reported. It is possible that one of the following occurred at this level: (1) the students were tired of the procedure as suggested

by the absence of a response by student 22, or (2) the students had exhausted their ideas about tasks by this time. The latter possibility is implied by the increasing diversity of identified tasks. Either way, it appears that the student respondents may be less sure of the important tasks at the fifth level than at levels 1 and 2.

The greatest diversity among the respondents thus occurs at this level. Seven of the fifth level tasks are psychological tasks (8, 16, 19, 21, 23, 24, and 27). The remaining 22 students identified seven student-focused tasks (1, 2, 6, 9, 11, 18, and 30), 12 instructional tasks (3, 4, 7, 10, 12, 13, 15, 17, 20, 25, 26, and 28), and three classroom management tasks (5, 14, and 29).

Discussion of Perceived Teacher Tasks

The 30 student respondents identified 125 different tasks within the 5 levels. The greatest agreement among students was among level 1 and level 2 teacher tasks: 22 different level one tasks and 24 tasks at level 2. The least agreement concerned tasks at levels 4 and 5; 27 tasks at each level of importance. There was some observed duplication of tasks across the 5 levels that reduce the total number of substantively different tasks, however. It seems that as few as 81 substantively different instructor tasks are found in the 149 tasks identified. For example, only 11 of the 30 items at level 3 do not appear elsewhere in some form. This indicates that some students agreed on certain tasks but listed them at different levels of importance.

The greatest agreement on the psychological (being or attitudinal) tasks is found among level 1 and level 2 tasks. Across all five levels of being-type tasks, the respondents identified "loving, caring, comforting, respectful, understanding and similar descriptors most often. Fifteen students included such tasks at in levels 1, 3, and 4, while none were included at levels 2 and 5. Thus, one-half of the students identified the above teacher tasks or characteristics as important, with 20% identifying the caring type task as the most important (level 1). See Table 2 for a visual distribution of task types.

Given the nature of most of the psychological tasks, Table 2 reveals that approximately 50% of the students identified teacher tasks related to student-centered teaching at each level. Instructional tasks, least often mentioned at level 1, increased at levels 2 and 3 with slight declines at levels 4 and 5, but were yet more often mentioned than at level 1. Similarly, the management tasks declined with the level of importance from about 30% of the students to about 10% at level 5. The student respondents least often mentioned classroom management tasks, while instructional tasks were mentioned by 37.5% of the respondents. The combination of student-focused action tasks and psychological tasks, which usually related to student-supportive attitudes, account for 45% of the tasks.

According to the teacher tasks as perceived by the student respondents, the following profile is suggested. The teacher has a significant concern for students expressed as love, care, and respect. The teacher engages in planning and preparation, is knowledgeable, flexible, a good motivator, and is available to students. In addition the teacher possesses a number of desirable attributes such as being attentive, enthusiastic, fair, flexible, kind, honest, and understanding.

Table 2. Student-Perceived Teacher Tasks by Type and Level of Importance.

Level	*1*	*2*	*3*	*4*	*5*	*Total*
Psychological	9	6	3	6	7	31
Student-Focused	5	5	10	9	7	36
Instruction	7	14	13	10	12	56
Management	9	5	4	5	3	26
Total	30	30	30	30	29	149

DISCUSSION OF FINDINGS

The students demonstrated great diversity within each of the five levels. That is, limited agreement existed within each of the categories by importance. This means that the student respondents have some general agreement about the important learner tasks, but they are not in agreement concerning the degree of importance of specific learner tasks. Even greater uncertainty about specific tasks as well as the relative importance of those tasks is revealed in the teacher tasks as identified by the student respondents. The diversity among both learner and teacher tasks identified by the students increased as the importance decreased. But the range of substantively different tasks among levels 2-5 is inconsequential. The most obvious finding concerns the much greater consensus on the most important learner tasks compared with any other. Therefore, it seems reasonable to accept the 14 different learner tasks as reflecting the students' expectations. There is less assurance concerning teacher tasks. Furthermore, it seems that the student respondents identified tasks that are supportive of self-direction in learning as the most important of tasks.

The findings of this study differ from those in phase one. In phase one, as reported at the beginning of this paper, the student respondents manifested greater agreement on important teacher tasks and less agreement concerning learner tasks. The opposite finding is true for this inquiry. The reason is not clear. It is possible that the explanation may be found in part in the sample differences; but given the fact that the first study sample was comprised of graduate students and the current study sample included undergraduate students, the opposite outcome might have been anticipated.

Both samples agreed, however, that psychological elements were important in both learner and teacher tasks. This finding emphasizes the reality of the importance of learner characteristics such as desire, meta-cognition, motivation, and perseverance. These seem to be attributes that require time and special environments to develop. Some of the teacher tasks as identified are critical to their development.

The perceived tasks identified for learners and teachers are not mirror images of each other. For example, the importance of the student's self-initiative and goal-setting behaviors is not specifically addressed in teacher tasks. Some illustrative tasks in support of the learner's

behavior in the above areas could be as follows: the teacher presents challenging situations, the teacher encourages self-initiative, the teacher is supportive of persistent efforts, and so forth. Indirectly, some of these learner tasks might be supported by the personal attributes included in teacher tasks. In contrast it does seem that the self-instructional aspects of learner tasks such as studying, being prepared for class, and completing assignments are included in the teacher tasks associated with instruction and classroom management. Further analysis of the findings might possibly reveal a closer correspondence of the tasks than noted here.

CONCLUSIONS

As this inquiry is an extension of phase one, conclusions are presented as follows. First, specific conclusions concerning this research are listed. Then, further conclusions based on comparisons with phase one are noted.

1. The students surveyed are able identify a large number of instructor/teacher tasks.
2. Student agreement on the importance of instructor tasks is limited.
3. The students identified some instructor characteristics, but failed to indicate their significance for instructional tasks.
4. The students identified a few of the same instructor tasks across levels of importance.
5. The students identified a number of instructor action tasks, but also identified a number of personal characteristics as instructor tasks.
6. The student respondents identified a wide range of learner tasks, but greater consensus was found among learner tasks than instructor tasks.
7. The identified learner tasks overlapped more frequently across levels than was true for the instructor tasks.
8. Student choice or student-initiated tasks accounted for the greatest number of student tasks.

Conclusions based on the comparison of phase one and phase two are as follows:

1. Both groups of students identified a wide range of instructor tasks.
2. Both groups identified a wide range of learner tasks.
3. Greater consensus on learner tasks is found in this second group of students.
4. Little difference is noted in the range of instructor tasks between the two study groups.
5. Some differences exist between the groups on the tasks identified for instructors and learners.
6. This second group appears to place greater emphasis on student-initiated tasks than the first group.
7. The explanation for differences between the two groups is only speculative.

Recommendations for Further Research

The following questions are suggested by the above findings and conclusions:

1. How do American student perceptions of learner and instructor tasks compare with those of an international sample?
2. How do learner perceptions compare with perceptions of instructors?

3. How would a different American student sample compare with the findings reported here?
4. What kind of findings would be generated by an in-depth interview concerning learner and instructor tasks?
5. What kinds of tasks might be identified by individuals who score high or low on the Guglielmino *SDLRS*?

