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Preface to the Inaugural Issue

The proliferation of information and technology and the accelerated rate of change in all aspects of our lives have led to increased recognition of the importance of lifelong self-directed learning. Educational institutions at all levels have added the development of lifelong self-directed learners to their mission and goal statements, as have professional associations of nurses, physicians, and engineers, among others.

While much research has been done, there is much more to do in order to understand this phenomenon and the ways in which self-direction in learning can best be developed and supported. Since 1987, the International Self-Directed Learning Symposium has provided a forum for sharing self-directed learning research and theory-building. Papers presented were submitted to a peer review process and those selected were published in a paper format until 2000 and on CDs since that time. In 2003, the SDL Symposium Group voted to alter the publication to a peer-reviewed, online journal open to all contributors, the *International Journal of Self-Directed Learning*.

The *International Journal of Self-Directed Learning* is intended to promote further research and theory-building on self-direction in learning. It is a refereed, electronic journal founded to disseminate scholarly papers that document research, theory, or innovative or exemplary practice. Posted on the sdlglobal.com website, it will provide an international forum for the presentation of important current developments in the study and application of self-directed learning. It will be published biannually.

The inaugural issue begins with an historical overview of research on self-directed learning in the United States, inaugurating a series of similar articles related to self-directed learning in other countries. Following that are two articles documenting research on and implementation of self-directed learning in both traditional and non-traditional college classrooms and two related to instrument development and validation. A practice brief documenting a successful professional development workshop completes this volume. It is a design for a workshop for college faculty to promote understanding and facilitation of self-directed learning; while it was designed for use in a medical college, it could be adapted for use with faculty at any level.

We anticipate that the *International Journal of Self-Directed Learning* will meet a growing need in an important area of scholarship. We hope you find it useful. Your comments are welcomed.

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

International Journal of Self-Directed Learning

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SELF-DIRECTION IN LEARNING IN THE UNITED STATES

Lucy Madsen Guglielmino, Huey B. Long, and Roger Hiemstra

A mind is not a vessel to be filled, but a lamp to be lighted............ Plutarch

ABSTRACT

The development of research and practice related to self-direction in learning has a rich history in the United States. This account includes a discussion of early practice and resources, individual research, compilations of research, and other important forces and publications that provided an impetus for research or affected research design.

One goal of this journal is to provide historical perspectives on the development of research and practice related to self-direction in learning in a wide variety of cultures. This inaugural article in the series will focus on research on self-direction in learning in the United States. We apologize in advance for any decisions of omission or depth of treatment dictated by time and space limitations, as the amount and range of research on this topic has been great.

It is the contention of the authors that learner self-direction is a universal human attribute; it is present in each person to some degree. Self-direction in learning can occur in a wide variety of situations, ranging from a teacher-directed classroom to self-planned and self-conducted learning projects. Although certain learning situations are more conducive to self-direction in learning than are others, it is the personal characteristics of the learner— including his or her qualities of mind and behavior (personality) as well as acquired skills and abilities—which ultimately determine whether self-directed learning will take place in a given learning situation. The self-directed learner assumes responsibility for his or her own learning and more often chooses or influences the learning objectives, activities, resources, priorities, and levels of energy expenditure than does the other-directed learner (adapted from Guglielmino, 1977/78).

EARLY PRACTICE AND RESOURCES

The perception of America as a land of opportunity, where an individual could progress based on individual initiative, ability and effort (Knowles, 1962; Lerner, 1957; McDonald, 1967) created a fertile climate for the promotion of self-directed learning. In Colonial America, self-education was commonly practiced; and was, in fact, essential to survival during the earliest years of struggle to establish settlements. While survival-focused self-education continued as the boundaries of the country pushed westward, a broader interest in education for self-improvement began to flourish in the larger and

wealthier eastern cities, such as Boston, Charleston, New York, and Philadelphia, paralleling the customs of highly-educated Europeans of the time. Even those who were able to access formal schooling saw the pursuit of knowledge as going far beyond organized instruction. Inquiries into the self-directed study of individuals and groups document the vibrant interest and participation in self-directed study of a wide range of topics, such as the Bible and other religious texts, great literature, farming, gardening, home repair, languages, and the domestic arts (Knowles, 1962; Long, 1975a, 1975b, 1976, 1980, 1991b).

Books were treasured commodities in the Colonies, and reading was one of the primary modes of self-directed study. Most wealthy individuals developed large personal libraries of resources on favorite topics, and in 1653 Robert Keayne donated a small private book collection to the citizens of Boston. Supplemented by other donations, his collection was made available for public use in 1673 in Boston's Town House. In 1731, Benjamin Franklin formed the Library Association of Philadelphia, generally acknowledged to be the first of the subscription libraries, voluntary associations of individuals contributing toward the common purchase of books available for use by all members (Knowles, 1962). Wright (1957) notes that many of the books collected by early Americans were primarily utilitarian, dealing with topics such as agriculture, medicine, law, and government; but others were sought after simply because of the "zeal to perpetuate learning, to keep alive the desire for knowledge, and to provide the instruments of self-instruction" (p. 129).

Long's review of eighteenth century newspapers in colonial America revealed a high level of interest in learning that was not addressed by educational institutions (1980). Individuals sought to learn by apprenticeship, through informal societies and associations such as Benjamin Franklin's *Junto*, and by independent means. This drive to learn was recognized by early newspaper publishers who printed regular columns on self-improvement and how-to-do-it tips. Numerous magazines and almanacs added to this self-improvement literature (Knowles, 1962; Long, 1975a, 1975b).

Although their primary learning setting was lecture, Timothy Claxton's Mechanics Institutes and Josiah Holbrook's American Lyceum organizations also promoted individual inquiry and developed reading rooms for independent study. Claxton and Holbrook were highly self-directed in their learning and encouraged those traits in others (Long, 1991b). Barnard's (1838) description of the lyceum highlights the expectation that all members be involved in teaching as well as learning, essentially forming a network of self-directed learners who agree to share their learning with others:

> Lyceums are associations formed for the mutual improvement of their members and the common benefit of society. Their members meet on frank, cordial, and equal grounds. All declare, by joining a lyceum, that they wish to extend their knowledge; and from the manner in which they associate each may become, by turns, a learner and a teacher. (p. 40, cited in Knowles, 1962, p.17)

In addition to delivering lectures and leading discussions, members were expected to develop exhibits, invite inquiries, and "furnish communications …to editors of newspapers," all requiring self-directed learning.

Craik (1840) documented in his *Pursuit of Knowledge Under Difficulties* a variety of approaches to self-instruction and notes that what is learned in schools and colleges is of comparatively small value and must be expanded and kept current by individual reading and study. Hosmer's (1847) *Self-Education* addressed the differences between education initiated and acquired by the individual and that gained from formal learning settings.

Between the American Revolution and the Civil War, the notion that an enlightened citizenry was essential for the functioning of a democratic society became firmly established. While many efforts were focused toward the education of youth, several resources for the self-directed learning of adults became commonplace. In addition to the newspapers, almanacs and magazines already mentioned, theaters, libraries, and museums spread throughout the country (Knowles, 1962). Many voluntary associations that added to the resources for and expectation of self-directed learning were formed during this period, such as the YMCA, YWCA, and numerous agricultural societies. Members of the Grange, for example, were "frequently asked to come prepared to participate in discussions or present talks on particular topics" (Knowles, 1962, p. 41). Women's clubs were formed "to bring together women engaged in literary, artistic, scientific, and philanthropic pursuits, with the view of rendering them helpful to one another" through presentations, discussion, and reading circles (Ely & Chappel, 1938, p. 121). Some churches expanded their educational efforts for their members beyond religious matters to promotion of the moral and intellectual culture of their members through the development of libraries, reading circles, and debating societies (Knowles, 1962).

Building on the heritage of the lyceum and the expansion of educational opportunities that were originally church-related, the Chautauqua, founded in 1874 as a normal school for Sunday school teachers, evolved rapidly into a nationwide program of home reading in history and literature supplemented by local reading circles. Within the first year after the inception of the Chautauqua Literary and Scientific Circle in 1878, more than 8000 had applied for membership in the four-year program (Richmond, 1943).

Also during the late 1800's and early 1900's, many subscription libraries became public libraries; and many new public libraries were formed, either through a variety of state initiatives or the extraordinary generosity of Andrew Carnegie. Carnegie, believing that "the true university …is a collection of books" (Johnson, 1938, p .25), contributed toward the formation of nearly 1700 public libraries during this period, vastly expanding the availability of books to the general public. Two other resources that became more widely available for individual learners in the early 1990s were encyclopedias such as Cary's (1904) *Standard Book of Knowledge* and correspondence programs. The Cooperative Extension Service, an especially valuable resource for rural self-directed learners, was also founded during this period.

The first half of the 20th century was marked by tremendous industrial expansion and two world wars. This period of intense change produced many new venues for the education of adults and saw many others become more fully developed, leading to the establishment of adult education as a field of study and practice. Unfortunately, reflecting the mechanization of the factories, many of the educational opportunities for adults became more other-directed. The use of training for exact replication and reliance on expert presenters became much more common as business and industry increasingly assumed educational functions for their employees. To their credit, however, many companies also provided extensive programs of general education, offering tuition-free classes on a wide variety of topics. During the same period, agricultural education was broadening as the numbers of workers needed to produce our nation's food supply decreased, and a focus on cooperative planning and participatory methods was evidenced (Knowles, 1962).

FOUNDATIONAL STUDIES

During the 1960's two foundational studies laid the groundwork for much of the modern research on self-directed learning. One of the most influential research studies identified with self-direction in learning in the United States was reported in 1961 by Cyril Houle, founder of the first doctoral program in adult education in the country at the University of Chicago. In *The Inquiring Mind,* Houle reported on a qualitative study based on in-depth interviews with adult learners. He concluded that there are three types of adult learners: goal-oriented, activity-oriented, or learning oriented. His "learning-oriented learners" have been identified with self-directed learners by later researchers, and in a 1988 afterword, he identifies investigations of "self-directed study, in which an individual or a group accepts responsibility for designing and pursuing an educative activity" (p. 92), as the best-known sequence of investigations flowing from his focus on examining the adults who continue to learn. Fittingly, one of his last contributions in this area was also a qualitative study of a self-directed learner, an in-depth examination of the life of Sojourner Truth.

In 1965 Johnstone and Rivera reported in *Volunteers for Learning* on an extensive quantitative study of participation in adult learning in the U.S. Their research revealed that 8% of adults in the U.S. were involved in at least one major self-education project in year sampled (1961-62). Among their conclusions was the assertion that "..self-instruction is probably the most overlooked avenue of activity in the whole field of adult education" (p. 37). Two other important influences on thinking related to self-direction in learning in the l960's were Jerome Bruner and Carl Rogers. In 1966 Bruner (1966), in his widely read *Toward a Theory of Instruction*, posited the following definition of instruction: "the provisional state that has as its object to make the learner or problem-solver self-sufficient" (p. 53). In another landmark book, *Freedom to Learn* (1969), Rogers eloquently presented the concepts of teacher as facilitator and encouragement of self-direction in learning as a primary goal of education.

The 1970's were an exceptionally fertile period for the expansion of research and writing on self-directed learning. The national recognition of the demands for continuous

learning created by the increasing rate of change was fueled by popular works such as Toffler's *Future Shock* (1971) and *Learning for Tomorrow* (1974). Concurrently, the literature of adult education focusing on self-direction in learning was expanding rapidly both in volume and approach. Malcolm Knowles, a student of Cyril Houle, introduced the concept of *andragogy* in the US (the term was already in use in Germany at that time). In his 1970 *Modern Practice of Adult Education*, the first of the major assumptions he presented was that adults are self-directed in other aspects of their lives and therefore prefer to be self-directed in their learning. In 1975 he offered a practical manual of the hows and whys of self-directed learning for learners and learning facilitators*, Self-Directed Learning: A Guide for Learners and Teachers,* and he continued to promote the concept and practice of self-directed learning in articles, books and presentations throughout his long and productive career. His definition of self-directed learning is the best-known and most-cited:

> In its broadest meaning, "self-directed learning" describes a process in which individuals take the initiative, with or without the help 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)

Another student of Houle at the University of Chicago, Allen Tough, conducted extensive research on adult self-learners, developing an interview schedule to document such information as how they learned, how many learning projects they conducted on their own each year, and the types of resources they used (*The Adult's Learning Projects*, 1971, 1979). After interviewing 66 learners from very diverse backgrounds, Tough reported that every adult but one was involved in learning projects (98%) and that the mean number of learning projects conducted by the adult learners in the year prior to the interviews was 8.3, with an average of 104 hours spent on each project. Less than 1% were done to gain academic credit, and 68% were self-planned. Tough's initial study and the many replications it engendered provided documented proof that Johnstone and Rivera's supposition that "Self-instruction is probably the most overlooked ….activity in...adult education"(1965, p. 37) was absolutely correct. Although most of his research was done in his native Canada, it began in the US with his dissertation on the tasks performed by "adult self-teachers" (Tough, 1966) and prompted many similar studies in the US that added to our understanding of the prevalence and methodology of adult self-direction in learning. A very comprehensive learning projects study done on US national sample was conducted by Penland (1977, 1979), who also documented adults' reasons for choosing self-planned study: the desire to learn what they choose to learn at their own pace, to maintain flexibility in learning activities, and to structure their own projects.

Three other researchers who did their earliest work on self-directed learning in the late 1970's have remained regular contributors to research and writing on self-directed learning through the present day: Hiemstra, Long, and Guglielmino. In a 1975 publication, Hiemstra reported on an extensive study of the learning projects of older adults, following the Tough methodology. In *Lifelong Learning* (1976*)*, he presented a discussion of andragogy as an evolving area of theory in adult education, and in 1980 and

1982 produced publications on policy recommendations related to self-directed learners and implications for practice. Among his numerous other self-directed learning efforts was the co-development of the Personal Responsibility Orientation (PRO) Model, which views self-direction in learning as encompassing two distinct elements: *self-directed learning* (a process) and *learner self-direction* (a learner's desire or preference for assuming responsibility for learning). The PRO model was highlighted in a book co-authored with Ralph Brockett*: Self-Direction in Adult Learning: Perspectives on Theory, Research, and Practice* (1991). Hiemstra and Brockett also co-edited *Overcoming Resistance to Self-Directed Learning* (1994*)*, and Hiemstra (2004) developed one of the earliest and most comprehensive websites on self-directed learning.

Also in the late 1970's, a new methodology was introduced into self-directed learning research. Guglielmino conducted a three-round Delphi study designed to allow 13 researchers and writers of self-directed learning literature to arrive at a consensus on the characteristics necessary for self-directed learning (including Houle, Knowles, and Tough, among others). In 1977 she published a description of the highly self-directed learner based on the Delphi results as well as an instrument to assess readiness for self-directed learning (the *Self-Directed Learning Readiness Scale* (Guglielmino, 1977/78), also known as the *Learning Preference Assessment* (Guglielmino, L. & Guglielmino, P., 1991), followed by many other publications related to self-directed learning. Its various forms have been used in hundreds of research studies in more than two dozen countries, and it has been described as a major contributor to the proliferation of research on self-direction in learning (Long & Redding, 1991; Long, 1998). Brockett (1985c) noted, "The *SDLRS* has helped to move self-directed learning research beyond description toward a greater understanding of the relationship between self-directedness and certain personological variables" (p. 56). The *SDLRS* continues to be the most widely used quantitative measure of readiness for self-directed learning (Brockett & Hiemstra, 1991; Long, 1998; McCune, 1988/89, Merriam & Caffarella, 1999).

THE ERA OF EXPANSION

Long's examinations of self-directed learning among early Americans in the 1970's were described in the opening paragraphs of this paper. In 1986 he refocused his interest in self-directed learning, founding the annual International Symposium on Self-Directed Learning, which continues to the present day. The symposium promotes self-directed learning research and dissemination through the presentation of original papers addressing research, theory or application of self-directed learning. Through 2003 Long published selected papers from the symposia in an edited book or CD each year; for example, Long and Associates (Eds.), 1988, 1989. A complete list of the publications arising from the symposia can be found on the symposium website (sdlglobal.com). Long has made many other contributions to self-directed learning research and theory-building. His conceptualization of self-directed learning as an interaction between psychological control and pedagogical control (1989) and his model for analysis of interacting variables in self-directed learning (1991a) are often cited, and he also initiated and co-authored several useful compilations of self-directed learning research:

- 1991-- Long & Confessore, *Abstracts of Literature in Self-Directed Learning 1966-1982*,
- 1992-- Confessore & Long, *Abstracts of Literature in Self-Directed Learning 1983-1991*,
- 1991-- Long & Redding, *Self-Directed Learning Dissertation Abstracts 1966-1991*.

Important qualitative studies of self-directed learning were done in the US in the 1980's by Gibbons and others (1980), Spear and Mocker (1984) and Spear (1988). Gibbons, best known for his advocacy of the Walkabout concept in US secondary schools, collaborated on a qualitative study of 20 outstanding individuals who became experts in their fields without the benefit of formal training beyond high school. Examining the biographies of their self-educated experts, they extracted common characteristics and proposed the beginnings of a theory of self-education.

Spear and Mocker (1984) examined triggering events and motivating forces of adult self-directed learning as Tough had done, but also explored the ways resources were acquired by the learners and the reasons for and means of making decisions about the learning process. After studying the projects of 78 self-directed learners who had not earned a high school diploma, they reported a lack of evidence of detailed preplanning and presented the concept of the *organizing circumstance*, or environmental determination of the process of self-directed learning. Spear's 1988 publication softened this deterministic view to some extent, but maintained the assertion of strong environmental influence on the content and process of adults' learning projects. Citing Bandura's (1978) social learning theory, he explored the patterns of knowledge, action, and environment in adults' work-related self-directed learning projects. Knowles' and Tough's efforts to recommend or recognize some routine steps or stages of a self-directed learning project had produced an impression for many that self-directed learning is usually an orderly, linear process, which is often not the case. These in-depth qualitative studies provided additional insights on the non-linearity of many self-directed learning efforts.

