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College of Education, CO 138, Florida Atlantic University
500 NW California Boulevard, Port Saint Lucie, FL 34986
IJSDL@fau.edu

Preface

As the demands for lifelong learning continue to escalate, a more complete understanding of self-direction in learning and models for integrating preparation for self-directed learning into formal instruction are essential. This journal exists to provide a forum for sharing research, theory, and practice that contributes to the achievement of these goals. The articles in this issue present a broad range of approaches to exploring the phenomenon of self-direction in learning, including both qualitative and quantitative studies and explorations of theory and practice.

The opening article represents an innovative approach to exploring self-direction in learning. Donaghy presents findings from a phenomenological study that examines the development of self-direction in learning through in-depth interviews with individuals who have devoted much of their careers to research on the topic. Two aspects of self-directed learning which are often construed as paradoxical were evidenced in the findings: that collaboration is often an important element in SDL and that SDL is regularly pursued both within and outside of formal learning settings.

Peters and Gray introduce their article with a discussion of these two apparent paradoxes and then offer a reconceptualization of a typology of teaching and learning, with a focus on the collaborative approach, which supports the development and enhancement of SDL in formal learning settings.

Four articles exploring issues related to teaching and self-directed learning teaching in formal settings follow. In the first, Long, Cheong, and Cheong report on a study of Korean professors' perceptions of important teaching and learning tasks. The following article compares self-directed strategies perceived as important and used by primary students in Hong Kong and Macau and provides some insight into the emphasis placed on self-directed learning in the recent education reforms in Hong Kong. These two studies also illuminate some differences in perceptions of what constitutes self-direction in learning across cultures.

Two US studies focus on older students: Park, Candler, and Durso explore medical students' perceptions of the effectiveness of a variety of instructional modes, concluding that the students perceive self-study most favorably. Boyer and Maher describe the changes reported by college students as they participated in a web-based learning environment designed to promote self-directed, transformative learning. The final two articles focus on instrumentation. Ponton and others explore the role of self-efficacy as a contributor to self-direction in learning and Confessore, Park, and Idobro examine initial data on a Spanish translation of the Learner Autonomy Profile.

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

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CONTENTS

STUDYING SELF-DIRECTED LEARNING:
THE PERSONAL STORIES OF FOUR SCHOLARS[1]

Robert C. Donaghy

ABSTRACT

This paper offers insight into self-direction in learning through the personal experiences of four scholars who have studied self-directed learning. The data were collected through interviews with those who were identified on the basis of citation analysis as the leading contributors to scholarship on the subject. These four scholars represent half of the eight major contributors identified Their work with self-directed learning covers more than three decades. After presenting the qualifications of the four experts, I describe some of their stories, which were told during interviews for a recent dissertation. Excerpts from the scholars' stories are presented in four categories: personal histories, personal theories of learning, importance of collaborative learning, and ideas about the future of self-directed learning.

Self-directed learning (SDL) has been one of the most widely studied topics within the field of adult education during the past three decades (Brockett et al., 2001; Caffarella, 1993). This area of study has experienced some criticism over the years, however, primarily focusing on a relative lack of qualitative research and calling for new approaches (for example, Brookfield, 1984, 2000). A recent dissertation introduced a very different mode of inquiry for investigating self-directed learning that addresses some of the critiques of research on self-direction in learning (Donaghy, 2005). Because little had previously been done to study the evolution of SDL, the notion of self-directedness was studied in this research through the lens of the personal experiences of some of the scholars who contributed to the literature on this topic.

The objective of this dissertation was to describe the development of self-directed learning as experienced by the people who have studied it (Donaghy, 2005). The research included interviews with those scholars who have made significant contributions to the literature of self-directed learning (Donaghy, Robinson, Wallace, Walker, & Brockett, 2002). The eight scholars interviewed for the dissertation were, in alphabetical order: Brockett, Brookfield, Caffarella, Guglielmino, Hiemstra, Kasworm, Long, and Tough (Donaghy, 2005). Drawing on phenomenology, the research investigated the experience of the scholars to determine how they came to know and understand this topic (Collins, 1983/1995; Merriam, 2002; Stanage, 1987).

Hanson (1989) suggests that in-depth interviews with major researchers could be useful in determining where their line of study might be headed. Wiersma (2000) also proposes that inquiries into history can be helpful in predicting the future. Though the research from which this paper is drawn was not a formal historical study, it did incorporate views of the future of self-directed learning and research on self-directed learning from the perspectives of major researchers in the field.