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Huey B. Long has served as Professor of Adult Education at the University of Georgia and, most recently, the University of Oklahoma. He has published numerous books, articles, and other publications on self-direction in learning. Founder of the Self-Directed Learning Symposium, he now serves as co-chair. (longhb@yahoo.com)

Stephen K. Agyekum is a Professor of Education at Armstrong Atlantic State University in Savannah, Georgia. He earned his doctorate at the University of Georgia. (agyekust@mail.armstrong.edu)

THE CHANGING ROLE OF TRAINERS: EMERGING TRENDS IN ORGANIZATIONS USING A SELF-DIRECTED APPROACH TO TRAINING

Bill J. Kops and Jane Pilling-Cormick

ABSTRACT

This paper describes the second phase of an ongoing study focusing on developing a further understanding of the role of trainers. Results include trends that represent the trainer's perspective including: blended approaches to training, expanded roles and responsibilities of trainers, decentralized orientation of training, and communities of practice. A comparison of the perspectives of trainers and human resource (HR) managers indicated that they held many common perspectives on the changing role of trainers.

The overall purpose of the study was to identify organizations with training environments that support a self-directed approach to training, and to examine the role of trainers in these organizations. In the first phase of the study, twenty-three (23) organizations were identified with supportive environments for self-directed learning (SDL). Phase 2 focused on examining the role of trainers within these organizations, specifically the roles and responsibilities they perform, how they adapt to new and changing roles, and the skills and knowledge they require to function in a self-directed training environment.

In the first phase of the study, the Self-Directed Learning Perception Scale (SDLPS-T), a 57 item self-report instrument designed to identify the existence of characteristics that support self-directed training, was completed by senior HR managers in ninety (90) organizations (Pilling-Cormick and Kops, 2000). Based on the SDLPS-T scores, twenty-three organizations were identified with training environments that support a self-directed approach to training. Subsequently, the SDLPS-T was completed by employees in several of the same organizations in order to gain a perspective from learners of the training environments (Pilling-Cormick and Kops, 2000). The outcomes of the employee survey were consistent with those of the HR managers in the same organizations suggesting that the SDLPS-T was a useful means by which to assess the training environments. The HR managers also completed a survey on approaches to training and changes to training activities and programs in their organizations. The responses to this survey indicated that changes had occurred in training in a high percentage of organizations with supportive self-directed training environments. Among the changes reported were increases in training staff and budgets, modifications to approaches for evaluation, greater variation in training methods, and adjustments in the responsibilities and skills of trainers. Additionally, respondents commented that changes occurred in training policy, specifically in the creation of policies for reimbursement of external training, and the establishment of minimum employee training requirements.

Phase 2 of the study attempted to gain a better understanding of the role of trainers in organizations with environments that support self-directed training. Semi-structured interviews were used to collect data on how training is defined, approaches to training resources available, the roles and responsibilities of trainers, how trainers adapt to changing roles, and skills and

knowledge required by trainers to function in organizations with supportive self-directed training environments.

In the first part of Phase 2, interviews were completed with HR resource or training managers in eight organizations of the group of twenty-three organizations identified to have supportive environments for self-directed training (Kops and Pilling-Cormick, 2002). Overall, the data collected from HR and training managers indicated that while trainers continue to perform traditional training roles, they are increasingly performing roles and responsibilities that support self-directed learning. The managers suggested that trainers acquired and used skills to function in these expanded roles.

METHODOLOGY: PHASE 2 - TRAINERS

In the second part of Phase 2, semi-structured interviews were conducted with trainers from five organizations identified as having supportive SDL environments. The interview data were analyzed using accepted techniques for analyzing qualitative data. Initially, the data were examined by question and respondent, which produced a checklist matrix (Miles and Huberman, 1984). Secondly, the data from each respondent were aggregated by question. The data were sorted according to the categories established in the first part of Phase 2 of the study: a) perspectives about training, including approaches to training and resources for learning; and b) roles and responsibilities of trainers, including adaptability of trainers and trainers' skills and knowledge.

A summary of the relevant data collected from trainers is presented by category. Observations are made on the data as presented, including comments on similarities and differences between perspectives of HR managers and trainers.

FINDINGS: TRAINERS' PERSPECTIVES ABOUT TRAINING

For the purposes of this study, training was described as learning available in an organization that helps employees acquire new knowledge, information, and skills in order to better perform their jobs**.** Training consists of both formal and informal training. Formal training occurs in the classroom and informal training outside classroom settings, including SDL efforts.

Descriptors of Training

Trainers were asked to describe what training meant to them and how that description may have changed over the last five years. A pattern of five descriptors emerged, which are discussed in the following paragraphs.

More formalized training. Training has become more formalized because businesses are more complex (particularly with increasing technology), operating in more competitive environments, increasing in size (larger number of customers), and implementing new business practices. In addition, a demographic change in staff has increased the need for formal training, i.e. there has been a turnover of experienced, trained staff, and they have been replaced by younger, less experienced staff.

Training decentralization. Training was decentralized and focussed on a business unit or business function, which resulted in trainers working closely with managers or supervisors responsible for the business units to determine training requirements.

Two training components. Training consisted of two related components, both involving trainers: formal or classroom training and workplace training. Formal or classroom training serves a number of purposes, including basic training which provides new programs and information, employee orientation, theory-based training, and training to provide major skill refinement or replenishment. While formal training remained important, sessions have shortened in length in order to minimize the time employees were away from their jobs. Workplace training, occurring at the work site or on-the-job, was typically conducted one-on-one, and was customized to the needs of the individual employee. Workplace training was often used as follow-up to formal training to ensure that training was transferred to the job setting. Workplace training was conducted in the form of peer tutoring (employee to employee), by supervisors, or by on-the-job trainers who were skilled and assigned responsibility to do this type of training.

Seeking input. Trainers increasingly sought input from and involved employees in training activities, including formal training sessions.

Cross-training for multi-tasking. Cross-training was increasing in organizations as employees were required to perform multiple tasks.

Descriptions of Training: Comparison of Trainers' and HR Managers' Perspectives

Trainers and HR managers had similar perspectives about training. Both observed that training was focused on business units, which required a close working relationship between trainers, operating managers and employees. Both recognized the importance of workplace training to the training efforts in their organizations. Reasons given to explain recent changes in training were also similar. HR managers recognized SDL efforts more readily than trainers. While HR managers outlined supporting structures for SDL, trainers talked in terms of increased input and involvement of employees in training activities. Overall, both HR managers and trainers described training as a range of efforts, both formal and informal, and noted that they were increasingly dependent on employee initiative and input.

Approaches to Training as Ranked by Trainers

Given a list of approaches to training and learning that included both traditional and SDL-oriented approaches, trainers were asked to identify and rank the approaches used in their organization. Their responses are listed in Table 1. Researcher observations are presented in seven areas.

Table 1. Approaches to Training (rank ordered*)

Approach	Ranking *
Courses, workshops, seminars delivered by training staff	High
Coaching by supervisors	High-Moderate
Encourage employees to learn from their mistakes	Moderate-High
Coaching employee to employee	Moderate
Group processes to reflect on learning from work experience	Moderate
Encourage constructive criticism and feedback	Moderate
Online instruction	Moderate
Formal exchange of employee expertise among co-workers	Moderate-Low
Courses, workshops, seminars delivered by external trainers	Low-Moderate
Mentorship arrangements	Low
Arranged visits to other organizations	Low

* high/moderate/low - based on summary of rankings of the item

Blended approach. Trainers reported organizations use both formal and informal training approaches, including self-directed training approaches. In other words, blended training approaches were commonplace.