Brockett's contributions to self-directed learning research began in 1983 with an examination of self-directed learning and the hard-to-reach adult. He also explored the relationship between life satisfaction and self-directed learning readiness (1985b) and co-authored numerous publications with Hiemstra. Brockett and Hiemstra's (1991) *Self-Direction In Adult Learning* provides one of the most comprehensive reviews of the literature on self-directed learning. Three major points related to their PRO model clarified important aspects of self-directed learning research and theory:

- individuals taking responsibility for their own learning is central;
- self-direction can be seen as both an instructional method (self-directed learning) and a personality characteristic (learner self-direction); and
- the social context in which learning takes place is important.

Following earlier research on self-direction in learning that was done in England, Brookfield (1984) presented a critical paradigm of self-directed learning in the *Adult Education Quarterly*, arguing for the use of a broader range of research methodologies. His critical review of self-directed learning research was answered by Brockett (1985c), who identified three distinct streams of inquiry into self-directed learning, which are described in a later section of this paper.

Brookfield also edited *Self-Directed Learning: From Theory to Practice* (1985), which provides an overview of self-directed learning research and attempts to bridge the gap between theory and practice, as its name suggests. This was followed in 1986 by *Understanding and Facilitating Self-Directed Learning*, which emphasized the aim of facilitation as the "nurturing of self-directed empowered adults" as well as the development of learning networks by self-directed learners, challenging the isolation stereotype of the self-directed learner. Brookfield has also produced many additional articles and books related to self-directed learning.

In 1984 Oddi designed a quantitative assessment to measure readiness for self-directed continuing learning of professionals, the *Oddi Continuing Learning Inventory (OCLI)*. Other quantitative assessments that have been developed include the *Self-Directed Learning Perception Scale* (Pilling-Cormick, 1996) and the *Learner Autonomy Profile* (Confessore & Confessore, 1994, later expanded through the work of Carr (1999), Ponton (1999), Meyer (2001), and Derrick (2001). The SDLPS is designed to assess the degree to which an environment is conducive to self-direction in learning. The LAP is a battery of tests designed to measure behavioral intentions linked to self-direction in learning.

In an expansion of the Gibbons et. al. (1980) approach, Cavaliere (1989) conducted a case study of how the Wright brothers learned to fly, examining data from a 28-year period. Based on her analysis of their process of independent learning, which resulted in the first sustained flight, she proposed an interactive model of their self-directed learning. It consisted of five stages: inquiring, modeling, experimenting and practicing, theorizing and perfecting, and actualizing (receiving recognition). Within each stage, four cognitive processes were repeated: goal setting, focusing, persevering, and reformulation.

Also in 1989, McCune published *A Meta-Analytic Study of Self-Direction in Learning, 1977-1987*, in which she verified a variety of variables associated with self-direction in learning across 67 studies using different methodologies. She reported that the most frequently used tools for research in self-directed learning were Guglielmino's *SDLRS* and Tough's interview schedule; and she identified a number of variables that were associated with self-direction in learning in the meta-analysis: Degree of self-directed learning activity, positive self-concept, educational attainment level, self-development, autonomy, ability to master the environment in work, school, play, and social relations, and factors related to longevity on the job.

In 1991 Grow published his staged self-directed learning model in the *Adult Education Quarterly*, proposing four stages of readiness for self-directed learning and discussing appropriate instructional approaches for each. The model evoked much interest and discussion and is often cited.

Confessore and Confessore (1992) used the Delphi technique to arrive at some consensus among 27 panelists (reputational experts in self-directed learning representing five countries) on the most important citations related to self-directed learning. The top 12 published works that panelists agreed should be read as an introduction to self-directed

learning were as follows in descending order: Tough (1979), Houle (1961), Long and Associates (1988), Brookfield (1985), Knowles (1975), Long and Associates (1989), Spear and Mocker (1984), Tough (1978), Long and Associates (1990), Brookfield (1986), Caffarella and O'Donnell (1987), and Tough (1982). Synopses and discussions of these 12 publications, written by current self-directed learning researchers, were published as *Guideposts to Self-Directed Learning*. The authors also recommended an additional seven publications developed after the conclusion of their research: Brockett and Hiemstra (1991), Candy (1991), Long and Associates (1991), Long and Associates (1992), Confessore and Long (1992), Long and Confessore (1992), and Long and Redding (1991).

CLASSIFICATION SCHEMA

Several authors have attempted to analyze and classify the body of research on self-direction in learning in the U. S. Brockett (1985c) described three distinct streams of inquiry: (a) descriptive research (based on Tough's interview schedule); (b) quantitative research (focused on the relationship between self-directedness and a variety of psychosocial variables, primarily through use of Guglielmino's *SDLRS*), and (c) naturalistic studies using qualitative analysis (Brookfield, Gibbons, Mocker and Spear, Leean and Sisco).

In their 1991 book, Brockett and Hiemstra provided extensive reviews of the literature on each of the three streams of research and noted that they are not sequential, but concurrent:

> It is important to bear in mind that while these three streams of research have evolved in a somewhat sequential manner, they are not distinct stages of research. In other words, newer methodologies have not replaced previous approaches. Rather, each stream of inquiry continues to serve an important role in addressing specific types of research questions relative to self-direction in learning. (p. 40)

Caffarella and O'Donnell, writing in 1987 in the *Adult Education Quarterly*, proposed five categories of research and theory in self-directed learning: (a) writings focusing on the nature of the philosophical position (conceptual perspectives on the process of self-directed learning); (b) verification studies (descriptive investigations of learning projects conducted by adults); (c) writings focusing on the nature of the method of self-directed learning (how learning projects are planned and implemented); (d) writings focusing on the nature of the individual learner (who participates and why); and (e) writings focusing on policy questions.

In 1999, Merriam and Caffarella noted in *Learning in Adulthood* that developing lifelong, self-directed learners has now been incorporated as a major goal of many lower schools, colleges and universities and that the study of self-directed learning has emerged as one of the central thrusts of adult education research over the past three decades. They present

their review of self-directed learning research in three broad categories: (a) *related to goals of self-directed learning*: enhancing the ability of adults to be self-directed in their learning, fostering transformational learning as a central process in self-directed learning, and promoting emancipatory learning and social action; (b) *examining self-directed learning as a process or form of study*: linear, interactive, and instructional models; and (c) *considering self-directed learning as a personal attribute of the learner:* readiness and autonomy.

RECENT ANALYSES OF THE LITERATURE

Researchers focused on self-directed learning have been quite fortunate to have access to numerous compilations and reviews of the literature to assist in their research. In addition to those already mentioned, extensive analysis of the literature on self-directed learning has been continued by Brockett and his colleagues in the University of Tennessee SDL Study Group. In a content analysis of articles on self-directed learning published in fourteen periodicals between 1980 and 1998, they reported a steady decline in the number of articles on self-directed learning since the mid-1980s; however, when they examined the research on self-directed learning published in books of selected papers from the Self-Directed Learning Symposia, it became apparent that the total volume of research had not diminished. Brockett, Stockdale, Fogerson, Cox, Canipe, Chuprina, Donaghy, and Chadwell (2000) completed a content analysis of two decades of literature on self-directed learning by looking at 14 periodicals related to adult education. The 11 periodicals that contained one or more pieces pertaining to self-directed learning from the period 1980 through 1999 were as follows: *Adult Basic Education* (formerly known as *Adult Literacy & Basic Education*), *Adult Education Quarterly, Adult Learning* (formerly known as *Lifelong Learning*), *Continuing Higher Education Review* (formerly known as *Continuum*), *Educational Gerontology, International Journal of Lifelong Education, Journal of Continuing Education in Nursing, Journal of Continuing Higher Education* (formerly known as *Continuing Higher Education*), *Mountain Plains Journal of Adult Education, Proceedings of the Adult Education Research Conference,* and *Training & Development*. A total of 122 pieces were reviewed. The top three producers were the *Proceedings of the Adult Education Research Conference* with 40 pieces, the *Adult Education Quarterly* with 29 pieces, and *the Journal of Continuing Education in Nursing* with 21 pieces.

They also looked at the productivity level of various authors associated with the publications. They noted the following:

> Six authors: Rosemary Caffarella (n = 9), Ralph Brocket (n = 8), Huey Long (n = 8), Stephen Brookfield (n = 6), Lorys Oddi (n = 5), and Randy Garrison (n = 3) wrote approximately one-third of the total articles published on self-direction. All of these authors, with the exception of Oddi, continued to write on this topic well past the peak period (1983 – 1991). Brockett, Brookfield, Caffarella, Garrison and Long wrote 40% of the 20 articles on self-direction between 1992 and 1998. (pp. 8-9)

Stockdale, Fogerson, Robinson, and Walker (2003), working through the same SDL Study Group at the University of Tennessee, utilized a similar content analysis approach to examine the publications arising from the annual International Self-Directed Learning Symposia from 1990 through 2000. They reviewed a total of 214 chapters from this time period and also examined the contribution level of various people. The top five contributors were Huey Long (32 chapters as author or co-author), Lucy Guglielmino (13), Gary Confessore (10), Jane Pilling-Cormick (10), and Terry Redding (9). Hiemstra (2002) completed an analysis of all the proceedings (1988 through 2003) and discovered that the top five producers were the same, although the order changed slightly: Long (46), Guglielmino (18), Pilling-Cormick (17), Redding (12), and Confessore (11).

Donaghy, Robinson, Wallace, Walker, and Brockett (2002) completed a citation analysis of self-directed learning literature by examining 127 journal articles. The top twelve most frequently cited references were as follows: Tough (1971), 42 times; Guglielmino (1977/78), 37 times; Knowles (1975), 31 times; Knowles (1970), 21 times; Brookfield (1984), 16 times; Hassan (1982), 15 times; Brookfield (1981), Johnstone and Rivera (1965), and Sabbaghian (1980), each 14 times; and Brockett (1985a), Brookfield (1986), and Houle (1961), each 13 times. They also noted the most frequently cited authors. The top 10 either as a first author or as part of an authoring team were: Brookfield (cited 199 times), Long (116), Tough (81), Knowles (78), Guglielmino (76), Brockett (65), Caffarella (43), Houle (36), Hiemstra (34), and Smith (26). The literature on self-direction in learning continues to proliferate at a rapid pace, spurred by the increasing recognition of its criticality in addressing the challenges of modern life.

Merriam and Caffarella (1999) make several recommendations for the development of a richer research agenda on self-directed learning. They suggest that there has been insufficient critical dialogue and use of the theory and models that have been developed and call for data-based studies grounded in these models. They also note a continual disregard of previous researchers' suggestions for further research and present seven questions which they contend have been largely unaddressed. Their final recommendation argues against the predominant use of the quantitative or positivist paradigm, asserting that self-directed learning is a multifaceted concept that can best be researched through a variety of research paradigms.

Merriam (2001) later traced the development of theory and research in andragogy and self-direction through the history of adult education as a field of practice, concluding that "andragogy and SDL have become so much a part of adult education's identity, and have had such an impact on practice, that … these 'pillars' of adult learning theory will continue to engender debate, discussion, and research, and in so doing, further enrich our understanding of adult learning" (p. 11).

While this treatment is necessarily brief, it becomes obvious that self-direction in learning has been one of the most active streams of inquiry in adult education research in the US in the last 40 years and the attention to self-direction in learning, both in the United States and internationally, is unlikely to diminish. In fact, as globalization, technology, and societal change continue to escalate, self-directed learning becomes more

essential to the success of individuals, their families, the organizations which employ them, and the societies in which they live. Continuous learning has become an indispensable tool for a satisfying and productive life.

This article focused on literature in English, written in the United States. 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; and research into self-directed learning has developed along different paths and under the influence of different forces in other cultures. A sharing of such differences, especially across language barriers, is needed. We hope to facilitate further understanding of the development of research and practice in self-directed learning across cultures through the remainder of the articles in this series.

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PRIOR KNOWLEDGE, SELF-DIRECTED LEARNING READINESS, AND CURIOSITY: ANTECEDENTS TO CLASSROOM LEARNING PERFORMANCE

Thomas G. Reio, Jr.

ABSTRACT

In this study, the author investigated how prior knowledge, self-directed learning readiness, and curiosity impacted classroom learning performance in a college classroom. The survey data were collected from a cross-sectional sample (N = 121) of senior-level education undergraduates. Correlations, ANOVAs, and hierarchical regressions were employed to construct a conceptual model of the antecedents to learning performance. Males demonstrated significantly higher levels of self-directedness and learning performance. Prior knowledge had no relation to any of the variables except ethnicity. Self-directed learning readiness was the most powerful predictor of learning performance. After controlling for the possible confounding effects of age, gender, and ethnicity, self-directed learning readiness and curiosity uniquely predicted the dependent variable. Further research directions are discussed.

Prior research has shown that those with prior knowledge about a subject have better classroom learning performance (Hidi & Anderson, 1992). More specifically, prior knowledge can powerfully influence what younger and older readers understand and recall from the assigned readings of a college course (e.g., Meyer & Talbot, 1998; Smith, 1998). For example, Alexander, Kulikowich, and Schulze (1994) explored the influence of subject-matter knowledge and interest (a curiosity-related construct; Dewey, 1910) on college students' comprehension of scientific writing and found that topic knowledge and interest both significantly predicted students' performance on a comprehension test.

Recent research is clarifying the role of another variable, curiosity, in motivating learning in both formal and informal learning contexts (e.g., Reio & Wiswell, 2000). Curiosity, the desire for information and knowledge (Berlyne, 1960), stimulates exploratory behaviors, specifically observing, consulting, and thinking. In situations where learners' perceive that they lack information (e.g., about performing a new mathematical operation), their curiosity is situationally aroused and motivates them to fill their information gaps by exploring their environments (Loewenstein, 1994). Strategies that one might use to answer curiosity-induced questions about mathematics might include observing a classmate performing the mathematical operation; consulting with the teacher about how to perform the task successfully; and thinking or reflecting about how to make the task personally meaningful by linking it to previous experience. Differences in the effective use of metacognitive strategies to answer curiosity-driven questions in social, moral, and cognitive domains are age-related (Flavell, Miller, & Miller, 2002; Schrader, 2003; Schraw, 1998).

Self-directed learning readiness has also predicted classroom learning performance. With a group of middle school students, Wall, Hoban, and Sersland (1996) found that higher self-directed learning readiness predicted classroom mathematical performance. Likewise, in a study of retirement-age learners enrolled in a computer skill class, Redding, Eisenman, and Rugulo (1999) discovered that andragogically-oriented classroom designs reduced learner anxiety and subsequently encouraged learners to ask questions. This increase in questioning, in turn, increased the likelihood of success in the course. Moreover, in a study of nontraditional master's program students, Long and Morris (1996) found that self-directed learning readiness was "a useful single-predictor variable of academic success," after controlling for intelligence (GMAT scores) (pp. 146-147). Overall, the bulk of the literature suggests that individuals demonstrating higher levels of self-directed learning readiness are more likely to be independent and responsible for their own learning (Knowles, 1990), tolerant of risk and ambiguity, reflective, self-starting, creative, and ultimately successful in various learning contexts (Candy, 1991; Reio & Leitsch, 2003).

While prior subject knowledge, self-directed learning readiness, and curiosity have each been shown to relate to better learning performance in classrooms, the interrelationships among the variables and their unique contributions to learning performance have not yet been explored. Thus, there is a lack of information about the possible effects of these variables on individual learning performance. As a first step to fill this information gap, this exploratory study investigates the unique and combined contribution of each of these variables to classroom learning performance.

METHOD

This section of the paper describes the methods used to collect and analyze the data.

Participants
This convenience sample consisted of 121 seniors in human development courses designed for elementary (37%) and secondary education majors (63%) at a major university in the mid-Atlantic region of the United States. The students were majoring in a range of subjects including art and music education, social studies, English, science, and math. The sample was 72% Caucasian, 23% African-American, and 5% "other." Fifty-three percent of the participants were female ($n = 64$), and the mean age was 25.4 ($SD = 3.1$). Each individual participated voluntarily and under the condition of confidentiality. No one refused to participate.

Research Instruments and Procedures
Prior subject knowledge, self-directed learning readiness, and curiosity were measured during the first class meeting of the semester. Classroom learning performance was assessed separately through the midterm examination, a question on the final examination (*What did you learn about human development and learning in this course?*; 25% of the final examination grade), and the final course grade.

On the first day of class, after learning the purpose of the class' opening exercise, volunteer participants divided a sheet of paper into two columns. In the left-hand column, they wrote *what they know* about human development and learning. In the right-hand column, they wrote what they would *like to know* about human development and learning. They were given 20 minutes to complete the exercise. The information in the first column served as the prior knowledge measure, while the information in the second column served as the curiosity measure. This approach to measuring variables through written analysis is consistent with prior exploratory studies in psychology and education (e.g., Connor-Greene, 2000; Polyson, 1985).

Next, the students took the self-directed learning readiness instrument. Self-directed learning readiness was measured with the *Self-Directed Learning Readiness Scale*-Form A (*SDLRS*; Guglielmino, 1977). The *SDLRS* contains 58 items assessing self-directed learning readiness on a 5-point Likert scale ranging from 1 "almost never true of me" to 5 "almost always true of me." The 58 items are summed (17 are reverse coded) to ascertain the participant's *SDLRS* score. Overall, the *SDRLS* is a global measure of self-directed learning readiness. Prior researchers have reported high internal consistency for this instrument (e.g., .92; Reio & Leitsch, 2003). In this study, the Cronbach's alpha for the *SDLRS* was .86, with a mean of 228.05 (SD = 29.16). Finally, at the end of the testing period, the students filled out a questionnaire that assessed demographic variables (age, gender and ethnicity).

Data Analysis
The prior knowledge, curiosity, and learning (part of final examination) data were coded on a modified version of a 4-point scale developed specifically for coding written comments in learning contexts (Connor-Greene, 2000). The comments were coded as follows:

- 3 points—Concepts are well explained with relevant examples.
- 2 points—Concepts are not well explained, or examples do not appear to fit.
- 1 point—Concepts are not well explained, and the examples are unclear.
- 0 points—The participant claimed no prior knowledge of human development and learning (prior knowledge), or the participant claimed he or she was not interested in learning about human development (curiosity). Two participants indicated they were enrolled in the class "only because they had to be."