Informal training. While formal approaches were most common, informal training or workplace training, as described earlier, was important in the training activities in organizations.

Employee or problem focus. Formal training was increasingly employee- or problem-focussed versus based on a prescribed curriculum. Trainers indicated that problem situations and learning from mistakes was often used as the basis for training in both formal and informal training. As suggested by some trainers, opportunities for learning were created from constructive criticism and feedback on job performance, including use of feedback forms, monthly performance meetings, weekly meetings to review business activities, and corrective action request processes. This was consistent with an organizational climate that encouraged open communication to foster constructive criticism and learning from mistakes.

Training efficiency. Formal training was used to maximize training efficiency where groups of employees need to be trained on the same topic, e.g. introductory or orientation training.

External trainers. External trainers were not commonly used, except to deliver training on specialized topics.

Online training. Online learning was not widely used, but appeared to be increasing in popularity. Some trainers used online training as a pre-training activity, while others talked about using online learning as a post-training activity. Several trainers recognized online learning as a way to foster and support SDL because it allowed employees to learn on their own initiative, time, and pace.

New approaches emerging. Many of the approaches to training identified were relatively new, i.e. did not exist in the organization 5 years ago, including mentorship, peer training, and on-line training. Overall, trainers admitted that training efforts had increased as the need and

value of training was recognized. Trainers recognized that approaches to training were more varied than in the past.

Approaches to Training: Trainers and HR Managers' Perspectives

Trainers and HR managers ranked the approaches to learning almost identically with two exceptions. Trainers ranked "courses, workshops, seminars by external trainers" low, while HR managers ranked this approach high. There was also a difference in ranking "encourage employees to learn from mistakes," with trainers ranking it higher than HR managers. The differences were difficult to account for, but may simply result from differing perspectives. For example, trainers were more involved in training efforts and gave greater importance to learning from mistakes.

Overall, it appears that organizations used a range of training approaches or blended approaches to training. Formal classroom-type training remained an important approach, but other approaches were ranked high by both trainers and HR managers, including coaching, processes for reflecting on learning, encouraging learning from mistakes, and using constructive criticism and feedback. Several approaches that can support SDL (mentorship arrangements, formal exchange of expertise among co-workers, arranged visits to other organizations), while ranked lower, were part of the mix of training approaches used by organizations. These approaches appeared to mirror the type of engagement that occurs within communities of practice.

Resources Available for Training

Trainers were given a list of training resources, both traditional and SDL-oriented, and asked to identify and rank the resources available for learning in their organizations. Their responses are listed in Table 2. Researchers' observations about their responses are presented in six areas.

Table 2. Resources Available for Training (rank ordered*)

Resource	Ranking *
In–house courses, workshops, seminars	High
Time made available within the work schedule for learning	Moderate-High
Learning Resource Centre	Moderate-High
External courses, workshops, seminars	Moderate
Index of internal subject experts to assist learners	Moderate
Networks between employees to support learning	Moderate-Low
Opportunities to connect with external experts and contacts	Low-Moderate
Learn-how-to-learn training programs	Low
Library/reading room	Low
Learning contracts to guide learners	Low

* high/moderate/low - based on summary ranking of the item

Formal training. Formal training in the form of in-house courses, seminars, and workshops was recognized by trainers as the most prominent resource for training.

Resource centers. Resource centers, although not well developed, existed in organizations in varying forms, including bookshelves, online resources, manuals, and quiet areas. Several trainers noted that resource centers could become increasingly important to training in the future.

Trainer expertise. Trainers were available as experts outside the formal training setting, usually available to employees on request. Other experts available to employees included supervisors, quality agents, external product experts, and business unit experts.

External training resources. External training resources in the form of courses, seminars, and workshops were most commonly used to deliver specialized topics.

Time. Time was routinely available within the work schedule for training, but conflicts existed with productivity goals of an organization. Time constraints can impede training.

Training comprehensiveness. Workplace training efforts increased the comprehensiveness of resources available for training and learning in organizations.

Resources Available: Comparison of Trainers' and HR Managers' Perspectives

Trainers and HR managers ranked the resources available for learning in much the same way. Two differences that did exist were the perceived use of learning contracts and the availability of learning centers as resources for learning. Trainers ranked learning contracts very low, and HR managers ranked them high, while the opposite is true for learning resource centers. Trainers recognized that learning resource centers were not well developed; nonetheless, they indicated that varying types of resource materials are available for learning. Only one trainer identified training development plans (learning contracts) as an important resource to the training in their organization.

Overall, the range of training resources appeared to be considerable, including resources that fit both formal and informal training efforts. The highest ranked resources were matched to formal training efforts, suggesting that formal training in the form of courses, workshops, and seminars remained significant in the training efforts of the organizations. At the same time, resources that support SDL were available, including those that foster communities of practice within organizations.

FINDINGS: TRAINERS' ROLES AND RESPONSIBILITIES

For purposes of this study, a trainer was described as the person in an organization who helps individuals improve performance in their jobs by providing and organizing learning experiences. Typically, trainers are responsible for curriculum development, determining teaching methods, teaching, and evaluating learning. In the organizations studied, trainers identified their positions by varying job titles; the two most common were *training specialist* and *training co-ordinator*. Workplace trainers had varying job titles, including *on-the-job trainer*, *senior counsellor*, and *subject-matter expert*.

Trainers were asked to identify their roles and responsibilities and indicate the importance to their jobs. Their responses can be found in Table 3. The ratings are also presented for SDL-oriented roles and responsibilities (Table 4) and traditional roles and responsibilities (Table 5). Researcher observations follow the tables.

Table 3. Roles and Responsibilities of Trainers (rank ordered by trainers*)

Roles and Responsibilities	Ranking *
Provide feedback/advise on the value of learning	High
Identify training requirements/needs assessment	High
Conduct training sessions	High
Create environments for learning	High
Communicate/seek compliance to training policy	High
Evaluate learning	High
Determine lesson plans and training methods	High
Coach employees	High
Problem solving	High-Moderate
Design training programs	Moderate-High
Improve learning skills	Moderate-High
Provide a range of learning resources	Moderate
Advise employees on value of learning options	Moderate
Schedule training – events and employees in programs	Moderate
Remove barriers to learning	Low-Moderate
Select employees to participate in training	Low
Assist employees evaluate own learning	Low
Mentor employees	Low
Create budgets for training	Low
Develop learning contracts	Low

* high/moderate/low - based on summary ranking of the item

Table 4. Self-Directed Roles and Responsibilities of Trainers (rank ordered by trainers*)

Roles and Responsibilities	Ranking*
Encouraging employees to provide feedback	High
Create positive learning environments	High
Coaching employees	High
Participate in problem solving situations	High-Moderate
Working with employees to improve learning skills	Moderate-High
Advise on the value of training	Moderate
Providing a range of learning resources	Moderate
Working with employees to remove barriers to learning	Moderate-Low
Assisting employees to evaluate own learning	Low
Mentor employees re: career/life plans	Low
Developing individual learning contracts	Low

* high/moderate/low - based on collective ranking of each item by respondents

Table 5. Traditional Roles and Responsibilities (rank ordered*)

Roles and Responsibilities	Ranking *
Determine training needs	High
Conduct training sessions (teaching)	High
Communicate compliance to training policy	High
Determine lesson plans, training methods	High
Evaluating employees performance	High
Design training programs	Moderate-High
Schedule training activities	Moderate
Select employees to participate in training	Low
Create budgets for training	Low

* high/moderate/low - based on collective ranking of each item by respondents

Mixed roles. Trainers performed a mix of roles and responsibilities with about half of the trainers ranking traditional roles as more important to their job than SDL-oriented roles. Only one trainer ranked them as equally important. All trainers rated both traditional and SDL-oriented roles as having some importance to their job. There was variability in the self-directed training roles and responsibilities undertaken by trainers; some trainers described performing them to a greater extent than others.

The top five rated roles, in terms of importance, were: (a) encourage employees to provide feedback on the value of learning experiences, (b) determine training requirements, (c) conduct training sessions, (d) communicate or seek compliance to training policy, and (e) create environments to support and maintain learning. Three of the five were traditional roles.

The five lowest-rated roles, in terms of importance, were: (a) develop individual learning contracts with employees, (b) create budgets for training activities, (c) mentor employees about career plans, (d) assist employees to evaluate their own learning, and (e) select employees to participate in training programs. Three of the five were SDL-oriented roles. Overall, the top ten rated roles were about equally divided between traditional and SDL-oriented roles.

Interaction with business operations. Trainers interacted with business operations to develop training, assess training effectiveness, problem solve, and consult with and advise managers or supervisors on training issues. Also, trainers developed resource materials and information to support employee learning.

Learning environments. Trainers created environments for learning both inside and outside the classroom. Several trainers emphasized the time spent on creating a positive attitude towards training among employees and promoting the value of training within the organization.

Transition of training to work. Trainers indicated that an important part of their responsibilities is to ensure a transition of learning to the work setting, providing support for training in the workplace, and being available for follow-up with employees on the job.

Expert resources. Trainers were available as expert resources to learners on a "request basis" outside of the formal training activities. Also, trainers served as experts to external organizations.

Trainer Roles and Responsibilities: Comparison of Trainers' and HR Managers' Perspectives

With few exceptions, trainers and HR managers ranked the importance of the roles and responsibilities of trainers the same. Overall, they agreed that trainers performed a mix of roles and responsibilities. While SDL-oriented roles were becoming part of what all trainers did, traditional roles remained prominent, specifically identifying training requirements, conducting training sessions (teaching), evaluating employees in training, and determining lesson plans and training methods.

Trainers Adapting to Changing Roles and Responsibilities

The trainers indicated that changes have occurred in the training environments of their organizations. While all the trainers interviewed were relatively new to their positions (less than 5 years experience), they recognized the need to adapt to changing roles and responsibilities, particularly to a training environment that includes greater diversity in training approaches.

Emphasis on improving efficiency. Trainers recognized the pressure to increase individual and organizational performance. This raised the expectation of trainers to improve efficiency in the organization, including improving skills to use technology.

Moving beyond classroom training. Trainers recognized that training was more than formal classroom training, and included program and resource improvements and an array of administrative tasks.

Continual upgrading. Trainers recognized the constant need to upgrade and hone their skills. Trainers reported participating in a variety of courses and specialized workshops. Some trainers credited experience on the job as a way to help adapt to changing roles and responsibilities, while for others self-development efforts had been beneficial, including using library and internet resources on topics related to training and learning.

Adapting to Changing Roles and Responsibilities: Comparison of Trainers' and HR Managers' Perspectives

Trainers and HR managers agreed that trainers must adapt to changing training requirements in organizations. Given that the trainers interviewed were all relatively new to their jobs, there was less need to change "old ways" of doing things. Nonetheless, the trainers recognized the need to hone their skills and knowledge to meet ever-increasing demands for training in their organizations and their expanded roles and responsibilities. Trainers engaged in a variety of learning activities to upgrade their skills and knowledge, both formal and self-directed.

Trainers' Skills and Knowledge

Trainers were asked to identify the skills and knowledge required to perform their jobs in an organization with a supportive approach to self-directed training. The composite set of skills and knowledge is outlined in Table 6, followed by the researchers' observations.

Table 6. Trainers' Skills and Knowledge

Skills and Knowledge	Frequency*
Interpersonal skills – ability to work with a variety of others, patience, diplomacy	7
Understand learning/training processes – teaching and facilitation skills	5
Communication skills	4
Knowledge of business operation	3
Flexible and adaptable in approach to learners	2
A love of learning – model continuing learning	2
Technical knowledge – computer skills	2
Consulting and trouble shooting skills	1
Time management skills	1

* frequency of mention

Range of skills. Trainers recognized the need for a range of skills, many of which equipped them to perform a facilitative role, i.e., skills that go beyond those required to conduct formal training.

Need for flexibility. Trainers required a capacity to meet the increasing demand for flexible training opportunities resulting from a quickening pace of change, changes in technology, and greater time compression.

Trainers as learners. Trainers were expected to be learners themselves and model continuous learning behaviour to others in the organization.

Focus on business functions. Trainers were expected to be increasingly knowledgeable about the businesses in which they work as training becomes more focussed on business operations.

Trainers' Skills and Knowledge: Comparison with HR Managers' Perspectives

Trainers and HR managers recognized the increased emphasis on interpersonal and communication skills and skills needed to work one-on-one with employees in learning situations. Both trainers and HR managers recognized the need for trainers to be better able to relate effectively with employees, managers and supervisors in a consulting or trouble-shooting role. At the same time, both HR managers and trainers indicated that teaching skills and understanding the training process remain important.

EMERGING TRENDS – TRAINERS' PERSPECTIVES

Blended Approaches to Training

A range of approaches used and resources available for training were reported. Formal courses remained important in the training efforts of the organizations studied, but SDL resources and approaches were also available to support employee learning. Particularly evident in the range of approaches that support SDL were mentorship and peer tutoring initiatives, coaching by

supervisors, and a commitment to learn from mistakes and constructive criticism. Some of the resources created by trainers to support SDL included learning resource materials for self-learning, employee coaching, and conducive learning environments. Trainers predicted that the importance of training would increase, including the development of policies requiring minimum levels of training for all employees in an organization and a greater emphasis on cross training to allow employees to be capable of performing multiple tasks.

Expanded Roles and Responsibilities of Trainers

Trainers were performing a widening range of roles and responsibilities, including those that support SDL. Workplace training was important to the training efforts in organizations, with trainers assuming roles to support SDL, such as facilitator, coach, mentor, advisor, and tutor. Trainers emphasized engaging in one-on-one training as a way to follow up formal training and to make their expertise available to learners. They defined their role to include the creation of environments for learning and development of positive attitudes towards training in the classroom and throughout the organization. In other words, trainers may be described as "training ambassadors" within an organization. Trainers were adapting to new and expanding roles and responsibilities by broadening their base of knowledge and skills to include not only teaching skills, but also facilitation and group process skills.

Importance of Training to Business Units

Training has increased in importance, becoming an integral part of the operating success of the organizations studied. Trainers performed an integral role in business operations, which requires good business knowledge. Trainers predicted that both the need for training and the pace of training will increase in the future. The pace of training will increase because of technology both in training delivery that uses technology and the need for employees to keep current with technology. Trainers also predicted that the demand for increased productivity will increase demands for training.

Communities of Practice

There were resources available in organizations that support SDL and the development of communities of practice. For example, in some organizations networks were set up between employees to support individual learning and in others opportunities were created to connect learners with external and internal experts to assist learning. Trainers predicted these types of resources will become more significant in the future, along with resource centers and online learning. It was also suggested that employees will become increasingly key in the identification of training needs and requirements. Some trainers speculated that SDL could be an answer to the demands for an increasing requirement for training, but cautioned that successful SDL approaches required employee initiative and motivation.