One additional trained researcher reviewed the coded data. Interpretation of the data was reasonably consistent, with an inter-rater reliability of .82. Final data analysis of all the variables and their relationships was conducted with SPSS version 11.0.

RESULTS AND DISCUSSION

Table 1 presents the correlations among the research variables. The midterm and final examination, and the final course grade were highly intercorrelated (rs > .71, p < .001). Thus, learning performance, which demonstrated the most robust relationship with most of the research variables, was used as the dependent variable in all subsequent analyses.

Gender had a statistically significant negative relationship with SDLR and performance on the final examination (question relating to *what was learned*). These findings suggest that the female participants' lower levels of self-directed learning readiness may have negatively affected their classroom learning performance. The results also reflect the inconsistency of research findings concerning gender and level of self-directed learning readiness (see Long & Morris, 1996; Reio & Leitsch, 2003). Age was statistically and positively related to self-directed learning readiness, suggesting that the older participants were more likely to think of themselves as being self-directed, consistent with earlier research with these variables (Long & Morris, 1996). The statistically significant negative relationship between ethnicity and prior knowledge indicated that the African-American participants demonstrated less prior knowledge of human development and learning.

Table 1: Intercorrelations Among the Research Variables

	1	2	3	4	5	6	7
1. Age	--						
2. Gender	.10	--					
3. Ethnicity	.03	-.34	--				
4. Prior Knowledge	.13	.15	-.21	--			
5. SDLR	.45	-.27	-.17	.05	--		
6. Curiosity	.09	.07	.01	.01	.01	--	
7. Learning Performance	.03	-.38	.17	.01	.45	.20	--

Notes. N = 121. Correlations $\pm$ .20 - .26, *p* < .05; $\pm$ .27 - .45, *p* < .01. SDLR = Self-Directed Learning Readiness

In contrast with many prior studies (e.g., Alexander et al., 1994; Hidi & Anderson, 1992), prior knowledge was significantly related to only one of the other research variables, ethnicity, but was not related to curiosity, self-directed learning readiness, or classroom learning performance. Perhaps the students did not need prior knowledge of human development to perform well because the class was an introductory course. This interesting finding warrants additional research.

Curiosity, operationalized as what the participants "want to know," exhibited a weak positive relationship with performance on the final examination. This suggests that curiosity, which is most often considered to be a transient motivational variable, might influence long-term learning outcomes in the classroom. This finding also warrants further research.

The gender and ethnic main effects on self-directed learning readiness and learning performance were statistically significant. Post hoc analyses (Scheffé) further supported this finding. With self-directed learning readiness as the dependent variable, a two (gender) x three (ethnicity) ANOVA demonstrated: gender ($F1$, 120) = 18.19, $p < .01$ and ethnicity ($F2$, 119) = 4.02, $p < .03$. The gender-ethnicity interaction was statistically significant as well ($F2$, 119) = 9.24, $p < .01$. These results indicate that females, particularly African-American females, scored lower on the *SDLRS*. The results of a two (gender) x three (ethnicity) ANOVA with learning performance as the dependent variable were as follows: gender ($F1$, 11.47), $p < .01$; ethnicity ($F2$, 4.78), $p < .02$. The interaction between gender and ethnicity ($F2$, 1.81), $p > .05$ was not statistically significant. This result suggests that males demonstrated higher levels of learning performance on the final examination question.

Subsequent to the prior analyses, hierarchical regression analyses were used to build a conceptual model. The model suggests that after controlling for relevant demographic variables (age, gender, and ethnicity), prior knowledge, self-directed learning readiness, and curiosity uniquely predict learning performance. The order in which the variables were entered into the analyses was directed by the literature, as demanded by hierarchical analytic convention (Cohen & Cohen, 1983).

The demographic variables were entered first as a block and explained 14.2% of the variance in learning performance (gender and ethnicity each reached statistical significance). The second block entered into the analysis, prior knowledge and self-directed learning readiness, uniquely explained an additional 13.0% of the variance (self-directed learning readiness was the only significant predictor in this block). Curiosity was the sole variable in the third block, which explained a statistically significant 2.0% of additional variance in learning performance. In sum, the conceptual model explained 29.2% of the variance in learning performance. See Table 2.

CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

This exploratory study generated a conceptual model in which gender, ethnicity, self-directed learning readiness, and curiosity uniquely predicted classroom learning performance. While females demonstrated lower self-directedness and classroom learning performance in this investigation, their prior knowledge and curiosity levels were comparable to those of the males. Further, ethnic differences in self-directed learning readiness and learning performance were revealed. The male Caucasian participants tended to score higher than females on both variables.

SDLR was by far the most robust predictor of learning performance after the possible confounding effects of age, gender, and ethnicity were controlled. This result affirms the significance of SDLR in learning contexts and extends Long and Morris' (1996) research with nontraditional graduate students to a traditional undergraduate population. The evidence from this study suggests SDLR can differ with age, gender and ethnicity; thus, this issue may need to be addressed in the classroom. Researchers are urged to find novel ways to develop SDLR to attend better to the needs of all adult learners, principally as

they relate to the greater learner choice and responsibility inherent in self-directed learning (Knowles, 1990).

Table 2: The Contributions of Demographic Variables, Prior Knowledge, Self-Directed Learning Readiness, and Curiosity to Classroom Learning Performance

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Variable	Beta	R^2
Step 1:		
Demographics		
Age	.13	
Gender	-.24	
Ethnicity	.18	
		.142***
Step 2:		
Prior Knowledge & Self-Directed Learning Readiness (SDLR)		
Prior Knowledge	.08	
SDLR	.44	
		.130***
Step 3:		
Curiosity		
Curiosity	.16	
		.02*
Total		.292***

Notes. N = 121. Standardized beta weights are presented. **p* < .05; ****p* < .001.

Curiosity positively and uniquely predicted classroom learning performance in this study. This finding supports the value of enhancing curiosity to motivate positive learning performance, as has been indicated in previous research (Reio & Wiswell, 2000). In contrast to Barnes' (1999) findings, though, curiosity was not related to SDLR. This apparent inconsistency may be an artifact of the different measures of curiosity employed in these studies. Nevertheless, inasmuch as curiosity has been shown to powerfully motivate classroom learning behavior (Loewenstein, 1994) and learning in general (Berlyne, 1960), these results suggest that we need to find ways to stimulate and maintain curiosity in our classrooms. Thus, teachers, trainers, and professors may want to consider ways to promote *situational curiosity* and to develop a tendency *to be curious* among their students. The degree to which both types of curiosity might increase the likelihood of higher levels of learning performance should be investigated.

As with any study, this inquiry has research limitations. First, because this exploration used a cross-sectional convenience sample, generalizations should be applied cautiously to similar research samples only. Future research might be informed by testing the conceptual model in different learning contexts, with samples with different profiles with respect to age, gender, and ethnicity. In addition, a longitudinal investigation extending, for example, from the time students enter college until they graduate might shed additional light on the contributions of these independent variables on classroom learning performance. Third, the prior knowledge, curiosity, and learning performance measures may be problematic. Although inter-rater reliability was high, employing alternative, more objective measures of each variable would be the next step in generalizing the conceptual model beyond this exploratory study.

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CONSTRUCTING SCAFFOLDS FOR SOCIAL ONLINE LEARNING: USING SELF-DIRECTED FRAMEWORKS WITH VIRTUAL GROUPS

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ABSTRACT

Self-direction has generally been considered as an individual facet of the learner. Consequently the use of self-directed tools such as learning contracts, diagnostic instruments and reflective participation have not been explored for application in joint endeavors, as a means to identify a common goal, plan, and overall educational direction. Therefore, the intention of this action research study was to explore the impact of several interventions aimed at facilitating effective social, self-directed learning in web-based environments. This study involved a total of 81 Educational Leadership graduate students divided among three successive semesters of the identical course title. Each semester the course structure was modified based on collected data. At the conclusion of both the second and third semesters, it was evident that the self-directed learning framework could be successfully applied to a group learning format.

Most instructors would agree that attending to both collective energy and individual interests poses a challenge in any learning experience, regardless of whether the classroom is a physical structure with four walls involving face-to-face delivery or in the virtual architecture of web-based delivery. There are often two issues that influence the online learning experience. The first is isolation, which can be minimized by using groups, learning communities, or teams to reduce vulnerability. Second, the virtual format can lead to unclear direction and uncertainty as a student progresses through the content, which is often remedied by incorporating a strict structure to monitor and direct students. This structure then tends to include instructor-prescribed content and projects that appear to limit individual self-direction, reducing the autonomy and creativeness that was once an advantage in online learning programs. The combination of online strategies (team work and increased structure) tends to complicate the interaction, leading students to wonder about how to successfully attend to course expectations and forge through the collective layout. The question of focus in this research is: how is it possible to reconcile the concepts of self-direction with the benefits of group collaboration and cooperation in virtual learning environments?

Self-direction has generally been considered as a facet of the individual learner. Consequently the use of self-directed tools such as learning contracts, diagnostic instruments, and reflective participation have not been explored for application in joint endeavors, as a means to identifying a common goal, plan, and overall educational exchange. A lack of literature on group self-direction exists for both face-to-face environments and distance education mediums. Therefore, the intention of this action research study was to explore the impact of several interventions aimed at facilitating effective self-directed social learning in web-based environments.

RESEARCH DESIGN

The current project has been designed using an action research approach. Action research can be defined as a process of change that involves the participants of the organization (in this case the students and instructor) in the identification and resolution of problems in a collaborative manner (Patton, 2002). In action research a problem is identified, data collection is planned and organized, data is analyzed in an ongoing fashion in regard to pre-established goals and objectives, and finally there is a revision and modification of goals and objectives based upon a continual interpretation of results (Glickman, Gordon & Ross-Gordon, 1995). This design implies that the practitioners are the researchers. The rigor and objectivity of this methodology may be questioned by classical researchers; however, "the benefits of the process for students and teachers seem to outweigh the loss of experimental purity" (Glickman, Gordon & Ross-Gordon, 1995, p. 396)

Participant Population
The subjects in this study were graduate students in the Educational Leadership Program at the University of South Florida-Lakeland Campus. As a requirement of the Masters Program curriculum, students must complete the three-credit course "Microcomputers for School Managers." Students could be described as adults older than 25 with at least two years or more of teaching experience. At the onset of each semester, students met together face-to-face in a full day orientation to accomplish several purposes: training in web courseware, introduction to course curriculum and activities, completion of diagnostic instruments, formation of learning communities, and the development of group goals. Students also met face-to-face at the end of the semester for half of a day to share experiences and learning and to present in a conference format the products that were produced by the groups and individuals as a result of the learning contract process. Spanning three semesters, this study involved a total of 81 student participants.

Instrumentation
Two forms of instruments were used to assist students in understanding personal interests and strengths in order to structure and enhance the group experience. First, the Learning Combination Inventory, or LCI (Johnston & Dainton, 1997), which is based on the Interactive Learning Model (ILM) (Johnston, 1996) was selected to identify the individual learning pattern profiles of each participant. This inventory, a cognitive style assessment, was administered to provide students with information about their own personal learning patterns. Students were then encouraged to share the results within their self-selected groups to enhance understanding of meta-cognitive style and needs. The strength of this model lies in the interactive nature that integrates cognitive, affective, and conative preferences. The assumed base of the ILM is that every person has a unique combination of interconnected mental processes consisting of their informed effort, engaged effort, and reflective effort, which s/he applies when confronted with any learning task. An equally important assumption is that by raising the conscious understanding of these processes, they can be used with intention by both the student and the teacher. The process does not simplify learning, but rather embraces the complex,

interactive nature of human learning. Beyond the analysis of their individual results on the LCI, the learner-participants are guided through several metacognitive steps.

Secondly, students were given a self-rated diagnostic instrument, which listed the course objectives. This was not a validated instrument; prepared by the instructor, it asked students to engage in reflection on current knowledge of a particular content. The instrument was designed to encourage students to rate themselves at two levels: current knowledge level and projected knowledge in order to be able to effectively meet their future job responsibilities. This diagnostic instrument was then used as a communication tool for students to design joint learning contracts that specified anticipated objectives, resources, and strategies, work products, and how they would verify that they had mastered the selected objectives. This diagnostic instrument not only provides valuable needs assessment information, but also supplies a comprehensive overview of the content integral to the academic areas of the course so that students are able to design objectives that align with the intended university curriculum.

In addition to the two measures mentioned above, a final instructor-designed course evaluation was completed by students to rate course effectiveness, satisfaction, relevance, instructor feedback and online impressions. These course evaluations were used as a tool, along with ongoing feedback and suggestions, to improve various issues of the online course delivery. Traditional university-required course evaluations were also administered; however, the data from these instruments was limited due to the nature of the questions and the low online responsiveness.

Procedures
There were three phases to this study over the course of three consecutive semesters. All students enrolled in the course each semester were informed of the study and asked to participate. All students in each of the phases signed consent forms to participate and were informed there would be no recriminations for those who chose not to be involved in the study. At the onset of each semester, students self-organized into learning communities ranging in size from 3-5 students. There were two basic assumptions that guided all course design, content development, and resulting research: a) the importance of a self-directed format in adult learning and development and b) the emphasis on group collaboration and cooperation as an integral part of the learning process.

Following an action research framework, course structure was modified each semester based on the student feedback on the final evaluation. Additional evaluation data included the results of the LCI, diagnostic instruments, learning contracts, online discussions, and course products that were group and individually specified on the learning contracts At the conclusion of each semester, all data were compiled and analyzed. New approaches based on the results were then implemented in the subsequent semesters followed by the same evaluation process.

FINDINGS

Phase 1 (Spring Semester, 2002)

During this initial pilot phase, none of the self-directed tools (learning contracts, diagnostic instruments, or reflective components) were utilized to guide groups. This phase included 28 student participants and was designed primarily as a conventional online course that also utilized learning communities. There was no student attrition during this semester. Included in the original course structure were ten content modules to be completed by students during the 15-week semester. Students were expected to complete all ten modules. Early in the semester, students communicated that the workload was too extensive and a content adjustment was made, suggesting that learning communities select 5 of the 10 overall content modules. Although this self-selection allowed for choice of modules, each individual module remained highly structured, prescribing specific learning activities to be completed for credit. While the reduction in workload was appreciated, when asked in the final evaluation whether increased face-to-face contact would be helpful, 11 students responded "yes," indicating that directions often remained unclear:
Sometimes the instructions are confusing and one needs someone to explain if there is any question[s].

> Sometimes you need somebody to actually see what you've done to see if you are on the right track.

> Because it is important that there is congruence with the instructions, etc.

> I think it would help to keep everyone on track. Some people aren't prepared to work independently for an entire course.

Although increasing face-to-face opportunities might prove helpful, these statements seemed more indicative of issues with self-direction and personal comfort that would require further enhancements in future semesters. The online nature of the course is an integral aspect of the course content designed to intentionally foster the use of hardware, software, and other computer media and materials. Therefore, adapting the course structure made more sense than altering the overall course delivery.

During this phase, the LCI was administered at the conclusion of the semester in order to better understand the learning preferences of the students. As is common with action research, the decision to administer this instrument was determined at the mid-semester point; therefore, it was not given at the beginning of the semester as was done if later phases. As has been found to be typical with teachers, the majority of students in this group (21) had a high degree of sequence guiding their learning profile, suggesting that they enjoyed planning and working neatly and required a clear sense of direction (see Table 1). Ironically, although the content modules were highly structured and prescribed, those with high sequence desired more clearly defined directions, requesting that future semesters involve additional face-to-face contacts.

Approximately half of the students (16) were also driven by a precise style, meaning that they sought extensive information and enjoyed writing, sharing details, and questioning others. The other two learning style domains were represented less significantly by the students, with 10 scoring high in technical qualities (therefore they enjoyed relevant meaningful tasks, hands-on activities, and privacy and independence in thought) and 6 individuals who presented as highly confluent (creative, intuitive thinkers, risk-takers, and tending to make unique connections). While this diagnostic process recognizes that all individuals possess combinations of each of the four learning patterns, the driving force among this group was sequential processing. The information in Table 1 represents the class averages of LCI scores in each phase.

Table 1: Average LCI Scores by Phase

	Class Averages		
	Phase 1	Phase 2	Phase 3
Sequence	26.7	23.8	27.1
Precision	24	25.3	24.7
Technical Reasoning	23.3	22.2	21.3
Confluence	21.8	23.9	22.5

Phase 2 (Summer Semester, 2002)

As a summer course, this phase was only 10 weeks in duration. There was no student attrition during this phase of the study. Based on an analysis of the overall experience in Phase 1, several actions were taken to enhance student learning, integrate the curriculum within the online course delivery model, and increase aspects of social self-direction. First, the learning styles analysis was completed at the onset of the semester in order to enhance understanding of both individual and group learning patterns (see Table 1 for results). Second, although the content remained unchanged (ten-module format), frameworks supporting social self-direction were provided for the first time in this semester. These frameworks for scaffolding learning included the self-rated diagnostic instrument, learning contracts, grading contracts and an online discussion rating form. Learning contracts were submitted initially in draft format and were altered based upon instructor feedback. The learning contract process operated much like a negotiation between the instructor and the group or individual. Instructor approval (usually the second week of class) meant that the learning contract represented an acceptable level of work and learning if contracts were completed to specification. The students were free to adapt the contracts as necessary, as they were described as a living and breathing representation of the learning process.

Students were asked to self-organize into learning communities and complete a diagnostic instrument designed to evaluate personal knowledge of course objectives. The results then became the basis for planning a learning contract, requiring a minimum of five goals (to coincide with choosing at least five modules). In order to encourage social learning, at least three of the five goals were to be group goals, and all groups had the

option of completing all five goals jointly. Extra credit was offered for completion of additional goals. Final approval of all learning contracts was negotiated with the instructor for both group and individual goals.