Common Perspectives

Both trainers and HR managers offered a similar perspective on the role of trainers and training in the organizations studied. HR managers were somewhat more descriptive of SDL than

trainers. Several researchers (Foucher, 1995; Foucher and Berzot, 1997; Landriault & Gosselin, 1997) claimed that when training departments were interested in SDL, they had attitudes and knowledge that supported SDL. In this case, the HR managers may have been more interested and knowledgeable about SDL, leading them to speak of SDL approaches and resources more directly.

CONCLUSION

The role of trainers in the organizations studied appeared to be similar to what Kops (1993) described as a "renewed role" for training departments (trainers), where trainers not only design and teach formal training programs, but function in an expanded role as a resource for learners. It appeared from the organizations studied that, while trainers continued to perform traditional training roles, they were increasingly performing roles and responsibilities that support informal learning, including SDL. They were adapting to changing and expanding roles and recognized the need to continually acquire skills and knowledge to function effectively in organizations with supportive environments for self-directed training. At the same time, trainers recognized the challenge that results from becoming more integral to the business operation in these types of organizations. As training becomes more broadly based and accountable to the bottom line and the requests for training productivity increase, trainers will need to continue to assess their expanding roles and hone their skills and knowledge to meet new training environments.

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Bill Kops is a Professor and Associate Dean in the Continuing Education Division at the University of Manitoba in Winnipeg, Manitoba, Canada. He teaches both degree and non-degree courses in adult education. His research focuses on continuing professional education.
(bkops@ms.umanitoba.ca)

Jane Pilling-Cormick is a researcher and educational consultant with Professional Learning & Training in Burlington, Ontario, Canada. She created the *Self-Directed Learning Perception Scale* and has published and presented internationally on topics concerning instrumentation and self-directed learning. Her research interests include self-directed learning, instrument implementation, workplace learning, transformative learning, and online learning.
(info@prolt.com)

LANGUAGE BIAS IN THE *LAP*: USE OF THE ENGLISH LANGUAGE VERSION WITH EAST ASIAN POPULATIONS

EunMi Park

ABSTRACT

The *LAP* assesses four constructs (*Desire* to learn, learner *Resourcefulness*, learner *Initiative*, and learner *Persistence*) of adult learner profiles in terms of precursor conditions and behavioral intentions (conates) associated with autonomous learning behaviors. The present study compares the component structure and reliability coefficient alphas for a group of East Asians for whom English is not the first language and a group of Americans for whom English is the first language. The present study concludes that the *LAP* Version 3.0 is reliable for use with the East Asian adults who hold at least a bachelor's degree and an 8th grade English reading level even when English is not their first language. Given this finding, such learners and their facilitators can take advantage of the *LAP* Version 3.0 to assess their behavioral intentions and identify strengths and opportunities to further develop their degree of learner autonomy.

Based upon Confessore and Confessore's four construct model (1994), the Beta Version of the *Learner Autonomy Profile* (*LAP*) (Human Resource Development Enterprises [HRDE], 2001) was published as a battery of instruments developed by four researchers (Carr, 1999; Derrick, 2001; Meyer, 2001; Ponton, 1999). The *LAP* assesses four constructs (*Desire* to learn, learner *Resourcefulness*, learner *Initiative*, and learner *Persistence*) of adult learner profiles in terms of precursor conditions and behavioral intentions (conates) associated with autonomous learning behaviors. Confessore and his colleagues have conducted a series of studies including theoretical reviews (Confessore, 2000; 2001; Confessore, Carr & Park, 2000; Confessore & Confessore, 2000; Confessore & Confessore, 2001; Confessore, Confessore, Palmer & Carr, 2000) and empirical studies (Confessore & Park, 2003; Park & Confessore, 2000; 2002), to merge the four initial instruments into a single battery while preserving the construct validity and high reliability coefficient alphas of each instrument.

In the Beta Version, only the 15 "parent" components (which encompassed the 22 hypothesized components) of the four constructs achieved sufficiently high reliability coefficient alphas. The objective of the most recent revisions was to reach a condition where the originally hypothesized four construct and 22-component structure would be revealed with sufficiently high reliability coefficient alphas to treat all components as reliable evidence that each could be appropriately separated from its "parent" component. This process involved a series of analyses, in which the component structure, inter-item and item-total correlations, and reliability coefficient alphas were calculated to eliminate or modify some items. The analyses produced the *LAP* Version 3.0 (HRDE, 2001), which assesses four constructs and 22 components as a single instrument. Throughout, the original component structures that the authors hypothesized remained intact. The present study compares the component structure and reliability coefficient alphas for a group of East Asians for whom English is not the first language and a group of Americans for whom English is the first language.

Park and Confessore (2000) report a pilot study designed to learn whether the Beta Version *LAP* could be utilized with Asian populations for whom English is not the first language. The sample for their study included sixty graduate students from a large university in the Eastern United States. In order to control for factors that might be associated with admissions and program standards, all participants studied in a single academic program under the same faculty group. Equal numbers of respondents represented three groups: (1) American students studying in the United States for whom English is the first language, (2) Asian students studying in the United States for whom English is not the first language, and (3) Asian students studying in Asia for whom English is not the first language. Component analysis of the Beta Version *LAP* revealed the same structure across the three target groups of the study. Given the small size of the sample, the researchers relied on visual comparison of reliability coefficient alphas for each of the three groups, as well as qualitative interviews to explore the possibility that language or cultural differences might have affected the variance reported by the alphas. Their study concluded that there was no evidence that cultural differences or language competence affected the reliability of the scores for the East Asian respondents. Given the small size of the sample, Park & Confessore elected not to compare the reliability coefficient alphas for the two groups by statistical processes. Rather, they recommended further study with a sample sufficiently large to conduct quantitative analysis to make such comparisons.

The present study relies upon the proofs of Feldt, Woodruff, & Salih (1987) to compare the reliability coefficient alphas of two independent samples of *LAP* Version 3.0 respondents. Since the *LAP* Version 3.0 was derived from the Beta Version *LAP* through item modification or elimination processes, the author has conducted reliability analysis using the latest version of the battery.

Definition of Terms

Learner Autonomy. Learner Autonomy is expressed as the relative capacity to productively participate in learning experiences. This capacity consists of a range of functional learner autonomy that is bounded by two relatively dysfunctional learner states, which are dysfunctional learner dependence and dysfunctional learner independence (Confessore, 2000, p.3).

Dysfunctional Learner Dependence. Dysfunctional Learner Dependence may be characterized by an inability or unwillingness to undertake learning without substantial direction. In the extreme, this individual relies on others to shape all aspects of the learning process (Confessore, 2000, pp. 3-4).

*Dysfunctional Learner Independence***.** *Dysfunctional Learner Independence* may be characterized by an inability or unwillingness to accept guidance or assistance of any type regarding the learning process. In the extreme, this individual does not allow others to participate in shaping any aspect of the learning process (Confessore, 2000, p. 4).

Functional Learner Autonomy. Functional Learner Autonomy is a range of ability and willingness to participate in selecting and shaping learning experiences in which the learner may function independently or in concert with others. The degree to which an individual is engaged in

functional learner autonomy is expressed in the extent that the learner optimizes the learning process by making efficient and appropriate use of personal resources and the resources of others (Confessore, 2000, p. 4).

East-Asian. East Asian is delimited as adults who are nationals of China, Japan, Korea, or Taiwan, and who have their homes in that region. This delimitation of East Asia reflects the International Institute of Education (IIE, 2002) world regional classification that reports that currently 98% of East Asian adult students studying in the United States are from China, Japan, (South) Korea, or Taiwan.

HYPOTHESES

Hypothesis 1: The *LAP*'s pattern of factor loadings is invariant across the English 1st language and English 2nd language groups. (H1: Factor loadings)

Hypothesis 2: The internal consistency, or reliability, of the *LAP* is sufficient within each of the English 1st language and English 2nd language groups. (H2: Internal consistency within each group)

Hypothesis 3: The internal consistency, or reliability, of the *LAP* is not different between the English 1st language and English 2nd language groups. (H3: Internal consistency between groups)

METHODOLOGY

Instrumentation [1]

Extensive research has demonstrated that learner autonomy is a syndrome that consists of four constructs (Confessore & Confessore, 1994). These are: (1) *Desire* to learn, (2) learner *Resourcefulness*, (3) learner *Initiative*, and (4) learner *Persistence*. Recently, Meyer (2001), Carr (1999), Ponton (1999), and Derrick (2001) developed separate instruments based upon the Confessore model that asserts learner autonomy consists essentially of these four constructs. Each of the surveys was constructed at or below an 8th grade English reading level and was found to be valid and reliable using populations of English speaking American adults (Carr, 1999; Derrick, 2001; Meyer, 2001; Ponton, 1999).

Park and Confessore (2000) established factor validity and reliability of the *LAP* Beta Version using a population of Asian adults with English reading skills at or above the 8th grade level. Subsequently, Human Resource Development Enterprises [HRDE] (2001) produced the *LAP* Version 3.0 for American and Asian adults with English reading skills at or above the 8th grade level. Confessore and Park (2003) report the factor validation of Version 3.0 based upon data gathered from American and Asian adults. The present study utilizes the *LAP* Version 3.0, which assesses four constructs and 22 components. These hypothesized factor structures are as follows:

[1] The *Learner Autonomy Profile* is available only as an Internet instrument and it is protected by copyright. Access to the instrument can only be gained by registering at http://www.hrdenterprises.com/pre-reg.html

1. Desire to Learn:
   (1) Circumstances,
   (2) Expression,
   (3) Group Identity,
   (4) Growth and Balance,
   (5) Love Issues,
   (6) Communication Skills, and
   (7) Change Skills.

2. Learner Resourcefulness:
   (1) Learning Priority,
   (2) Deferring Gratification,
   (3) Resolving Conflict,
   (4) Future Orientation,
   (5) Planning,
   (6) Evaluating Alternatives, and
   (7) Anticipating Consequences.

3. Learner Initiative:
   (1) Goal-Directedness,
   (2) Action-Orientation,
   (3) Overcoming Obstacles,
   (4) Active Approach, and
   (5) Self-Starting.

4. Learner Persistence:
   (1) Volition,
   (2) Self-Regulation, and
   (3) Goal-Maintenance.

Sample

Two equal groups (total N=646) were extracted from a proprietary database of 1340 respondents (HRDE, 2002). One group consisted of randomly selected East Asian adults (n=323) for whom English is not the first language and the other group consisted of randomly selected American adults (n=323) for whom English is the first language. All participants were adults who held at least the bachelor's degrees and whose English language reading proficiency was at the 8th grade level or higher. All participants responded to the internet-based survey either voluntarily or as obliged by others. East Asian adults participated from either the United States or from their homelands.

The demographics of the two samples compared in the present study were distributed somewhat differently from one another (See Table 1). For example, the ratio of males to females in the English 2nd language sample was more evenly distributed at 49% female and 51% male than was the gender distribution in the English 1st language sample (71% female and 29% male). The distribution by domestic status was slightly narrower in the English 2nd language sample at 63%

"single" and 37% "not single," and 30% "single" and 70% "not single" in the English 1st language sample. The distributions by age were almost mirror images in that the English 2nd language sample had 48%, 32%, 19%, and 1% in the age categories arranged from youngest to oldest, while the English 1st language sample had 48%, 30%, 12%, and 10% in the age categories arranged from oldest to youngest.

Under some circumstances these differences might well be of concern; however, no previous studies using the Learner Autonomy Profile report significant differences in scores when compared by age, gender, or domestic status (Carr, 1999; Derrick, 2001; Meyer, 2001; Park, 2003; Ponton, 1999; Park & Confessore, 2000; Park & Confessore 2001; Park & Confessore 2002). Although significant differences between high school graduates and holders of graduate/professional degrees have consistently been reported, no significant differences were reported either between high school graduates and holders of the bachelors, or between holders of the bachelors and holders of graduate/professional degrees. Since all participants in the present study held at least the bachelors degree it was decided that there was no reason to compare group data for such variables.

Table 1. Demography of the Sample (N=646)

Demography	English 2nd (*n*=323)	English 1st (*n*=323)
	Frequency (Percent)	Frequency (Percent)
Female	158 (49%)	228 (71%)
Male	165 (51%)	95 (29%)
Single	205 (63%)	98 (30%)
Not Single	118 (37%)	225 (70%)
Bachelor Degree	139 (43%)	143 (44%)
Graduate/Professional	184 (57%)	180 (56%)
Age 18-27	156 (48%)	31 (10%)
Age 28-32	103 (32%)	40 (12%)
Age 33-44	60 (19%)	97 (30%)
Age 45-66	4 (1%)	155 (48%)
Home Origin: China	97 (30%)	n/a
Japan	68 (21%)	n/a
Korea	96 (30%)	n/a
Taiwan	62 (19%)	n/a
United States	n/a	323 (100%)

Analysis

Descriptive statistics, principal component factor analysis, and Cronbach's coefficient alpha reliability analysis were performed with SPSS 11.0 computer software. For the purposes of the

present study, it was decided to use .60 as the minimum level to consider a reliability coefficient alpha to be adequate. This decision was guided by the following considerations:

1. Researchers often follow a rule of thumb proposed by Nunnally (1978) that "reliabilities of .70 or higher will suffice" (p. 245).

2. Nunnally (1967) asserts that in studies of "hypothesized measures of a construct" as is the case in the present study, "… reliabilities of .60 or .50 will suffice" (p. 226).

3. Reviewing the assertions of Nunnally (1967, 1978) and arguments made by Caplan, Naidu, and Tripathi (1984) regarding setting the standard for acceptable reliabilities in any given study, Pedhazur and Schmelkin (1991) assert, "the most important one has to do with the type of decisions made on the basis of the scores and the possible consequences of the decisions" (p. 109).

4. The purpose of the present study was to compare coefficient alphas obtained from two independent samples to determine the degree of comparability of the scores. There was no interest in which group may have scored higher than the other. Therefore, it was decided to set the standard for acceptable alphas at the higher end of the range mentioned by Nunnally (1967) and cited in item 2, above.

RESULTS AND DISCUSSION

Factor Loadings [2]

Hypothesis 1: The *LAP*'s pattern of factor loadings is invariant across the English 1st language and English 2nd language groups.