A final addition to the course delivery involved the use of self-evaluation. At the end of the semester, students were asked to complete a grading contract, designed to provide the opportunity to self-evaluate their own attainment of goals. Additionally, all students were asked to submit a self-evaluation of their online participation throughout the semester.

The learning styles instrument was administered at the start of the course; but, due to time constraints during the initial face-to-face meeting, only individual interpretation was completed. Very little attention was devoted to the utilization of results for the enhancement of group effectiveness. In the final evaluation, some students expressed a need for further integration of learning styles into course design and group coordination.

Students directly addressed the issue of learning contracts and other tools in the end of the course evaluations. Of the 21 students enrolled in the course during the second phase, 20 submitted these instructor-designed evaluations. On questions about the level of relevancy of the course and the positive aspects of the course, students responded as follows:

> I was able to incorporate the knowledge of subject matter with the learned technology to create a high interest student project.

> We were allowed to use our personal needs to drive our learning. I thought I was fairly versed on the computer, but I found I had lots to learn…

> By being able to control my learning, I was able to customize my learning to best fit my needs

Other students also indicated that the learning contract and resulting strategies and project work were helpful tools in the learning process. However, despite the general interest in use of the diagnostic instrument, learning contract, grading contract and on-line discussion participation rating form, some students did express concerns about the flow of the material and discomfort with this non-traditional format. Comments on the course evaluation documented these issues:

> The only draw back to this course was that there was so much information it took me a while to figure out how it was all organized and the expectations.

> I feel like I am much better prepared for a course like this than when we started. The learning contracts and other elements were confusing…

Amount of content: The module structure threw me at first and didn't seem consistent with the encouragement to develop our own projects.

I would probably be more structured, but I understand and appreciate the flexibility because we were all at different levels.

While it appeared that some students were uncomfortable with the course structure that required student-driven objectives and products, the value of such tools appeared greater than returning to a traditional course format. The modules appeared confusing to the contract development since the resources did not effectively align to the diagnostic instrument that was completed at the beginning of the semester. This premise is based on the course evaluation data (5 or the 20 responses), discussion/e-mail transcript information and personal conversation and feedback from students to the instructor. Therefore, the research team decided to continue with the use of the self-direction frameworks, but instead modify the content, provide a more specific face-to-face training experience and re-state in a variety of ways the course expectations to clearly identify student and instructor roles.

In this second iteration of the course, only four students suggested that course should require additional face-to-face work. This number is significantly decreased from the previous phase when 11 responded that they felt more face-to-face work would be beneficial. Those who did indicate that they would prefer more face-to-face linked their responses to their individual learning style and personal readiness for self-directed experiences. For instance, one student wrote, "The best way to learn technology is to have an expert standing by you to help when things go wrong." Clarity was not an issue that was linked to the need for further face-to-face teaching experiences during this semester. There were also only a few students who were still unclear as to the overall expectation and expressed a lack of understanding of the self-directed model that they were asked to use.

Phase 3 (Fall Semester, 2002)
Phase 3 ran for the duration of fifteen weeks and included 27 student participants, all of whom successfully completed the course. Student expectations remained consistent: three group objectives and two individual objectives were to be completed as part of the process. All students were given the option of completing additional objectives for extra credit.

Based on the feedback from Phase 2, course content and curriculum resources were aligned and redesigned to reflect the objectives listed as part of the diagnostic instrument. Each of the modules became a part of a resource pack that students could, but did not have to, utilize in the design of their learning contracts. The resource packs included four major sections, directions, guidelines (activities), skills, and materials, which were available to students online in web-based format. These resource packs were introduced as materials that provided information about each of the objectives in the initial diagnostic instrument, but use of these materials was not required.

Students indicated on the final evaluation that the detailed syllabus, resource packs and associated matrices were helpful in their work. When responding to the question about the helpful aspects/activities of the course, one student responded, "The best is the materials online associated with each learning objective. The resources, articles, references, websites, etc. [are] awesome and I have referred to that material many times even for personal/professional use outside of this class." Others concurred on the course evaluation and through personal discussion with the instructor. Those students who did not take advantage of these resources were those who reported a lack of clarity and/or discomfort with the format of the course. Grades in the course were dependent upon online participation, the completion of learning contract objectives, the submission of the forms (learning contract, grading contracts, online discussion rating forms), completion of a student homepage, and participation in the last class face-to-face session. Therefore, students were never penalized if they made the choice not to actively engage with the available materials.

To address the issue of expectations that was expressed during Phase 2, students were given a detailed brochure entitled "Tips to Online Success and Satisfaction," which listed the following four tips with detailed explanation of why these things are important:

1. Stay Engaged
2. Use the Tools Available to Plan for You!
3. Ask for What You Need
4. Structure Comes in Many Shapes and Sizes

This brochure was reviewed during the face-to-face orientation class to eliminate any confusion over the individual student expectations. In fact, this brochure accompanied a detailed syllabus clearly outlining course tools, grading procedures, and instructor/student roles. Despite the distribution of this brochure, there were still two students who did not actively engage throughout the entire fifteen-week semester.

Unfortunately, during the face-to-face orientation meeting of this phase, facility issues disrupted the flow of the experience, minimizing the amount of time that was spent integrating the online course content with the joint learning contracts the self-selected groups attempted to create. This led to a sense of initial disequilibrium at the onset of the course. Although this did not seem to be an issue for the students at the onset, as they delved further into the course materials discussions did reflect the need for further structured review. Students also wanted some indication of the priority of the objectives and importance to the roles they were to assume as future administrators. It was planned that further review of these materials would be done during the initial orientation; however, as mentioned, the conditions of the meeting room limited time availability and impeded the group interaction and planning.

As previously mentioned, each phase included a final, face-to-face meeting at which students shared their assignments and learning throughout the semester. During the second phase, this was hampered by the facility accommodations due to the need for multiple computers. While the technology was readily available, as is standard in most

computer labs, computers were placed in rows, minimizing the amount of flow and movement in the room. The final day of sharing was student designed to be in a conference-style, different stations arranged around the room displaying student products. While the physical environment of the final meeting did not interfere with the learning during the semester, it did seem to reduce the effectiveness of this last class experience.

In preparation for the next semester, this issue was addressed through the purchase and implementation of a wireless laptop cart that could be brought to any traditional classroom. In this case the room was a large meeting room where tables were re-arranged and multiple wireless laptops and projectors were stationed around the room. In addition, Internet connections (wireless) were established that allowed students to display their work products and encourage other groups to interact with and explore the final projects, many of which were in the form of websites. These alterations to the physical space and enhancement of technologies proved to be highly beneficial to the intent of the last face-to-face experience.

Based upon comments listed in the course evaluations, fewer students recommended changes to the course to improve the learning of material. Although enrollment increased in this semester, the number of students requiring additional face-to-face work decreased even more. Only two students indicated that they would prefer to meet more often, and these responses were expressed as being tied to interpersonal reasons, rather than issues of clarity.

At the onset of the course, the students were presented with a more extensive overview of the learning style process, emphasizing the meta-cognitive analysis aspect and the application for enhancement of group dynamics. Immediately following the first meeting, they were asked to write a brief reflective response to the process focusing on how the knowledge impacted them personally and how it might be utilized during their coursework. Early in the semester, the research team provided LCI data back to the students in the form of class averages and group profiles. In addition, as the semester progressed, groups were asked to utilize their knowledge of learning patterns to reflect on their group process.

From their responses to the reflection questions, the highly sequential nature of many of the students was evident. Most comments were favorable toward the self-directed nature of the course, learning contracts, the diagnostic guide, and the structured modules. Individuals whose lead pattern was sequence described how they were able to use their skills to help their group structure a plan quickly and efficiently. Several whose lead pattern was technical reasoning appreciated the opportunity to link coursework to relevant problems within their schools. In their reflections about group process, several individuals discussed how knowledge and understanding of learning patterns helped enhance group function by encouraging patience and sensitivity to different needs and styles. Following are some of their comments:

> I found that I needed to adjust my normal learning patterns to coincide with the group's needs . . . As a group member I felt it was my

responsibility to be as flexible as possible to make the group function productively. Often this entailed me beginning assignments earlier than normal and spending more time reviewing completed assignments.

Our learning patterns were a plus, two of us had the same patterns and the other was more organized and detailed . . . We came up with our contracts and quickly started to work on them.

Of course there were aspects of differences but we all proceeded cohesively . . . There was an emergent leader, who always had her "ducks in a row" while the rest of us were still floundering, but we respected her skills and appreciated her organization. I never felt I was holding her back if I was not as organized as she, nor did I feel intimidated by her emergence as the leader.

I believe that my learning pattern has impacted my participation in this class. I am a very sequential person. The structure of this class is very frustrating for me because I seek clear directions and plans. In a learning environment I don't like to make my own plans, rather, I prefer to come into a class with a set syllabus and know exactly when everything is due. I felt a loss in this class because we had to create our own learning goals as a group . . . to the contrary I feel that my learning pattern was helpful to my group. If I am given a task with a deadline, I will meet that goal and produce a product that is neatly and completely done. When my group split up tasks for each member to do, I finally felt a sense of relief.

I am the member with the highest rating for the sequential style. It was so evident. It seemed I took the lead for a while in the discussions and with setting deadlines . . . As far as the class presentations go, the confluent members of our group were fantastic with brainstorming creative ideas for sharing our info with the rest of the class. This is my weak area! I am glad they were in my group; creativity does not come naturally, but I do like bouncing ideas around and can contribute with more confidence than I could alone.

I scored very high in the sequential area and I think this best describes me. I do like everything to be planned out and I think this is what made me LOVE the learning contract. It was a great way to know everything that needed to happen throughout the semester and allowed plenty of planning/organizing time . . . I would often catch myself flipping through our contract to see what was next. I do sometimes get carried away with the agenda and I have to be aware of this trait.

THEMES

There were several significant themes that were identified throughout the phases. Students during Phase 1 had difficulty making group choices, understanding the personal responsibility involved in the online setting, and managing their learning. The majority of the group wanted instructor driven activities, with click and point instructions. Despite the reticence to participate in the self-directed format, there was also some indication that students felt conflicted by the push to make personal/group choices yet not have the control to determine group tasks and final products. Subsequent phases indicated that as further alignment occurred, between tools, choices, expectations and reflective instruments, greater satisfaction and transformational learning resulted.

Another theme that was identified was the need for clearly expressed expectations at the outset of the learning experience. It was imperative that students have the instructional format established and communicated in verbal and written format. Each semester, the increased clarity of course design, instruction of self-directed tools appeared to reduce the amount of student angst and dissatisfaction.

Instructional design and facility design were deemed to influence both the face-to-face and online experiences. When the classroom was not conducive to free movement, group interaction, and facility comfort, there was more resistance to the online setting. The structuring of the instructional material to coincide with learning contract components reduced the need for additional face-to-face exchange.

Finally, a reduction in instructor-specified instruction and control led to greater responsibility among student groups. The work products intensified and improved in Phase III, moving beyond Phase I instructor-specified assignments into unique and creative activity. Student groups had managed to far exceed instructor expectations producing quality work, comprehensive course content, and interaction depth. With each phase of the project, students appeared to gain greater confidence, time management skill, and autonomy.

CONCLUSIONS

While self-directed learning allows for the development of individual interests in a manner that is aligned to the learning patterns of the student, it does not necessarily preclude an overall course structure. Students in virtual groups appear to thrive on a clear expression of guiding concepts and the provision of helpful resources along with frameworks and scaffolding for obtaining knowledge. The self-directed learning framework provided by Malcolm Knowles (1986) can be utilized with groups to provide a structure that facilitates the acquisition of knowledge without collapsing the adult quest for meaningful experience and relevance. Rather than controlling the mechanisms of learning and disseminating knowledge, the online instructor then begins to construct scaffolds through the facilitation of process, provision of opportunity, attention to both group and individual requests, and learning styles.

Introducing the self-directed tools to mature students proved to be initially intimidating and overwhelming. Due to the online nature of the class, maximizing face-to-face time and hands-on experience around learning contract activities was imperative to the productive nature of group and individual planning. The additional basic knowledge of web-based courseware tools that was provided during the orientation session increased some of the student hesitancy. The "newness" of the self-directed tools had students stretched beyond their comfort zones and therefore expressing a bit of disequilibrium at the outset. Most students expressed increased comfort and understanding as learning contracts were submitted for instructor approval and as time elapsed during the semester. Instructor feedback and responsiveness and clearly defined expectation were critical to developing the learning contract process. This process built an atmosphere of instructor/student trust within the learning environment.

Despite positive student feedback and general understanding of the learning contracts, phase 2 and phase 3 had about two students each semester that expressed extensive dislike and discomfort with the course structure and use of the learning contracts. While suggestions were taken from these students, it is essential to consider certain facets about student satisfaction in relation to course design. It appears that there will always be a few students who are dissatisfied with alterations to traditional course delivery. Some of these students are not prepared or ready for self-directed frameworks and others prefer to expend less effort designing their own learning. Another influencing factor could be tied to the expectations and roles that these individuals assume. Years of experience within education systems has prepared most adults for a format that allows for the dissemination of knowledge and control of the activity by an instructor. Therefore, a small percentage of students will need additional time, investment and learning maturation to move toward deliveries that reflect self-directed philosophies. In fact, there will be some of students who will not be pleased regardless of the instructional method or delivery system.

At the end of each semester, there were a number of students who felt that they were now better prepared to explore further learning in this format. Some actually were looking for other courses that represented similar philosophies that would allow them to develop other topics in a similar manner. This course however, was offered in isolation and therefore was not part of a larger program. Program development, utilizing the suggested framework, which would incorporate both individual and group intellectual development, could be easily adapted from this material to provide a comprehensive approach to the learning process.

Future semesters of this course will be taught with further modifications based upon the findings listed above. The next term will include a content activity that will allow groups to explore the materials more fully before writing the initial draft of the group learning contract. The facility issues experienced during phase 3 have also been eliminated. And finally, use of the LCI as a metacognitive analysis tool will continue to be part of the initial face-to-face session, with additional encouragement for students to use the knowledge in their learning communities while developing goals, identifying strategies, and assigning responsibilities. At several points during the next semester they will be asked to respond to reflective questions about their use of the metacognitive aspects.

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FACTOR VALIDATION OF THE *LEARNER AUTONOMY PROFILE*, VERSION 3.0 AND EXTRACTION OF THE SHORT FORM

Gary J. Confessore and EunMi Park

ABSTRACT

Following the Confessore and Confessore (1994) construct for learner autonomy, Meyer (2001), Carr (1999), Derrick (2001), and Ponton (1999), respectively, developed and validated instruments that assess learner "Desire," "Resourcefulness," "Initiative," and "Persistence." Desire is constructed as the precursors to the development of intentionality in general. Resourcefulness, Initiative, and Persistence are constructed as conates or behavioral intentions related to learning. Hence, respondents are asked what they would intend to do when confronted with selected life conditions in the context of learning. Each instrument treats learner autonomy as a syndrome of psychological constructs of behavioral intentions or their precursors, and no attempt is made to assess observable behaviors. Taken together, these instruments produce a Learner Autonomy Profile (LAP). This is the report of the findings of factor validation processes conducted for the 164-item Version 3.0 of the LAP and findings of a recent analysis designed to extract a 66-item "Short Form" from Version 3.0.

INTRODUCTION

Confessore initially utilized the four-component construct of Desire, Resourcefulness, Initiative, and Persistence in 1981 to select high school students to participate in an early college summer arts program (Confessore, 1991). By 1991, he had developed an instrument, the Learner Profile Questionnaire (LPQ), with high coefficient alphas built around this construct to assess learner autonomy in groups of respondents. Subsequently, Confessore and Confessore (1994) began a series of research efforts to test the notion that learner autonomy could best be understood in terms of this four-component construct.

Over the period 1997 to 2001, a battery of four instruments designated the Learner Autonomy Profile (LAP) was developed to assess the underlying dimensions of each of the components in the Confessore model. Each instrument assesses one of the four components as a syndrome. Carr (1999) and Ponton (1999) developed and validated instruments that assess Resourcefulness and Initiative respectively. Meyer (2001) and Derrick (2001) developed and validated instruments that assess Desire and Persistence respectively. These works construct learner "Resourcefulness," "Initiative," and "Persistence" as conates or behavioral intentions. Hence, respondents are asked about what they would intend to do when confronted with selected life conditions in the context of learning. Meyer (2001) constructs "Desire" as the precursors to the development of behavioral intentions related to learner autonomy. All four instruments treat learner autonomy as a psychological construct of behavioral intentions and they do not attempt to assess observable behaviors. Taken together, these instruments produce a Learner Autonomy Profile (LAP) and the battery of instruments bears that name. This is the report of the findings of validation processes conducted for the 164-item Version 3.0 of

the LAP and findings of a recent analysis designed to extract a 66-item "Short Form" of the LAP from Version 3.0.

HISTORICAL FOUNDATIONS

The concept of learner autonomy, as used in connection with the LAP, is an extension of phenomena described by several theorists who used a variety of labels that are essential to the present work. These labels include self-culture, self-efficacy, self-learning, self-directed learning, autodidaxy, autoformation, and learner autonomy. Knowles' (1968) recognition of the differences between "andragogy" and "pedagogy," Bandura's (1977) work on self-efficacy, Tough's (1981) work on "learning without a teacher," Spear and Mocker's (1981) work on environmental determinants in self-directed learning, and Long's (1992) justifications for the study of self-directed learning have led directly to the concept of learner autonomy presented here.

In the past decade, there has been a veritable explosion of interest in self-directed learning. Yet, the term has continued to be the source of confusion about the actual substance of the phenomenon itself. Questions persist about an imagined self-directed/other-directed dichotomy. How much control must the learner exert before the effort may be considered "self-directed?" How can standards of learning be preserved if "others" do not measure outcomes? What are the "proper" roles of learners and teachers in self-directed learning? In response to questions of this nature, Long (1989) suggested a clearer understanding of self-directed learning could be achieved by examining a theoretical framework that illustrates the relationship between pedagogical and psychological control in self-directed learning. In this work he described four quadrants of a two dimensional matrix of high to low psychological control and high to low pedagogical control. Long asserted that learning is best facilitated when there is a match between the control levels of the learner and the teacher. Grow (1991) gave practical life to Long's notion as he provided detailed guidance as to how instructional methodology could be matched with the learner's degree of "self-direction."