Primary component analysis reveals similar patterns of factor loadings for the responses submitted by both the English 1st language and English 2nd language groups. Twenty of the 22 components were found to have the same factor loading. The two exceptions are as follows: (1) for the *Deferring Gratification* component of the *Resourcefulness* construct, and (2) for the *Self-Regulation* factor of the *Persistence* construct, the responses submitted by the group for whom English is the 2nd language extracted two components while the responses submitted by the group for whom English is the 1st language extracted a single component.

Therefore, the present study explores the possibilities of language or cultural bias in these two factors. In addition to a discussion of the quantitative results, qualitative results are also reported.

Least contributed-value items. The present study examined the different factor loadings of the East Asian group for whom English is not the 1st language, in cases where more than one component was extracted rather than the single hypothesized component. In such cases, inspection of item-total correlations was utilized to identify the items that contributed the least

[2] Since the *Learner Autonomy Profile* is protected instrument by copyright and international patent regulations, the present study includes neither correlation matrixes nor specific items to report factor loadings.

value to the hypothesized component structure and the items were temporarily removed one at a time until the single component structure was achieved.

First, in the case of *Deferring Gratification*, the following item is discussed:

Item X_1: I will spend most of my time doing other things rather than learning.

In the analysis of *Deferring Gratification*, two components were extracted. Item X_1 reported smaller loading (r= .216) with one of two extracted components (unrotated) while the remaining items had larger loadings (r> .539) with the components. Meanwhile, this item presented larger loading (r= .863) with the other of two extracted components (unrotated). These factor loading conditions represented a simple structure (Nunnally & Bernstein, 1994), in which any one variable (Item X_1) should be highly related to only one factor (component) and most of the loadings on any one factor (component) should be small. Therefore, this item is identified as producing two components instead of contributing to a single component extraction. Also, it was confirmed with a subsequent analysis that the factor loading would be extracted in a single component if this item were removed.

Next, in the case of *Self-Regulation*, two components were extracted and subsequent temporary removal of one item resulted in a single component structure. Among the items for *Self-Regulation*, the following item is discussed:

Item X_2: I will keep my learning goal my top priority although I have other important things to do.

When the initial principal component analysis was conducted, the first factor extraction did not give interpretable factors because all items had large loading (r > .657) with one of two extracted components (unrotated), while all items had smaller loading (r < .468E-02) with the other component (unrotated). To make larger loadings larger and smaller loadings smaller than the initial unrotated values, rotation is applied. Keeping in mind that the intention of the LAP is to accumulate total scores for each of 22 components and four constructs that are assumed to constitute a syndrome, oblique rotation was applied to allow correlations that might exist to emerge. The application of orthogonal rotation was rejected since it "forces" correlations of zero. The result of the principal components with oblique rotation (Promax with Kaiser Normalization) indicated the Item X_2 had the smallest loading (the lowest simple correlation r= .495) with one of two extracted components (rotated), while the item had the largest loading (the highest simple correlation r= .828) with the other component (rotated). This simple structure (Nunnally & Bernstein, 1994) factor loading identified this item as producing another component instead of contributing to a single component extraction. Also, it is confirmed with a subsequent analysis that the factor loading can be extracted in a single component without this item.

Since the purpose of the study was to learn whether the *LAP* in its present form could be reliably used with populations of East Asians for whom English is the second language, these two items became the subject of qualitative interviews with a sample of these respondents to learn how they had interpreted the items.

Qualitative interviews. Once these Items X_1, and X_2 were identified as likely contributors to differences in ways the target groups respond to the *LAP*, interviews were held with 30 participants randomly selected from the group for whom English was not the first language. The interviews resulted in the following: (1) Despite the fact that the *LAP* is not a timed instrument, East Asian respondents reported needing more time than the estimated ten seconds per item for completion of the instrument. This may be a reflection of the need to translate or interpret items. However, (2) they did not think there had been language and cultural bias in their interpretation of the two items identified above. The respondents interviewed were asked if they considered the two items noted above to be unusual in any respect that might affect translation or interpretation. They reported nothing seemed unusual about these items. Therefore, given the preponderance of the evidence of these results, Hypothesis 1 is not rejected.

Internal Consistency

> Hypothesis 2: The internal consistency, or reliability, of the *LAP* is sufficient within each of the English 1st language and English 2nd language groups.

Tables 2 and 3 report sufficient reliability coefficient alphas of .6145 or higher for all of the 22 components and four constructs of *LAP.* The East Asian adult group for whom English is not the first language has reliability coefficient alphas of at least .6905 (standard item alphas of at least .6209) and the American adult group for whom English is the first language has reliability coefficient alphas of at least .6145 (standard item alphas of at least .6294). Interestingly, the East Asian group has higher internal reliability alphas than does the American group in 15 of the 22 factor-components and three of the four constructs (standard item alphas in 12 of 22 the factor-components and three of the four constructs).

With the evidence of these results, Hypothesis 2 is not rejected. Therefore, LAP 3.0 is reliable for the East Asian populations who hold at least the bachelor's degree and at least an 8th grade English reading-level even when English is not their first language.

> Hypothesis 3: The internal consistency, or reliability, of the *LAP* is not different between the English 1st language and English 2nd language groups.

Feldt, Woodruff, and Salih (1987) describe standards for comparison of alpha coefficients obtained from independent samples as follows:

> The experimental problems for which the sampling theory is needed include the following: (1) to test the hypothesis that coefficient alpha equals a specified value for a given population; (2) to establish a confidence interval for the alpha coefficient; (3) to test the hypothesis of equality for two or more coefficients when the estimates are based on independent samples; (4) to test the hypothesis of equality when the observed coefficients are based on the same sample and hence are dependent; and (5) to obtain an unbiased estimate of the population value of alpha. (p. 93)

Standard (3), above, applies to the present study which tests the hypothesis of equality for two coefficients where the estimates are based on independent samples, that responded to the same instrument. It seeks to learn, as a theoretical and practical concern, whether the learner autonomy profiles of East Asian adults for whom English is not the first language are measured as reliably as those of respondents for whom English is the first language. The answer to this question requires a test of the null hypothesis that two alpha coefficients of two populations are equal (H_0: $\zeta_1 = \zeta_2$ or $H_{0:}\ \alpha_1 = \alpha_2$). In such a case, the research hypothesis itself is stated in the null and is accepted when it is necessary to *fail to reject the null* [italic added]. Sample alpha coefficient is denoted by the superscript symbol ^ (often called "hat" or "caret") over the Greek small letter zeta ($\hat{\zeta}$) and its parameter value by ζ in older statistical manuals; recent manuals denote the values by alpha (α for parameter and $\hat{\alpha}$ for sample).

The Feldt approach uses the test statistics $W = (1 - \hat{\zeta}_2) / (1- \hat{\zeta}_1)$ (Feldt, 1969), or $W = (1-\hat{\alpha}_2) / (1-\hat{\alpha}_1)$ (Feldt, et al., 1987). Feldt et al. (1987) proved that "when the reliability parameters are equal, W is distributed as the product of two independent central F variables. This product, it was shown, could be well approximated by a single F with *df* N_1-1 and N_2-1 (1987, p.96)." The critical value of the F-distribution for the sample size of the present study is calculated with *df* numerator 322 and *df* denominator 322, the critical value of the F-distribution is $F(_{322,\ 322})$=1.1925, p=.05 or $F(_{322,\ 322})$= 1.2927, p=.01 (Stockburger, 1996). Table 2 and Table 3 report the calculated Feldt's W values for the present study sample. The symbols (*) and (**) indicate significant difference between the two group coefficient alphas which were determined with the critical value for F-distribution with the present study sample.