In 1992, Long made a powerful argument for treating learner self-direction as a psychological construct. Following his lead, Confessore and Confessore (1994) began to investigate the relevance of conates to learner self-direction though the development and use of the Learning Profiles Questionnaire. Although the questionnaire proved to be both valid and reliable, its strength was in providing insights into the development of learner autonomy as a summary issue. That is to say, the data proved very useful in assessing the extent to which various learning experiences and academic programs related to learners' perceptions of self with reference to factors associated with learner autonomy. However, the questionnaire provided no mechanisms by which appropriate diagnoses could be formulated and applied to facilitation plans for individual learners.

The LAP is structured around the assertion that learner autonomy must be understood in terms of conation or the learner's behavioral intentions. This assertion directs attention away from *ex post facto* assessment of learning in terms of behavioral outcomes and directs attention toward understanding the behavioral intentions of learners as predictors

of learner behaviors. Hence, to understand the premises of the LAP, it is critical to understand the relationship between beliefs, attitudes, intentions, and behaviors.

Figure 1: A simple behavioral model.[1]
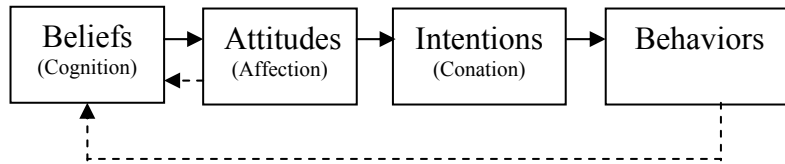
Fishbein and Ajzen (1975) provide a model to describe this relationship (See Figure 1). Their model notes the constant interaction of "beliefs," which they construe as derived from cognition, and "attitudes," which they construe as derived from affection. They then assert that behavioral "intentions," which they construe as a matter of conation, arise from, and are justified by, the interaction of beliefs and attitudes. When behavioral intentions are focused and of sufficient strength, they lead to, and explain, behaviors. Finally, the experience of the behaviors often influences beliefs, as represented by the broken line. As beliefs and attitudes are modified in light of the outcomes of previous behaviors, intentions may change and lead to changes in subsequent behaviors. When such changes are observable, they are subject to the traditional assessment of learning in terms of behavioral objectives.

Operational Definitions
The theoretical structure of each of the four constructs of the LAP was derived from an extensive review of the literature. As the work began to mature, the following definitions were developed to guide the process:

Learner Autonomy**:** Learner autonomy is the relative capacity to productively participate in learning experiences. This capacity consists of a range of functional learner autonomy [definition provided below] that is bounded by two relatively dysfunctional learner states, which are dysfunctional learner dependence [definition provided below] and dysfunctional learner independence [definition provided below].

Dysfunctional Learner Dependence: Dysfunctional learner dependence is characterized by a substantial need for guidance and assistance regarding the learning process. This individual is unable or unwilling to undertake learning projects without substantial direction. In the extreme, this individual relies on others to shape all aspects of the learning process.

Dysfunctional Learner Independence: Dysfunctional learner independence is 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.

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[1] Adapted from *Belief, attitude. intention, and behavior: An introduction to theory and research,* by M. Fishbein and I. Ajzen, 1975, p. 15. Copyright 1975 Addison-Wesley Company.

<u>Functional Learner Autonomy</u>**:** Functional learner autonomy is a range of ability and willingness to participate in selecting and shaping learning projects 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 to which the learner optimizes the learning process by making efficient and appropriate use of personal resources and the resources of others.

Figure 2 is provided as a graphic representation of the relationship of the conditions of relative functional and relative dysfunctional autonomy.

Figure 2: Functional learner autonomy

Functional Learner
Autonomy

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/--------------------(------------------------------)-------------------/
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Dysfunctional	**Dysfunctional**
Learner	**Learner**
Dependence	**Independence**
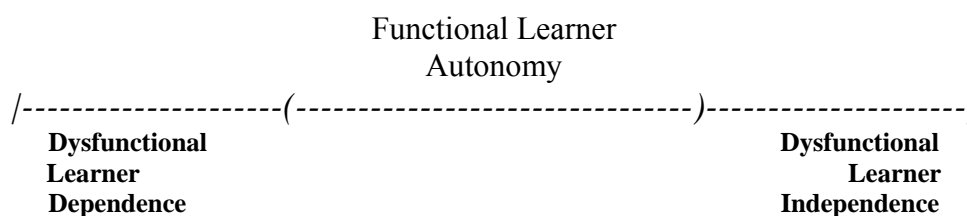
THE LEARNER AUTONOMY PROFILE

Extensive research has demonstrated that learner autonomy is a syndrome that consists of four constructs. These are: (1) the desire to learn, (2) learner resourcefulness, (3) learner initiative, and (4) learner persistence. The work of Carr (1999), Ponton (1999), Meyer (2001), and Derrick (2001) has revealed that each of these constructs consists of three to seven components. Instruments that provide respondent profiles of these constructs and components have been developed and validated in "on-line" form. When individual profiles are compared to normative profiles, facilitation plans may be developed to move the respondent toward a higher degree of functional learner autonomy. Individual respondent data may also be grouped and used to develop facilitation plans designed to move work teams or organizations toward higher degrees of functional learner autonomy.

Desire to Learn
Meyer (2001) developed and tested a construct for "desire to learn" that addresses the issues of the formation of intentions. From an extensive review of the literature in which Meyer separated precursors from intentions, she inferred the following seven-component construct. Meyer's components are enumerated here along with a brief note describing the foundation of the conate:
1. Basic Freedoms
   a. Circumstances: Which refers to perceptions acquired from our family about life and our place in the world. Our lives become a reflection of these perceptions and set the stage for growth.
   b. Expression: Which refers to the ability to make known one's feelings. Families that encourage expression create an atmosphere that supports the desire to learn.
2. Managing Power
   a. Group Identity: Which refers to the extent to which one perceives the family to respect and encourage the development of talents/abilities so that

he/she may become a contributing member of the family and of society-at-large.
   b. Growth and Balance: Which refers to the ability to bring order to our lives, to have strength of character through adversity and to exercise good judgment to consciously choose the direction of our lives.
   c. Love Issues: Which refers to the level of consciousness that allows one to experience serenity and power simultaneously.
3. Change Skills
   a. Communication Skills: Which refers to the ability to create an environment where a genuine sharing of ideas and feelings can exist.
   b. Change Skills: Which refers to the capacity to consciously select correct responses to situations that arise. It requires a reservoir of skills.

Next, she developed and tested 57 items designed to record the respondent's self-assessment of the relative strengths of the seven components. Principal component analysis, Pearson's correlations and calculation of Cronbach's Alphas using responses from 263 adults who had completed all four parts of the LAP, led to the elimination of 24 items. Further analyses of the remaining 33 items confirmed the hypothesized, seven component structure for "desire to learn." However, the Alphas were not sufficiently high to threat all seven components as reliable evidence that each of the seven could be appropriately separated from its "parent" component.

Alphas for the three parent components taken separately were satisfactory at .8545, .8170 and .7660, respectively. The Pearson product-moment correlation for the test-retest total scores for the instrument administered in a two-week follow-up is 0.94 for the 57-item version. Comparisons of respondents' rank order on the 57- and 33-item versions of the instrument produced Spearman's rhos of .971, .950, and .924 for the components and .971 for the construct. It was decided that no further changes would be considered until a sample in excess of 1000 respondents was collected.

The 33-item version was then used to gather a new set of data from 1340 respondents. Principal component analysis confirms separation of all seven hypothesized components of the construct. Table 1 presents Cronbach's Alpha for each of the components.

Table 1: Cronbach's Alpha for Each Component of the Desire Construct (N=1340)

Component	Alpha	Standard Item Alpha
Circumstances	.7850	.7888
Expression	.7297	.7340
Group Identity	.6977	.6962
Growth & Balance	.6756	.6895
Love Issues	.6893	.6878
Communication Skills	.6907	.6962
Change Skills	.8010	.8056
Desire	**.9376**	**.9397**

Learner Resourcefulness

Carr (1999) developed and tested a construct for learner resourcefulness that addresses intentions to be resourceful. Substantially influenced by Bandura (1997), Kennett (1994), Rokeach (1979), Rosenbaum (1980), and others, he inferred a seven-component construct for learner resourcefulness. Carr's components are enumerated here along with a brief note describing the foundation of the conate:

1. Prioritizing Learning Alternatives
   a. Learning Priority: Which refers to the extent to which one prioritizes learning over other activities. Such decisions result from the interaction of one's perceptions of the values of society, the values of peers and family, and the individual's own values that point toward the benefits of learning over other activities.
   b. Deferring Gratification: Which refers to the extent to which one defers undertaking a comparatively more pleasant non-learning activity in favor of a learning alternative. In making such choices, the learner places priority on learning now and delaying the possible immediate gratification of doing something other than participating in a learning activity.
2. Resolving Conflict: Which refers to making choices in favor of learning activities when they are in conflict with other activities. This component assess issues related to attempts to resume normal functions that have been interrupted and attempts to break ineffective or harmful habits in order to adopt new, more effective behaviors related to learning.
3. Future Orientation: Which refers to the mechanisms by which one anticipates and is motivated by assumptions about the future rewards and benefits of learning undertaken in the present.
4. Problem Solving
   a. Planning: Which refers to behavioral intentions that amount to making prior arrangements that will contribute to the success of a learning endeavor.
   b. Evaluating alternatives: Which refers to the practice of weighing the advantages of alternative plans of action regarding the learning endeavor. This may be done prior to engaging the learning activity, during the activity, or as a retrospective assessment that may modify future learning activity choices.
   c. Anticipating consequences: Which refers to the practice of considering the potential outcomes of various plans of action associated with life alternatives as they may affect learning outcomes.

Treating all seven components as conates, Carr designed his items in terms of the respondents' self-assessment of how they believe they "will" act under the conditions stipulated in the items. Next, he developed and tested 80 items designed to record the respondent's self-assessment of the relative strengths of the components. Principal component analysis, Pearson's correlations and calculation of Cronbach's Alphas using responses from 263 adults who had completed all four parts of the LAP, led to the elimination of 27 items. Further analyses of the remaining 53 items confirmed the

hypothesized seven-component structure of the construct. However, the Alphas were not sufficiently high to treat all seven components as reliable evidence that each of the seven could be appropriately separated from its "parent" component.

Alphas for the four parent components taken separately were satisfactory at .8982, .7298, .8897, and .9316, respectively. The Pearson product-moment correlation for the test-retest total scores for the 78-item version administered in a two-week follow-up is 0.89. Comparisons of respondents' rank order on the 80- and 53-item versions of the instrument produced Spearman's rhos of .919, .936, .991, and 1.000 for the components and .992 for the construct. It was decided that no further changes would be considered until a sample in excess of 1000 respondents was collected.

The 53-item version was then used to gather a new set of data from 1340 respondents. Principal component analysis confirms separation of all seven hypothesized components of the construct. Table 2 presents Cronbach's Alpha for each of the components.

Table 2: Cronbach's Alpha for Each of the Components of the Resourcefulness Construct (N= 1340)

Component	Alpha	Standard Item Alpha
Learning Priority	.9159	.9200
Deferring Gratification	.6876	.7008
Resolving Conflict	.8381	.8391
Future Orientation	.9013	.9046
Planning	.8891	.8957
Evaluating Alternatives	.8103	.8179
Anticipating Consequences	.7907	.7980
Resourcefulness	**.9644**	**.9685**

Learner Initiative

Ponton (1999) developed and tested a construct for learner initiative that addresses intentions to initiate learning activities. His analysis of the work of several authors led him to infer a five-component construct for learner initiative. Ponton's components are enumerated here along with a brief note describing the foundation of the conate:

1. Goal-Directedness: Which refers to the behavior of a learner establishing a learning goal that will lead to a valued level of learning and subsequently working to accomplish this goal. To provide maximum motivation, the goal should be specific and challenging, and the learner should compare current levels of achievement to desired levels. In addition, the activities created to accomplish learning goals should be interesting, enjoyable, and/or exciting to the individual.
2. Action-Orientation: Which refers to the behavior of a learner quickly engaging in a learning activity once a learning goal has been established. An action-orientation is exhibited when the learner does not overanalyze the aspects of the learning activity but rather rapidly immerses him or herself into

an activity to accomplish desired levels of achievement; thus, an action-oriented individual creates and enacts learning plans quickly. Action-orientation is facilitated when the learner is able to perceive the presence of opportunity, time, importance, urgency, and/or means in planned learning activities.

3. Overcoming Obstacles: Which refers to the behavior of a learner's continual engagement in a learning activity despite the presence of impediments. Such impediments may be a lack of confidence in learning ability, a lack of learning resources, time constraints, non-learning commitments, monetary restraints, and/or personal issues related to health or family. In addition, friends or family may serve as social obstacles by outwardly opposing a learner's participation in desired learning activities.

4. Active Approach: Which to problem solving refers to the behavior of a learner taking the responsibility to develop solutions that overcome the aforementioned learning obstacles. A learner that exhibits an active-approach does not wait on someone else to solve his or her problems thereby avoiding a delay in achieving desired levels of learning. An active-approach to problem solving characterizes the learner who is able to allocate time, money, and resources to learning activities by prioritizing such activities over non-learning ones.

5. Self-Starting: Which refers to the behavior of a learner motivating his or herself to begin, either initially or after a period of inactivity, a learning activity. A self-starting learner will not wait on others to create learning goals or plans that lead to personally valued levels of achievement but rather will create goals and plans and self-start participation in personally defined learning activities. When participating in learning activities that transpire over long periods with multiple opportunities for inactivity, a self-starting learner will minimize periods of inactivity by re-initiating participation.

Treating all five components as conates, Ponton designed his items in terms of the respondents' self-assessment of how they believe they "will" act under the conditions stipulated in the items. Next, he developed and tested 55 items designed to record the respondent's self-assessment of the relative strengths of the five components. Principal component analysis and bivariate correlations of responses from 110 adults led to the elimination of 2 items. Subsequent principal component analysis, Pearson's correlations and calculation of Cronbach's Alphas using responses from 263 adults who had completed all four parts of the LAP, led to the elimination of 9 items. Further analyses of the remaining 44 items confirmed the hypothesized five-component structure of the construct.

Alphas for the five components taken separately were satisfactory at .9434, .9162, .8500, .8781, and .8761, respectively. The Pearson product-moment correlation for the test-retest total scores for the instrument administered in a two-week follow-up is 0.95 for the 53-item version. Comparisons of respondents' rank order on the 53- and 44-item versions of the instrument produced Spearman's rhos of .992, .990, .979, 987, and 1.000 for the components and .997 for the construct. It was decided that no further changes would be

considered until a sample in excess of 1000 respondents was collected. The 44-item version was then used to gather a new set of data from 1340 respondents. Principal component analysis confirms all five hypothesized components of the construct. Table 3 presents Cronbach's Alpha for each of the components.

Table 3: Cronbach's Alpha for Each of the Components of the Initiative Construct (N=1340)

Component	Alpha	Standard Item Alpha
Goal-Directedness	.9290	.9304
Action Orientation	.8895	.8977
Overcoming Obstacles	.8372	.8538
Active Approach	.8566	.8631
Self-Starting	.7493	.7915
Initiative	**.9593**	**.9659**

Learner Persistence

Derrick (2001) developed and tested a construct for persistence in learning that addresses intentions to continue learning activities. Her analysis of the work of several authors led her to infer a three-component construct for persistence in learning. Derrick's components are enumerated here along with a brief note describing the foundation of the conate:

1. Volition: Which is the maintenance of intentional focus (the will of the individual to learn) and effort towards goals despite distractions, obstacles or barriers. It can be characterized as the mediating force between one's intention to learn and one's motivation to learn. Volition is commitment to a goal through regulation of the self by protecting the intention to learn and maintaining the attempts to learn.
2. Self-Regulation: Which, within the context of learning, refers to the self-generated thoughts, feelings, and actions, which are systematically oriented toward attainment of a goal; the process that exercises control over thinking, affect, and behavior as knowledge and skills are acquired for learning. Learners must regulate actions, cognition, beliefs, and intentions that affect behaviors towards learning goals and sustain the motivation to attain them.
3. Goal-Maintenance: Which is the behavior of establishing goals that serve as motivators for action. Goal-maintenance maintains the establishment and value of the goal, and provides the energy and direction for action. This behavior involves the strategies for the management of the tasks required for the attainment of the goal or the self-regulated aspect.

Treating all three components as conates, Derrick designed her items in terms of the respondents' self-assessment of how they believe they "will" act under the conditions stipulated in the items. Next, she developed and tested 52 items designed to record the respondent's self-assessment of the relative strengths of the three components. Principal component analysis and bivariate correlations of responses from 399 adults led to retention of all 52 items. Subsequent principal component analysis, Pearson's correlations and calculation of Cronbach's Alphas using responses from 263 adults led to the

elimination of 18 items. Subsequent analyses of the remaining 34 items confirmed the hypothesized three-component structure of the construct.

Alphas for the three components taken separately were satisfactory at .9249, .9114, and .9216, respectively. The Pearson product-moment correlation for the test-retest total scores for the 52-item version administered in a two-week follow-up is 0.85. Comparisons of respondents' rank order on the 52- and 34-item versions of the instrument produced Spearman's rhos of .988, .960, and .946 for the components and .984 for the construct. It was decided that no further changes would be considered until a sample in excess of 1000 respondents was collected. The 34-item version was then used to gather a new set of data from 1340 respondents. Principal component analysis confirms all three hypothesized components of the construct. Table 4 presents Cronbach's Alpha for each of the components.

Table 4: Cronbach's Alpha for Each of the Components of the Persistence Construct
 (N=1340)

Component	Alpha	Standard Item Alpha
Volition	.8766	.9011
Self-Regulation	.9233	.9248
Goal-Maintenance	.9291	.9331
Persistence	**.9677**	**.9711**

The authors also assessed relationships of component and construct scores to respondent age, gender, level of education, and domestic status. Although no significant relationships have been identified to date, these demographics will be collected for the foreseeable future.