Table 2 reports that the *Desire*, *Initiative* and *Persistence* constructs, and 20 factor-components do not have significantly different reliability coefficient alphas for the American and East Asians groups. However, there are significantly different reliability coefficient alphas for the two groups in two factor-components (*Evaluating Alternatives*, and *Anticipating Consequences*, p= .01). If the test level that would be most likely to reject the null for the F-distribution (p= .05) is applied, the researcher must also reject the null for the *Resourcefulness* construct.

Table 3 reports that the *Desire*, *Initiative* and *Persistence* constructs, and 19 factor-components do not have significantly different reliability coefficient standard item alphas for the American and East Asian groups. However, there are significantly different standard item alphas for the two groups in two factor-components (Evaluating Alternatives, and Anticipating Consequences, p= .01). If the test level that would be most likely to reject the null for the F-distribution (p= .05) is applied, we must also reject the null for the *Deferring Gratification* and the *Resourcefulness* construct.

However, Feldt et al. (1987) warn that one should be cautious in interpreting such results. They note:

> It is widely recognized that test reliability is directly related to the variance of true scores. Rejection of the hypothesis of equality of alpha coefficients may come about through a combination of lower error variance and higher true score

variance. Therefore, the outcome of statistical tests based on independent subpopulations must be interpreted with considerable caution. (p. 96)

Table 2. Comparison of Sample Alphas (*N*=646)

Component	Cronbach's Alpha For English 2nd East Asian (*n*=323)	Cronbach's Alpha For English 1st American (*n*=323)	*Feldt's* Test W
Circumstances	.7782	.7968	1.0915
Expression	.6905	.7296	1.1446
Group Identity	.7386	.6533	.7540
Growth & Balance	.7632	.6145	.6143
Love Issues	.7111	.6360	.7937
Communication Skills	.6982	.6561	.8776
Change Skills	.8057	.7308	.7218
Desire Construct	.9457	.9222	.6979
Learning Priority	.9078	.9073	.9946
Deferring Gratification	.6140	.6713	1.1743
Resolving Conflict	.8470	.8265	.8818
Future Orientation	.8992	.9027	1.0360
Planning	.8780	.8723	.9554
Evaluating Alternatives	.7554	.8199	1.3581**
Anticipating Consequences	.7470	.8089	1.3239**
Resourcefulness Construct	.9564	.9643	1.2213*
Goal-Directedness	.9285	.9217	.9132
Action Orientation	.8898	.8609	.7922
Overcoming Obstacles	.8240	.8238	.9989
Active Approach	.8537	.8408	.9190
Self-Starting	.7065	.7352	1.1084
Initiative Construct	.9545	.9534	.9764
Volition	.8750	.8854	1.0908
Self-Regulation	.9181	.9053	.8648
Goal-Maintenance	.9279	.9174	.8728
Persistence Construct	.9663	.9632	.9158

Note: $*F_{(322, 322)}=1.1925$, $p=.05$ or $**F_{(322, 322)}=1.2997$, $p=.01$ (Stockburger, 1996).

Table 3. Comparison of Sample Standard Item Alphas (N=646)

Component	Standard Item Alpha For English 2nd East Asian (*n*=323)	Standard Item Alpha For English 1st American (*n*=323)	*Feldt's* Test W
Circumstances	.7816	.7975	1.0785
Expression	.7011	.7408	1.1532
Group Identity	.7372	.6522	.7556
Growth & Balance	.7637	.6394	.6553
Love Issues	.7182	.6294	.7604
Communication Skills	.6988	.6580	.8807
Change Skills	.8096	.7416	.7368
Desire Construct	**.9479**	**.9249**	**.6937**
Learning Priority	.9102	.9124	1.0251
Deferring Gratification	.6209	.6935	1.2369*
Resolving Conflict	.8479	.8284	.8864
Future Orientation	.9024	.9041	1.0177
Planning	.8852	.8746	.9155
Evaluating Alternatives	.7716	.8259	1.3119**
Anticipating Consequences	.7550	.8125	1.3067**
Resourcefulness Construct	**.9611**	**.9681**	**1.2194***
Goal-Directedness	.9302	.9246	.9257
Action Orientation	.8949	.8749	.8401
Overcoming Obstacles	.8343	.8471	1.0837
Active Approach	.8593	.8561	.9778
Self-Starting	.7473	.7828	1.1634
Initiative Construct	**.9617**	**.9618**	**1.0026**
Volition	.8948	.9042	1.0981
Self-Regulation	.9199	.9086	.8764
Goal-Maintenance	.9307	.9227	.8965
Persistence Construct	**.9692**	**.9669**	**.9305**

Note: $*F_{(322, 322)}=1.1925$, $p=.05$ or $**F_{(322, 322)}=1.2997$, $p=.01$ (Stockburger, 1996).

With this in mind, the reliability coefficient alphas and standard item alphas for the Resourcefulness construct and the Deferring Gratification, Evaluating Alternatives, and Anticipating Consequences components, the factors that leave the hypothesis in question, were inspected. All of these have Cronbach's coefficient alphas higher than the minimum acceptable score of .6000 (alpha .6140 and standard item alpha larger than .6209).

Hence, the results do not provide sufficient evidence to reject the null hypothesis and it is concluded that the LAP Version 3.0 is suitable for use with populations of East Asian adults who

hold at least a bachelor's degree and at least an 8th grade English reading-level even when English is not their first language.

CONCLUSION AND RECOMMENDATIONS FOR FURTHER STUDY

Based upon a careful review of these test results, the present study concludes that the *LAP* Version 3.0 is reliable for use with the East Asian adults who hold at least a bachelor's degree and an 8th grade reading level in English even when English is not their first language. Given this finding, such learners and their facilitators can take advantage of the *LAP* Version 3.0 to assess their behavioral intentions and identify strengths and opportunities to further develop their degree of learner autonomy.

Based upon the findings of this study and those of Park (2003), it is recommended that the *LAP* be considered for use as a diagnostic tool for supporting the learning needs of East Asian adults for whom English is not the first language and who wish to participate in the global society by living, studying or working in countries where English is the majority language, or by living in their native land but working for companies that require high levels of English language competence of their employees.

In order to make the *LAP* available to the broadest possible array of East Asian adults, it is recommended that the instrument be translated and validated in their languages. Given the number of people worldwide who speak the French and Spanish languages, it is also recommend that the *LAP* be translated and validated for use with those populations as well.

The results of this study, and those of Confessore and Park (2003), point to evidence that for some of the components, reliability coefficient alphas have fallen below the .7000 level recommended by Nunnally (1978). If the *LAP* is to be utilized to determine differences among groups and to make important decisions about individuals, higher reliabilities should be sought (Pedhazur & Schmelkin, 1991), rather than the minimum .6000 level of coefficient alpha (Nunnally, 1967). Since the *LAP* assesses learner strengths and opportunities, the authors of the *LAP* should consider evaluating alternative items and/or the elimination of items that are not performing as hoped. In particular, this should include careful scrutiny of all reverse coded items.

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EunMi Park specializes in the study of learner autonomy in East Asian and North American cultures. She is an Assistant Professor of Medicine and the Associate Director of Geriatric Medical Education at The Johns Hopkins University School of Medicine. (EunMiPark@jhmi.edu)