SAMPLE LEARNER AUTONOMY PROFILE, VERSION 3.0, REPORT

As a battery, these instruments provide a comprehensive profile of several aspects of learner autonomy. Percentile rankings have been calculated for each construct and component, and these are used to produce bar graph reports. The General Profile bar graph presented below reports the respondent's percentile rankings on each of the four constructs of the LAP. Similar bar graphs are produced that report the respondent's percentile ranking on each of the components of each construct. These too, are presented below. In this example, Jane Doe has scores of 66, 76, and 71 respectively on the Resourcefulness, Initiative, and Persistence constructs. These would seem to be relative strengths, while her score of 40 on the Initiative construct seems to reveal her greatest opportunity to develop her autonomy as a learner. However, examination of the component scores provides specific insights into her capacity to develop intentions (in the case of Desire) and behavioral intentions regarding Resourcefulness, Initiative, and Persistence in the context of learning that most affect her degree of autonomy as a learner.
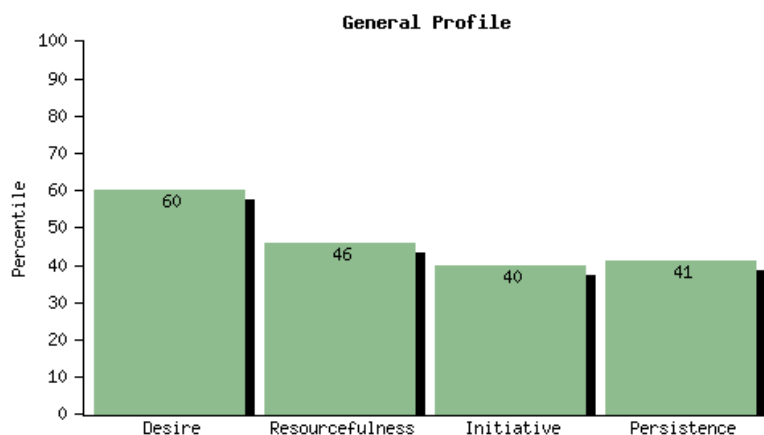
Reading the Bar Graphs

The LAP assesses four constructs that extensive research has demonstrated form a syndrome associated with learner autonomy. These are: (1) the desire to learn, (2) learner resourcefulness, (3) learner initiative, and (4) learner persistence. Each of these constructs consists of three to seven components that also form syndromes. As you review the bar graphs, keep in mind that they report the extent to which the respondent indicated the items apply to them (never = 0 to always = 10 with internal intervals of .25). Raw scores are ranked, converted to percentiles and presented in the form of bar graphs. Hence, the bar graphs report the respondent's position within the population of all people who have completed the LAP. As such, a score of 50 places the individual in the middle of the population. A score of 84 means 16% of the people who have completed the LAP indicated the items of that construct or component apply to them more often than did the respondent. It is also important that you pay greater attention to relative strengths (percentiles higher than 60) and relative opportunities (percentiles lower than 40) reported on the bar graphs of the components, rather than on the General Profile Report because the component reports provide more detailed diagnostic information than does the General Profile. Because the constructs assessed and the report format are necessarily complex, it is recommended that those who complete Version 3.0 of the LAP consult with a Certified Learner Autonomy Coach for a detailed interpretation of the report and for possible establishment of a learner autonomy development plan.

The General Profile & Four Construct Profile Reports

This section of the report consists of a bar graph that indicates the respondent's percentile placement of each of the four constructs of the LAP. The information given in this section is akin to a general cholesterol screen report. That is to say, a high or low score on a construct of the General Profile often does not reveal the true nature of the components contributing to the score. For that level of diagnosis, one must consult the component scores. Inspection of Jane's General Profile reveals that her responses on all four of the components are within the 40th to 60th percentile range on values and attitudes often associated with functional learner autonomy.

Figure 3: General profile.

The reports for the 22 components of the LAP include bar graphs and two examples of items that played an important role in shaping the profile. Items labeled "Highest" are ones the respondent said apply most often (0 = never to 10 = always) relative to the mean for that item within that component. Items labeled "Lowest" are ones the respondent said apply least often (0 = never to 10 = always) relative to the mean for that item within that component. In each case, the mean score (which takes into account all respondents) followed by the raw score assigned by the respondent to the item as well as the actual wording of the item are reported.

Inspection of the bar graphs presented in Figure 4 reveals that Jane's responses on six of the seven components were consistently in the 60's range. Her 20th percentile score on Communications Skills is a clear exception. Indeed, inspection of the "lowest" items shows that in every case, save Communication Skills, her lowest score was higher than the mean response for that item. Jane's response of 7.00 to the item, "My family liked to talk with me," is 1.07 below the mean of 8.07 for that item.

Figure 4: Desire profile.
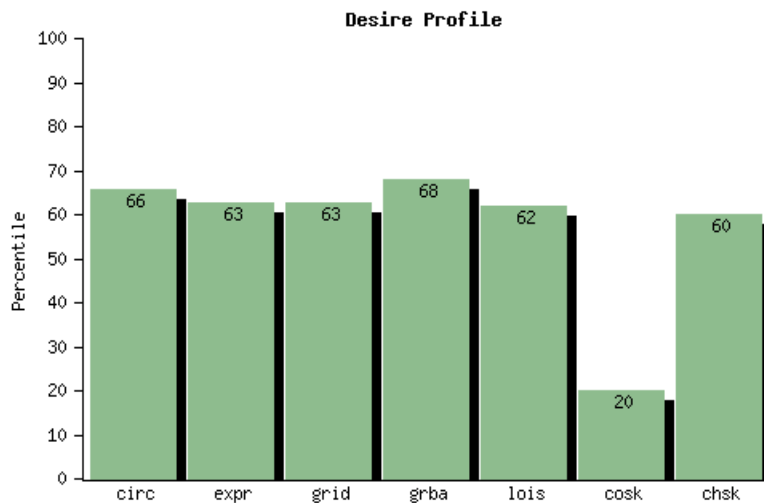
Circumstance (circ) -
  Lowest: (7.18 - 9.00) - My family had traditions that we practiced.
  Highest: (6.96 - 10.00) - My family lived by a set of beliefs that made life very pleasant.
Expression (expr) -
  Lowest: (7.47 - 8.00) - My family encouraged me to find outside interests.
  Highest: (6.90 - 9.75) - I was encouraged by my family to be a leader.
Group Identity (grid) -
  Lowest: (7.11 - 8.00) - I can meet my goals by channeling my emotions.
  Highest: (7.13 - 9.75) - I get plenty of what I need and want.
Growth & Balance (grba) -
  Lowest: (8.34 - 8.00) - I get along with other people.
  Highest: (7.24 - 9.00) - I am organized.
Love Issues (lois) -
 **Lowest:** (7.91 - 8.00) - I am generous.
  Highest: (6.88 - 9.00) - I remain optimistic in the middle of difficult situations.

Communication Skills (cosk) -
      Lowest: (8.07 - 7.00) - My family liked to talk with me.
      Highest: (7.36 - 9.00) - I ask detailed questions before I begin any kind of task.
Change Skills (chsk) -
      Lowest: (7.69 - 8.00) - When I see something that needs to be done, I just do it.
      Highest: (7.92 - 9.50) - I see what needs to be done to make my plans work.

Inspection of the bar graphs presented in Figure 5 reveals that Jane's responses on the Future Orientation component place her at the 60th percentile. Her relative strength in Future Orientation is balanced by mid-range scores on four of the remaining components and relatively low scores on Deferring Gratification and Resolving Conflict. Inspection of the "lowest" items shows that in every case, except for Deferring Gratification and Future Orientation, her lowest score was higher than the mean response for that item. Jane's response of 4.00 to the reverse coded item, "I will spend most of my time doing other things rather than learning," is only 0.06 below the mean of 3.94 for that item. Similarly, her score of 4.00 on the reverse coded item, "I will spend most of my time doing other things rather than learning," is only 0.03 below the mean of 3.97 for that item.

Figure 5: Resourcefulness profile.
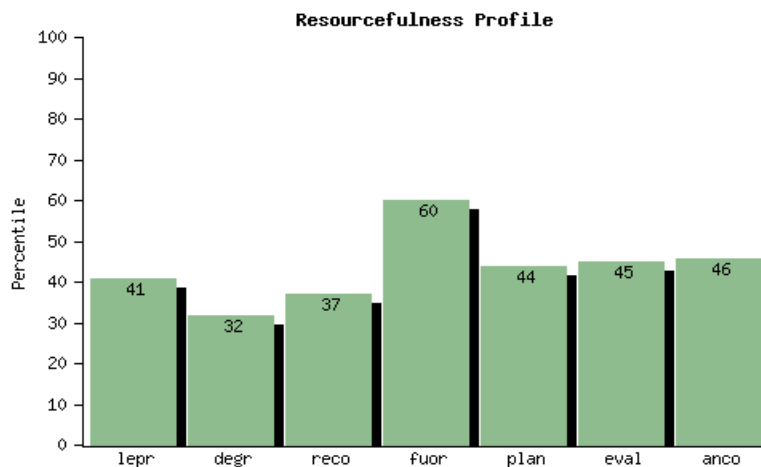
Learning Priority (lepr) -
      Lowest: (8.78 - 9.00) - I will continue to learn because learning leads to success.
      Highest: (7.07 - 9.50) - When faced with a difficult decision about learning something or doing something else, I choose to learn something.
Deferring Gratification (degr) -
      Lowest (RC): (3.94 - 4.00) - I will spend most of my time doing other things rather than learning.
      Highest: (6.39 - 9.75) - When faced with a decision between learning something or participating in an activity that may be more fun at the time, I will participate in the learning.
Resolving Conflict (reco) -
      Lowest (RC): (3.97 - 4.00) - I will spend most of my time doing other things rather than learning.
      Highest (RC): (4.81 - 3.00) - I will usually choose other activities over learning if I am not required to learn something.
Future Orientation (fuor) -

Lowest: (8.02 - 9.00) - When I think of quitting a difficult learning activity, I will increase my effort because I recognize the value of the project.
Highest: (7.03 - 9.75) - When I am learning something that is not enjoyable, I will think of the eventual reward.

Planning (plan) -
Lowest: (8.27 - 9.50) - When I am faced with problems in a particular learning activity that I cannot solve, I will seek help from others.
Highest: (7.36 - 9.75) - When I have difficulty learning something, I will restructure my study goals and strategies.

Evaluating Alternatives (eval) -
Lowest: (7.68 - 8.75) - Even if a learning activity is extremely difficult, I will endure because quitting is not an alternative for me.
Highest: (6.88 - 9.50) - When a learning activity is not going well, I will evaluate my past decisions.

Anticipating Consequences (anco) -
Lowest: (7.74 - 8.75) - I will continue to learn even if problems with my schedule make it difficult.
Highest: (6.91 - 9.75) - Before I begin a learning activity, I will try to anticipate problems that might interfere with my learning.

Inspection of the bar graphs presented in Figure 6 reveals that Jane's responses on Goal-Directedness and Self-Starting components place her at the mid-range scores. Her relative opportunity in the area of Overcoming Obstacles is very slight, but the opportunities in the areas of Active Orientation and Active Approach are more substantial.

Figure 6: Initiative profile.
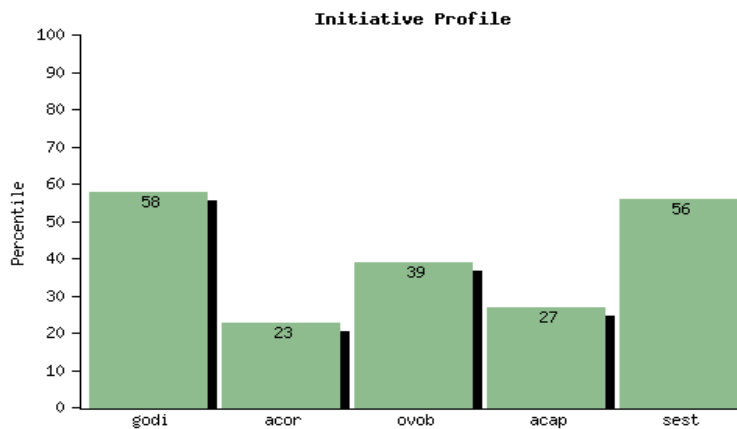
Goal-Directedness (godi) -
Lowest: (8.46 - 9.50) - If I establish a learning goal, then I will try to accomplish it.
Highest: (7.46 - 9.75) - If I establish a learning goal, then I will establish a goal that is a challenge for me to accomplish.

Action Orientation (acor) -
Lowest: (6.85 - 6.00) - If I intend to learn something, then I will quickly translate this intention into action and not take too much time analyzing the advantages and disadvantages of this intention.
Highest: (7.62 - 9.75) - If I want to learn something, then I will quickly develop a rough plan concerning how to satisfy this learning desire.

Overcoming Obstacles (ovob) -
> **Lowest (RC):** (4.05 - 7.50) - If difficulties interfere with my desired learning activity, then I will discontinue my learning activity.
> **Highest:** (7.11 - 9.50) - I will persist in participating in my learning activity even if I have the choice of participating in a non-learning activity.

Active Approach (acap) -
> **Lowest:** (7.32 - 8.00) - If a family problem interferes with my learning progress, then I will develop a solution to this problem so that I may continue with my learning.
> **Highest:** (6.43 - 9.00) - If I do not think that my desired learning activity is as important as another non-learning activity, then I will figure out a way to prioritize my learning activity above the other non-learning activity.

Self-Starting (sest) -
> **Lowest (RC):** (3.74 - 5.00) - If I desire to learn something, then I will rarely start a learning activity by myself.
> **Highest:** (7.59 - 9.50) - If I take a break from participating in a learning activity, then I will motivate myself to resume the activity as soon as possible.

Inspection of the bar graphs presented in Figure 7 reveals that Jane's responses on the Volition component place her in the mid-range percentiles. Her relative opportunity in the area of Self-Regulation is modest and it is somewhat greater in the area of Goal-Maintenance.

Figure 7: Persistence profile
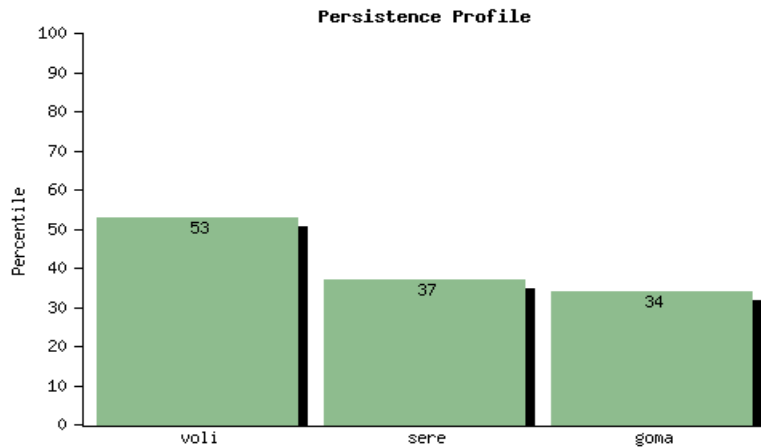
Volition (voli) -
> **Lowest (RC):** (2.87 - 2.00) - I will put little effort into the accomplishment of a learning goal.
> **Highest:** (7.77 - 10.00) - I will not let a temporary lack of effort towards achieving my learning goal become permanent.

Self-Regulation (sere) -
> **Lowest:** (7.44 - 5.00) - I will control my learning efforts by controlling my life activities.
> **Highest:** (7.01 - 9.50) - I will not let other activities interfere with the accomplishment of my learning goal.

Goal Maintenance (goma) -
> **Lowest:** (7.52 - 8.00) - I will keep focused on the primary learning goal although I may have other things to learn first.
> **Highest:** (7.55 - 9.75) - I will not be discouraged to continue working even if the learning goal is difficult.

EXTRACTION OF THE SHORT FORM OF THE LAP

Version 3.0 of the LAP is composed of 164 items that may be accessed in a single session or in as many as four separate sessions (one for each construct.) Allowing an average of 10 seconds for the respondent to read and record a response for each item, the entire battery is generally completed in approximately 27 minutes. Many respondents receive reports that essentially confirm that they hold values and attitudes that are consistent with functional learner autonomy and no substantial development effort is indicated. In addition, there are uses of LAP results that do not involve individual intervention plans. For example, researchers or employers that simply wish to compare LAP scores with certain demographic or experiential characteristics, learning styles, learner orientations, or preferences, to learner autonomy, may not feel individual intervention plans are appropriate to their needs. In such cases, the time needed to acquire the diagnostic details provided by Version 3.0, may not be well spent. Similarly, some organizations may wish to screen large numbers of respondents with a minimum of time expended and rely on initial results to establish the need for a more detailed diagnosis in selected cases.

For these and other similar reasons, it was decided that a Short Form of the LAP should be developed. In order to increase the likelihood of high concurrent validity of Version 3.0 and the Short Form, it was decided that the Short Form should be extracted from Version 3.0 by means of statistical analyses, rather than by creation of new items. The central task was to produce a Short Form by reducing the number of items for each construct and component while maintaining the highest possible reliability and correlations with scores on Version 3.0.

Methodology
The database containing 1340 complete responses utilized in the validation study reported above was used in this effort. The initial process was to subject each component to stepwise regression analysis. This process revealed that combinations of the two most predictive items for each component do not yield sufficiently high R^2 values to represent reliable Short Form assessment. However, the combinations of three most predictive items for each component do.

The second step was to confirm that each of the 22 components remained a single component in the reduced model. Primary component analysis confirmed the existence of the 22 hypothesized components. Next, the total scores for each of the 22 components and the four constructs of the Short Form were compared to those of Version 3.0 by calculating Pearson's product moment correlation coefficients. Table 5 reports the R^2 values of the three items per component selected for the Short Form and the correlation of the component and construct scores for Version 3.0 and the Short Form.

Table 5: R^2 Values for the Three Items Extracted and Correlations of LAP Version 3.0 and the Short Form (N = 1340)

Component	R^2	Correlation w/Version 3.0
Circumstance	.921	.950
Expression	.880	.932
Group Identity	.919	.957
Growth & Balance	.929	.962
Love Issues	.911	.954
Communication Skills	.876	.935
Change Skills	.861	.922
Desire Construct	**.980**	**.988**
Learning Priority	.890	.943
Deferring Gratification	.874	.929
Resolving Conflict	.911	.954
Future Orientation	.864	.929
Planning	.852	.922
Evaluating Alternatives	.869	.924
Anticipating Consequences	.862	.921
Resourcefulness Construct	**.972**	**.976**
Goal-Directedness	.897	.946
Action Orientation	.873	.917
Overcoming Obstacles	.822	.881
Active Approach	.892	.935
Self-Starting	.829	.909
Initiative Construct	**.957**	**.972**
Volition	.861	.927
Self-Regulation	.883	.938
Goal-Maintenance	.889	.941
Persistence Construct	**.946**	**.971**

Table 6 reports the Cronbach's alphas and standard item alphas for the four constructs of the Short Form of the LAP. Taken together, these results were taken as sufficient evidence that scores on the Short Form may be used to make an initial assessment of a respondent's Learner Autonomy Profile.

Table 6: Cronbach's Alphas and Standardized Item Alphas for the Four Constructs of the LAP Short Form (N=1340)

Construct	Alpha	Standardized Item Alpha
Desire	.9010	.9046
Resourcefulness	.9082	.9172
Initiative	.8798	.8992
Persistence	.9315	.9340

**Sample Learner Autonomy Profile, Short Form Report**
The format of the Short Form Report is the same as that used for Version 3.0 Reports with two important exceptions. The first, difference emanates from the simple fact that the 66-item Short Form provides a less detailed assessment than does the 164-item Version 3.0. Because of this, it was decided to distribute raw scores for each construct and component across stanines rather than percentiles. Hence, scores of 9, 8, or 7 are

considered areas of strength, while scores of 6, 5, or 4 place the respondent in the mid-range of respondents, and scores of 3, 2, or 1 are considered areas of potential opportunity.

Keeping in mind that it is recommended that Short Form results not be used for development of individual intervention plans, it was then decided that the Short Form Report would not include the items for which the individual's scores varied most above and below the mean for items on the scale in question. Rather, a brief description of the issues to which each component refers, as noted earlier in this report, is provided.

In the interest of brevity in preparation of the present article, it was decided to limit the graphic representation of the Short Form Report to a sample of the Persistence Report. In the example provided, Jane Doe has given responses that place her within the middle range for Volition (5th stanine) and Self-Regulation (5th stanine). However, her responses to the Goal-Maintenance items place her in the "potential opportunity" range (3rd stanine).

Figure 8: Sample Short Form Report, Persistence Profile

PERSISTENCE PROFILE
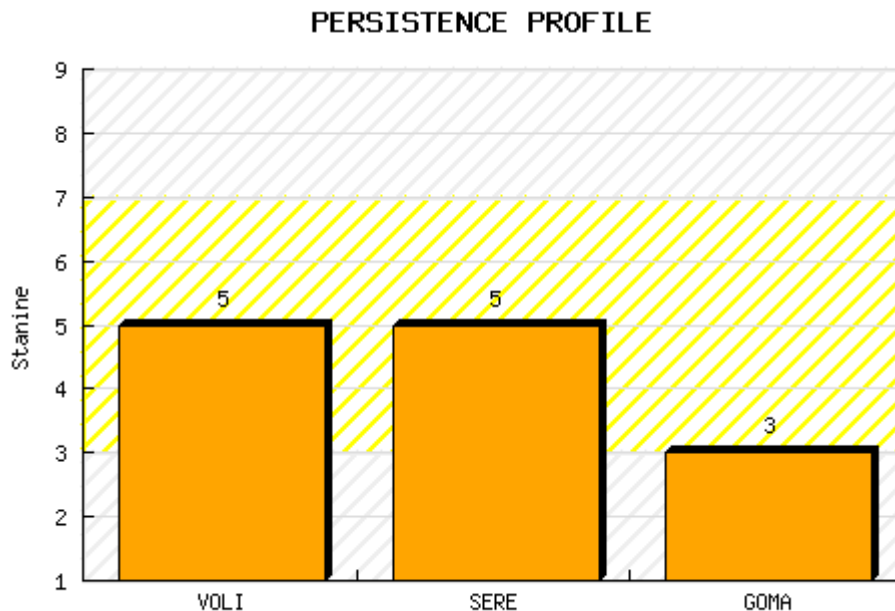
VOLI (Volition) is the maintenance of intentional focus (the will of the individual to learn) and effort towards goals despite distractions, obstacles or barriers. It can be characterized as the mediating force between one's intention to learn and one's motivation to learn. Volition is commitment to a goal through regulation of the self by protecting the intention to learn and maintaining the attempts to learn.

SERE (Self-Regulation) within the context of learning refers to the self-generated thoughts, feelings, and actions, which are systematically oriented toward attainment of a goal; the process that exercises control over thinking, affect, and behavior as knowledge

and skills are acquired for learning. Learners must regulate actions, cognition, beliefs, and intentions that affect behaviors towards learning goals and sustain the motivation to attain them.

GOMA (Goal-Maintenance) is the behavior of establishing goals that serve as motivators for action. Goal-maintenance maintains the establishment and value of the goal, and provides the energy and direction for action. This behavior involves the strategies for the management of the tasks required for the attainment of the goal or the self-regulated aspect.

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A PATH ANALYSIS OF THE CONATIVE FACTORS ASSOCIATED WITH AUTONOMOUS LEARNING

Michael Ponton, Paul Carr, and Gail Derrick

ABSTRACT

It has been previously argued that autonomous learning can be defined as the presence of the following conative factors: resourcefulness, initiative, and persistence. These factors are conative in that they are predicated upon the presence of motivation to engage in autonomous learning activities. The purpose of this thesis is to present the results of a path analysis performed on these factors in an attempt to gain support of a hypothesized causal model. Because of the causal inferences presented, a better understanding of the relationship between salient aspects of autonomous learning will be suggested. The importance of this understanding is the ultimate enablement of learning facilitators to develop autonomy within learners.

The data analyzed in this paper are from a sample of 909 adults. The demographics of the sample are as follows: 601 females and 308 males; 285 with only a high school diploma, 265 a baccalaureate degree only, and 359 with a graduate/professional degree; the age of the subjects range from 17 to 88 (M = 33.45, SD = 10.23). The data were gathered using the Learner Autonomy Profile that measures desire in a generalized context and resourcefulness, initiative, and persistence within the context of adult autonomous learning. The thesis will conclude with a recommendation that future research be performed on motivation and self-efficacy contextualized to autonomous learning activities.

OVERVIEW

Derrick (2002) asserts, "Understanding the behaviors associated with persistence in learning is critical to understanding . . . why some individuals are successful and others are not successful in their learning endeavors" (p. 16). However, the premise of this thesis is that understanding perseverant behaviors is necessary but not sufficient in fostering learning persistence within adults. What is needed is a better understanding of the causal relationships between persistence and other autonomous learning constructs (i.e., desire, resourcefulness, and persistence) to not only better prepare facilitators of learner autonomy but also to serve as a stimulus for future research. Persistence is studied as a desired result because it is posited to be the defining characteristic of learning that continues until a personally satisfying end is reached.

CONCEPTUAL FRAMEWORK

Over the past 5 years, several researchers have attempted to build upon the premise of Confessore (1992) that "self-directed learning, as with any other human endeavor, becomes a matter of drive, initiative, resourcefulness, and persistence [in order for learners] to see . . . [themselves] through to some level of learning that is personally satisfying" (p. 3). These researchers have developed instrumentation that focuses on the

assessment of an adult autonomous learner's desire (Meyer, 2001), resourcefulness (Carr, 1999), initiative (Ponton, 1999), and persistence (Derrick, 2002) with continual testing to help make tenable each instrument's validity and reliability (cf. Ponton & Carr, 2002).

In a general sense, Meyer (2001) created an instrument that assesses an adult's ability to exert influence over his or her life based upon three constituent processes: freedom, power, and change. Therefore, while Meyer's instrument does not measure desire within the context of adult autonomous learning, her instrument attempts to measure the degree to which an agent can act intentionally. The connection to desire (i.e., from a motivational perspective) exists through the process of self-efficacy, a construct that has been shown to mediate all theories of cognitive motivation (Bandura, 1997). As Park and Confessore (2002) assert, "[Meyer's] work on desire to learn has been treated as an effort to understand the *precursors* to the development of intentions related to learning" (p. 289).

The premise of Carr's (1999) work is that resourcefulness represents a syndrome of behavioral self-control skills that transcend the dichotomy of redressive and reformative self-control (cf. Rosenbaum, 1989) thereby resulting in the following four behaviors indicative of learner autonomy: (a) prioritizing learning activities over nonlearning activities; (b) choosing to engage in learning activities as opposed to nonlearning activities; (c) looking to the future benefits of present learning; and (d) solving problems that interfere with learning activities. Problem solving includes the ability to plan learning activities, evaluate different learning activities, and anticipate the consequences of different activities. The term *resourcefulness* is used because it represents the collection of skills that a learner uses to cope with the stress associated with learning. Carr developed instrumentation that assesses an adult's intention to show resourcefulness in autonomous learning activities.

Building upon the work of other research on personal initiative (primarily from the field of business), Ponton (1999) created an instrument that measures five behavioral intentions in an adult autonomous learner: (a) goal-directedness; (b) action-orientation; (c) persistence in overcoming obstacles; (d) active-approach to problem solving; and (e) self-startedness. Goal-directedness refers to the creation of learning goals and working toward their accomplishment, action-orientation refers to quickly moving from an intention to learn to actual learning, persistence in overcoming obstacles refers to continued pursuit of learning in spite of the presence of impediments, active-approach to problem solving is indicative of a learner that develops solution strategies to deal with impediments without waiting on someone else to develop such strategies, and self-startedness refers to being able to self-start learning activities and their associated processes (e.g., goal setting and planning).

Derrick (2002) conceptualized persistence as the sustained maintenance of three behaviors: volition, self-regulation, and goal-directedness. Volition represents the motivation to sustain an intended behavior while self-regulation refers to maintaining activities that coincide with one's integrated self (accomplished primarily through self-reflective judgment). Finally, while Ponton (1999) includes goal-directedness as a

behavior of personal initiative, Derrick provides the added criterion of perseverance toward goal accomplishment to differentiate this subscale from his.

RESEARCH PROBLEM

While much of the previous research has focused on establishing the validity and reliability of the four instruments, little work has been published that addresses the linear relationship between the four constructs of desire, resourcefulness, initiative, and persistence. Of deeper importance, no causal modeling has been performed that may suggest a relationship between these four constructs. Such work is necessary to further our understanding of autonomous learning and suggest avenues for future research.

RESEARCH PURPOSE

Ponton and Carr (2000) attempted to highlight common critical facets associated with the three conative factors of resourcefulness, initiative, and persistence in an attempt to better enable an educator to foster autonomy within students. However, their discussion was general in nature without regard to the potential influence of cause and effect relationships. The purpose of this research is to theorize a causal model for desire, resourcefulness, initiative, and persistence, and then perform a path analysis to determine the tenability of the hypothesized model.

METHODOLOGY

The four respective instruments of Meyer, Carr, Ponton, and Derrick constitute the Learner Autonomy Profile (LAP). Each of the four instruments have been argued as being construct and content valid as well as externally and internally reliable (Park & Confessore, 2002).

The data from research performed on 909 adults are presented. These adults participated in a large cross-sectional research effort directed by Gary J. Confessore (The George Washington University) on North American, Western European, and East Asian adults from which the presented results are derived. The demographics of the sample are as follows: 601 females and 308 males; 285 with only a high school diploma, 265 a baccalaureate degree only, and 359 with a graduate/professional degree; the age of the subjects range from 17 to 88 ($M = 33.45$, $SD = 10.23$). Although a large subsample of the data represent East Asian students studying in the United States ($n = 417$) and the means of these students on all four scales are statistically lower than the remainder of the sample, trends in the linear analysis techniques (i.e., correlation and regression analyses) produced similar results; therefore, all data were used in the analysis. Data analysis was performed using the *Statistical Package for Social Sciences*.

Proposed Causal Model
As indicated in Table 1, a statistically significant ($p < .001$) linear relationship exists between all bivariate correlations of the four LAP scales. Using qualitative descriptors of Hinkle, Wiersma, and Jurs (1998, p. 120), the Pearson product-moment correlations

between resourcefulness, initiative, and persistence are high while desire is only moderately correlated with resourcefulness, initiative, and persistence.

Scale	1	2	3	4
Table 1: Intercorrelations between Scales (N = 909)				
1. Desire	—	.654**	.625**	.631**
2. Resourcefulness		—	.871**	.871**
3. Initiative			—	.880**
4. Persistence				—

**p < .001.

Building upon past work (Atkinson, 1964, 1982; Bandura, 1997; Bandura & Cervone, 1983; Locke & Latham, 1990; Vroom, 1964; Weiner, 1985), Ponton, Edmister, Ukeiley, and Seiner (2001) present a discussion of cognitive motivation and the mediating role of self-efficacy. Expectancy value theory suggests that people will be motivated to engage in activities that will lead to valued outcomes or avoid aversive ones. Such outcomes may be personal (e.g., physical pleasure or pain), social (e.g., acceptance, money, ostracism), or self-evaluative (i.e., coincidence with self-standards of behavior). However, outcomes are not directly attained by the agent—performance goals are. Thus, goals are created due to the perceived correlation between goal attainment and expected outcomes. Goal theory describes the mechanism of goal establishment in fostering motivation. Self-efficacy, or one's self-perception of capability to successfully execute an activity, mediates both expectancy value theory and goal theory as people do not, in general, choose to engage in activities that they perceive as futile endeavors.

Ponton and Carr (1999) theorized a model of learner self-directedness and self-directed learning. In their model, they suggested that self-directedness is a cognitive and affective process that leads to the conative process of self-directed learning (i.e., intentional behavior). Self-directedness is predicated upon a person's belief that self-directed learning will lead to valued outcomes (value expectancy) thereby precipitating the creation of a goal to engage in a self-directed learning activity (goal theory). Ponton and Carr further recognize the importance of self-efficacy beliefs within the context of self-directed learning—that is, before a person creates the goal of engaging in self-directed learning, an assessment is performed by the individual with respect to whether self-directed learning capability is present. Ponton (1999) later argued that learner autonomy and autonomous learning are subsets of self-directedness and self-directed learning, respectively, thereby suggesting the primacy of similar motivational processes.

Resourcefulness, initiative, and persistence are referred to as conative factors because they represent intentional behaviors based upon the presence of motivation and self-efficacy. Therefore, in a causal model, resourcefulness, initiative, and persistence should follow desire (i.e., motivation).

Conceptually, resourcefulness is more closely related to expectancy value theory because the anticipation of future rewards may influence a person to prioritize learning over nonlearning activities and, thus, choose learning over nonlearning activities. However, one should keep in mind that resourcefulness is still conative in that it refers to what a learner *intends to do* and not merely what a learner knows or feels. Similary, initiative is more closely related to goal theory because of its goal-directedness subscale, but still conative because it assesses the intention of a learner to create goals and work toward their accomplishment. Because motivation associated with value expectancies is a precursor to the establishment of performance goals, it is hypothesized that resourcefulness should mediate the effect of desire on persistence and should precede initiative because of the aforementioned motivational argument.

Based upon these arguments, it is hypothesized that the largest effect on persistence will be through the path
Desire → Resourcefulness → Initiative → Persistence.

In addition, desire should have a minimal direct effect on persistence when compared to the total indirect effect.

RESEARCH FINDINGS

Ordinary linear regression was used to determine the path coefficients due to their correspondence to standardized regressive coefficients (Maxim, 1999). The following regression equations were solved based upon the hypothesized causal model:

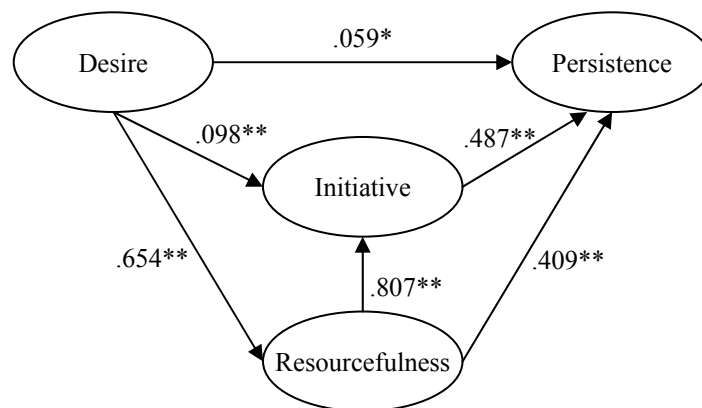$$z_{\hat{P}} = \beta_1 z_D + \beta_2 z_R + \beta_3 z_I \ ,$$

$$z_{\hat{I}} = \beta_4 z_D + \beta_5 z_R \ ,$$

$$z_{\hat{R}} = \beta_6 z_D \ .$$

Note that *D*, *R*, *I*, and *P* correspond to desire, resourcefulness, initiative, and persistence, respectively. Figure 1 presents the resulting path-analytic model.

Figure 1: Overall path-analytic model: Influence of desire, initiative, and resourcefulness on persistence.
p = .002; **p* < .001.

This model offers four paths from desire to persistence: one direct effect (i.e., desire to persistence) and three indirect effects (desire through initiative to persistence; desire through resourcefulness to persistence; and desire through resourcefulness and initiative to persistence). Table 2 presents the effect sizes for each of these paths.

Table 2: Effect Sizes for Different Paths

Path	Effect Size
$D \rightarrow P$	.059
$D \rightarrow I \rightarrow P$	$(.098)(.487) = .048$
$D \rightarrow R \rightarrow P$	$(.654)(.409) = .267$
$D \rightarrow R \rightarrow I \rightarrow P$	$(.654)(.807)(.487) = .257$

Note. The total indirect effect is $.048 + .267 + .257 = .572$.

As was hypothesized, the direct effect of desire on persistence is small in comparison to the total indirect effect (.059 vs. .572, respectively). In addition, the importance of the mediating role of resourcefulness, again as hypothesized, is evident in the small indirect effect of desire through initiative to persistence (.048). However, an unexpected result is the comparable indirect effects of desire through resourcefulness to persistence (.267) and desire through resourcefulness and initiative to persistence (.257). These results suggest that fostering resourcefulness in learners is a key component in facilitating persistent autonomous learning. Once resourcefulness is fostered by the learning facilitator, then personal initiative should be the educative focus.

Because desire has a small direct effect on persistence, a hierarchical regression analysis was performed to determine its predictive effect on persistence (see Table 3). Because of the important mediating role of resourcefulness, it was chosen as the baseline model (i.e., Step 1); the addition of initiative followed due to its mediating contribution (Step 2); and finally desire was added (Step 3).

While statistically significant changes in R^2 are realized with models that add initiative (Step 2) and desire (Step 3) to resourcefulness (Step 1), the practical significance of the increase associated with Step 3 is nonexistent. That is, Step 2 created an increase of 7.9% in R^2 $(.759 \rightarrow .819)$ while Step 3 created an increase of only 0.2% $(.819 \rightarrow .821)$. Thus, the measurement of desire, as it is conceptualized by Meyer, has very little predictive power with respect to persistence. This is probably due to it being a general measure and not contextualized to the domain of autonomous learning. (Note that if Step 2 were the addition of desire, rather than initiative, the increase in R^2 would still be less than 1%.) Of course, the result associated with Step 3 follows the small direct effect associated with desire on persistence (note the correspondence between the Beta weights in Step 3 and the path coefficients leading to persistence in Figure 1); however, the hierarchical

regression analysis provides a quantitative argument that the addition of the desire measure does not add to the prediction of persistence in any practical manner.

Table 3: Summary of Hierarchical Regression Analysis for Variables Predicting Persistence (N = 909)

Variable	B	SE B	β
Step 1			
Resourcefulness	.603	.011	.871**
Step 2			
Resourcefulness	.301	.020	.435**
Initiative	.401	.023	.500**
Step 3			
Resourcefulness	.283	.021	.409**
Initiative	.390	.023	.487**
Desire	.067	.021	.059*

Note. $R^2 = .759$ for Step 1; $\Delta R^2 = .060$ for Step 2 ($p < .001$ for change); $\Delta R^2 = .002$ for Step 3 ($p = .002$ for change).
*$p = .002$; **$p < .001$.

A second path-analytic model was computed using only the conative factors of resourcefulness, initiative, and persistence (see Figure 2). As is easily computed from the path coefficients, the direct effect of resourcefulness on persistence (.435) is comparable to the indirect effect of resourcefulness through initiative to persistence (.871 x .500 = .436).

_____

Figure 2: Reduced path-analytic model: Influence of initiative and resourcefulness on persistence. All path coefficients are significant at the 0.001 level.
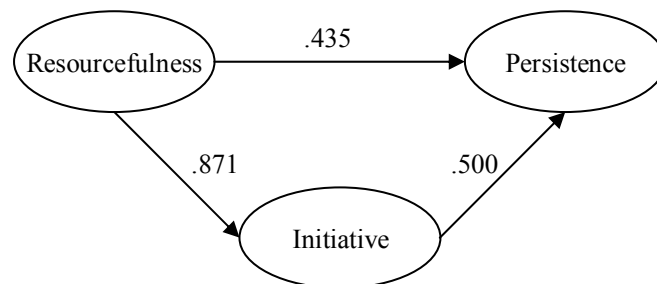
DISCUSSION

The important role of resourcefulness on persistence should not be surprising. While Carr (1999) has argued convincingly that his instrument was designed to measure *intention*, resourcefulness intention may be highly correlated with cognitive motivation. For example, an intention to choose learning activities over nonlearning activities (i.e., a

conative process) may suggest greater value expectancy with learning as opposed to nonlearning (i.e., a cognitive process). However, this assertion must be tested. Cognition and affection are conceptually separable from conation and intentional behaviors; thus, instrument phraseology that attempts to assess cognitive motivation must be designed accordingly. What is of paramount importance, though, is that such motivation instrumentation is contextualized to autonomous learning similar to Carr's instrument. It should be obvious that one's motivation to engage in autonomous learning may be quite different from one's motivation to paint a house.

Similar arguments may be made for self-efficacy measures. Bandura (1995) argues that beliefs in self-efficacy have an inverse relationship to anxiety. As has already been stated, resourcefulness is related to a learner's ability to autonomously manage the stress associated with learning; thus, higher levels of resourcefulness should be positively correlated with self-efficacy. But again, this hypothesis must be tested as Carr's instrument does not measure self-efficacy. Similar to measures of motivation, self-efficacy measures must also be contextualized to the domain of autonomous learning—one's perceived ability to show resourcefulness, initiative, and persistence in learning (a.k.a., autonomous learning) may be quite different than one's perceived ability to build a nuclear reactor.

From the path model, the relationship of initiative to persistence may be explained by the relationship between expectancy value theory and goal theory. As has already been posited, the development of specific performance goals follows value expectancies. Thus, as was initially hypothesized, initiative should mediate the path from resourcefulness to persistence because of the goal-directedness subscale in Ponton's instrument—again bearing in mind that the instrument is measuring intention and not motivation directly. This result was partially supported by the path model. However, what was not expected was the nearly equivalent effect of resourcefulness on persistence, without the initiative mediator. This may be due to the goal-directedness subscale in Derrick's persistence instrument. If this assumption is correct, then this latter situation may suggest the presence of both forms of cognitive motivation (i.e., expectancy value and goal theories) even without the presence of initiative.

However, if this argument is true, then an *accurate* measure of motivation and self-efficacy (i.e., accurate due to the measures being contextualized to autonomous learning) may change the path coefficients in the overall path-analytic model. Because Meyer's desire instrument is not reflective of such contextual measures, it is presently asserted that such instrumentation should be developed and tested in concert with the conative measures of the LAP. This research will shed better insight into the proposed causal relationships presently argued. In its present form, desire does not accurately measure one's motivation to engage in autonomous learning. Even though the instrument may assess important characteristics of the learner, such an assessment may not accurately reflect one's intention to engage in autonomous learning. Hierarchical linear regression certainly supports the desire instrument's hypothesized lack of predictive ability, when the effects of resourcefulness and initiative are controlled.

CONCLUSIONS

The present analyses suggest that fostering resourcefulness should be a critical goal in effecting learning persistence. Initiative should be a focus in concert with resourcefulness, but not in isolation—resourcefulness triggers persistence with an effect size similar to the path with initiative as a mediator.

Significant advances have been made to better understand the characteristics of the adult autonomous learner. Measures of desire, resourcefulness, initiative, and persistence have helped to provide insight into the cognitive, affective, and conative world of the learner. However, to continue on this avenue of research, motivation and self-efficacy instruments should be developed within the context of autonomous learning and tested with the conative measures, thereby enabling future research to better describe the relationship between motivation and conation. Hopefully, this understanding will better equip the learning facilitator to not only foster autonomy within learners, but also to take fuller advantage of the autonomy that adults tend to exhibit in their learning.

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PRACTICE BRIEF

A WORKSHOP FOR FACULTY: TEACHING BELIEFS AND
IMPLICATIONS FOR SELF-DIRECTED LEARNING

Robert J. Bulik and Ann W. Frye

The very nature of what it means to be faculty in an academic setting is rapidly changing.
Even the definition of what constitutes a college course and how that content is delivered
can no longer be defined in traditional terms of either lecture or lab. Rather, institutions
of higher education are infusing their curricula with Web-based cases and links to on-line
resources, many that can be downloaded to a personal digital assistant (PDA). On-line
courses often incorporate non-linear course outlines, chat rooms, and threaded
discussions. Medical education is no different: there is a shift occurring in the curriculum
from structure- and process-based to competency-based education and a concurrent shift
in instructional delivery from teacher-centered lectures to student-centered active
learning. In addition, there is a growing, though reluctant, acknowledgement that an
undergraduate or graduate degree in any discipline does not provide all the knowledge a
graduate might require for long-term competent practice. Consequently, there is an
emerging recognition of a need to encourage lifelong learning at every educational level
and in every discipline.

In the face of all this change, how do faculty prepare themselves? The call on faculty to
be self-directed learners and to support their students in developing self-directed learning
skills has never been greater. Many faculty, however, hold beliefs about teaching and
learning that are strongly associated with the traditional notions of course and content
delivery that are undergoing such radical change.   How can faculty beliefs about the
traditional teaching-learning interaction be changed?   Even more important: Are
continuing education (faculty development) workshops providing a venue for faculty to
address long-held traditional beliefs about their teaching?

BACKGROUND

The credibility of faculty development programs has suffered from an oversimplified
view of the educational process held by many faculty (Skeff, et al., 1997). A change
from lecture-based instruction to problem-based learning (PBL) or Web-based teaching
represents major educational change, requiring faculty to reframe their fundamental
beliefs about the teaching and learning process and their role as teachers (King, 1999).
Oversimplified approaches to faculty development are unlikely to provide the support or
skills development necessary for faculty to thrive in a rapidly changing environment.

Lazerson, McLaughlin, McPherson, and Bailey (1990) provide an analogy from Mark
Twain's *Life on the Mississippi* that illustrates the breadth and depth of changes that are
taking place in educational practice. This analogy provides a rather straightforward look
at learning, incorporating knowledge, skills, and attitudes with the ability, capacity, and

commitment to go beyond the basics of a subject field and exhibit problem-solving abilities:

> Twain's getting to know the river, Joseph Featherstone tells us, is a classic American expression of a metaphor for learning. Twain learns how to navigate the river at a young age. He learns every shoal, snag, and sandbar. These are the basic skills. But no sooner has he memorized their locations and peculiarities than he has to modify or forget them, and learn other spots, for the river never stops changing its course. Twain must simultaneously remember the reality of what existed in the river and imagine how different forces and conditions are likely to change it. In the process of learning, we, like Twain, continually remake our education, ourselves, and our ways of coping with and understanding the world. (p. 67)

The knowledge or content of a particular subject area is insufficient to qualify an individual as competent in a subject area. An ability to use that knowledge in the generation and interaction of ideas in critical analyses or in creative problem solving is also necessary. What is meant by competency in a subject area ought to involve an emphasis on the possession of both knowledge and task skills and the ability to use them or to demonstrate their use. In effect, this story suggests that faculty need to re-conceptualize their role as they replace the delivery of lecture-based instruction in the traditional classroom with on-line instruction or small group discussions that are competency-based and assessment-driven.

Ullian and Stritter (1997) argue that faculty development needs should be identified through self-reflection – a way of promoting self-directed learning. Faculty development activities need to be based on the principles and practices of self-directed learning in order to provide both campus-based faculty and workplace trainers with the skills and the philosophical framework to teach or train effectively. Jerold Apps (1989) has argued that: "Identifying and examining personal beliefs and values can help teachers of adults improve their performance and change the way in which they view their roles as teachers" (p. 17). The linkage of self-reflection on beliefs with changes in practices affirms the potential value of this approach. To facilitate individual reflection in these areas, Apps developed a framework for thinking about personal teaching beliefs. The framework includes beliefs about (a) the learner, (b) the aims of teaching, (c) the subject matter, and (d) the teaching-learning transaction.

The following outline provides an overview of a continuing education workshop that utilizes Apps' framework, originally developed for general university faculty, in a highly interactive session that challenges medical school faculty to examine their beliefs about teaching. The workshop challenges faculty to rethink their beliefs about teaching through a structured educational dialogue centered on self-directed learning.

WORKSHOP OBJECTIVES

The workshop has these three objectives:

1. Identification of the components of a personal teaching beliefs statement

2. Reflection on the participant's own beliefs about learners, the aims of teaching, the subject matter, and the student-teacher interaction

3. Reflection on a personal metaphor for teaching.

WORKSHOP MECHANICS

To create this faculty development workshop outline, we adapted and expanded the framework created by Apps. We extended the expected outcomes of this interactive workshop beyond a rather straightforward reflection on a personal philosophy of teaching to a series of practical applications: development of a *teaching mission statement*, an initiation of a *teaching portfolio*, and discussions of a *personal metaphor for teaching*. These practical applications help to ensure that workshop participants move from reflection to synthesis of insights gained through the workshop activities. In particular, the *personal teaching mission statement* and the *personal metaphor for teaching* help to support faculty in moving on to adopt new practices.

Workshop Structure

The three-hour workshop is coordinated by two facilitators working with a group of about twenty faculty, divided into small groups of 5-6. The group may be multi-disciplinary or relatively homogeneous in background and areas of practice. Following a short introductory icebreaker activity, App's framework is introduced and participants provided with the following overview of the workshop:

-Individual reflection (3 minutes for each of the four beliefs): prompted reflection on the four elements of the framework, with individuals recording their beliefs on a personal template.

-Group talk (6-8 minutes for each of the four beliefs): small-group discussion of the framework elements during which individuals share with others at their table ideas about their beliefs.
-Group reporting (10 minutes for each of the four beliefs): large group reporting and discussion of the framework elements, while facilitators record on flip charts ideas from the groups.

-Individual *teaching mission statement* (15 minutes to reflect on the activities and to begin writing a teaching mission statement): with facilitator prompting, individuals record on personal template ideas generated during the group-reporting session and begin to construct a *teaching mission statement* for their teaching portfolios.

-Individual *metaphor for teaching* (15 minutes to reflect on the activities and to construct a metaphor for teaching): with facilitator prompting, individuals generate a *metaphor for teaching* based on personal reflection and group discussions.

Teaching Beliefs Prompts

A blank sheet of paper is often the biggest hurdle for most writers to overcome. Consequently, workshop participants are provided with both verbal and visual prompts to aid in their reflection on their teaching beliefs. They are encouraged to capture ideas and

thoughts in phrases or a bulleted format on their personal templates; construction of grammatically correct sentences to complete the philosophy of teaching for their portfolio occurs later. The template sheet is divided into sections matching the workshop activities.

<u>Beliefs About the Learner</u>
What do you believe about human beings?
– Their potential for growth and development
– Their ability to change / improve
– Their motivation for learning (intrinsic / extrinsic)
– Freedom from genetic or environmental influences.

<u>Beliefs About the Aims of Teaching</u>
What ought we to be accomplishing as teachers?
– What does it mean to "meet student needs"?
– What do you hope to accomplish as a teacher?
– What are your aims as a teacher?

<u>Beliefs About Subject Matter</u>
"For a society to be just it must, as a matter of both principle and action, contribute
most to the advantage of the least advantaged". (Apple, 1987)
– To whom do you teach – to what level do you teach?
– What do you believe about teaching the content of your discipline?

<u>Beliefs About the Teaching-Learning Transaction</u>
What do you believe is the optimum environment for learning?
– What is your role in the transaction (implies two-way)?
– What are your beliefs about feedback?
– How do you learn best?

Facilitator's Prompt for the Teaching Mission Statement Activity
If we think that it is important for a department, a clinic, a hospital, or an office to have a mission statement that states "who we are – and what we're about," then it should be just as necessary and useful for a teacher to express "who I am as a teacher and what my classroom is about."

Mission Statement Prompts
Each workshop participant is provided with a printed page headed with the statement: "In this classroom ……………………………………………………………….…."

Metaphor for Teaching
Metaphors and slogans exist in use, and in the literature, as generalizations and implied comparisons. If a metaphor or slogan accurately represents a connection between an actual and a perceived similarity (or difference), its use will become widespread and accepted. The power of a metaphor or slogan resides in the process and product of thought, which in turn defines reality and creates a visual representation.

As a closing activity, faculty attending this workshop are encouraged to develop a metaphor that reflects their individual philosophy and characterizes their teaching in relation to students who are problem-solving, self-directed, lifelong learners.

Facilitator's Background and Prompts for the Metaphor Activity
How faculty teach in a traditional classroom has been well-described with metaphors. The "Sage on the Stage" or "Guide by Your Side" metaphors eloquently capture the essence of two very different approaches to the faculty role in the teaching-learning transactions common to adult education. Medical school faculty in particular find that the problem-based learning (PBL) small group approaches and the on-line learning environments that are being widely adopted call for a reconsideration of the more traditional metaphors.

To help faculty visualize their present or desired role in the teaching-learning transactions, several metaphors are provided. With each metaphor, faculty are asked to think about how their beliefs about teaching match the imagery of the metaphor and whether students would be encouraged or inhibited in their development of problem-solving, self-directed, lifelong learning skills.

> Teacher as Craftsman – suggests application of mechanical skills in the analysis and delivery of instruction
>
> Teacher as Artist – implies an esthetic dimension to teaching in which both skill and creativity are essential
>
> Teacher as Applied Scientist – focuses on application of research findings to problems of teaching
>
> Teachers as Personal Trainers – suggests exercising and strengthening flabby minds so they can handle the rigors of a profession
>
> Teachers as Lamplighters – depicts teachers attempting to illuminate the minds of students

SUMMARY

In this rapidly changing educational environment, there is increasing utility in faculty's developing a personal metaphor for teaching. There is a concurrent need for them to create teaching portfolios, including a statement describing their perspectives on the role and function of teaching. Faculty need opportunities to consider the new issues and challenges in education and workplace training and to re-conceptualize their roles as they move their delivery of instruction from the traditional lecture to the Web-based or on-line classroom or to the small group problem-based learning (PBL) environment. The concept of self-directed learning has moved from the margins of educational dialogue to a more central position as an essential outcome of adult education. Reflecting on how this repositioning is changing the teaching-learning transaction is a profitable activity for faculty.

The workshop on teaching beliefs, as outlined in this paper, is one way of challenging faculty and workplace trainers to reflect on: (a) their evolving role in the teaching-learning transaction, (b) a philosophy of teaching, and (c) a metaphor that represents a visualization of their approach to teaching.

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