Ralph Brockett initially identified the concept for this study in 2001. Further inspiration for the research effort came from Patricia Maher's (2002) dissertation, which examined the field of adult

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[1] Portions of this paper were presented as background information for a plenary panel at the 2005 International Self-Directed Learning Symposium featuring Brockett, Guglielmino, and Long.

education through conversations with senior adult educators. Several similar studies have been done (Garrison & Baskett, 1987; Hensley, Maher, Passmore, & James, 2001; Hilton, 1981; Jacques, 1973; Maher, 2002; Maher & Passmore, 2000; Reybold, 2002), but none have focused exclusively on researchers of self-direction in learning.

PURPOSE

The purpose of the original research was to gain insight into the ways in which scholarship on self-directed learning has developed by examining the personal reflections of eight scholars who have made major contributions to the literature of self-directed learning. This paper presents excerpts from the background information and personal stories of four of the eight pioneering scholars. The scholars, in alphabetical order, are Ralph Brockett, Lucy Guglielmino, Roger Hiemstra, and Huey Long.

This article summarizes the qualifications of the four experts and describes some of their stories, which were told during their interviews. Their comments on four themes are extracted: personal histories, personal theories of learning, importance of collaborative learning, and ideas about the future of self-directed learning.

METHODOLOGY

Each of the professors interviewed was chosen from a purposeful sample identified on the basis of citation analysis as the leading contributors to scholarship on self-directed learning (Donaghy et al., 2002). The four individuals represented in this paper have all continued to make contributions to the scholarship of SDL through publications and conference presentations on self-direction in learning. In addition, each of the four has received the Malcolm Knowles Memorial Award for lifelong contributions to the field of self-directed learning.

The method of inquiry for this qualitative study was an interview, informed by phenomenology. Interviewees were asked four questions:

1. Could you describe the experiences that led you to first get involved with the study of self-directed learning?
2. Could you describe your experiences with self-directed learning over the years?
3. How has your thinking on self-direction evolved over time?
4. Could you describe your future vision for self-directed learning?

To ensure accuracy of the transcripts, member checking was employed; all interviewees had the opportunity to review the transcripts of their interviews. The resultant data were analyzed based upon hermeneutic interpretation. Where possible, data on individual qualifications were combined to examine the participants' combined influence on the scholarship of self-directed learning. This study's rich data permitted the identification of four themes in the personal stories: personal histories, personal theories of learning, importance of collaborative learning, and ideas about the future of self-directed learning.

FINDINGS

The findings in this paper are presented and discussed in two ways. The first section includes a description of each participant's academic history, including her or his contributions to scholarship. The four basic themes extracted from the interviews are then presented through excerpts from the participants' comments.

Participant Descriptions and Contributions to SDL Scholarship

The individual academic histories and contributions of each scholar are presented first. A collective set of contributions is also offered for the group as a whole.

Individual Descriptions and Contributions
Brockett received his doctorate from Syracuse University in 1982; his dissertation involved a topic connected to self-directed learning. He is Professor and Coordinator of the Adult Education Program at the University of Tennessee, Knoxville, where he has been since 1988. Brockett was inducted into the International Adult and Continuing Education Hall of Fame in 2005 for his leadership in the field and for his contribution to the scholarship of adult education for over two decades (Hiemstra, 2005). He also received the Malcolm Knowles Memorial Self-Directed Learning Award in 2004 for lifelong contributions to the study of self-directed learning. Over the years, approximately 53% of the dissertations Brockett has chaired have dealt with some aspect of SDL. Overall, approximately 27% of his publications have dealt with SDL. His dissertation committee members were Roger Hiemstra (chair), Sidney Micek, Dennis Gooler, Philip Doughty, Linda Sheive, and Neal Bellos. Brockett regards his mentor to be Roger Hiemstra (Hiemstra & Brockett, 1998).

Guglielmino received her doctorate in 1977 from the University of Georgia where her dissertation research focused on self-directed learning. She currently is Professor and Chair of the Adult and Community Education/Human Resource Development Program in the Department of Educational Leadership at Florida Atlantic University. Together with her husband, Paul, she received the Malcolm Knowles Memorial Self-Directed Learning Award for lifelong contributions to the study of self-directed learning in 2002. Over the years, approximately 36% of the dissertations Guglielmino has chaired have dealt with some aspect of SDL. Overall, approximately 67% of her total publications have dealt with self-directed learning. Her dissertation committee members were: Curtis Ulmer (major professor), Huey Long (chair, reading committee), E. Paul Torrance, and John Stauffer. Guglielmino regards her mentors to be Malcolm Knowles and Huey Long. The instrument developed as a part of her dissertation is still utilized today and remains the most widely used instrument for assessing SDL readiness (Merriam & Caffarella, 1999). The scale has been translated into 14 languages and used in more than 36 countries. Guglielmino is one of the founding co-editors of the *International Journal of Self-Directed Learning* and has been co-chair of the International Self-Directed Learning Symposium since 2002.

Hiemstra received his doctorate in 1970 from The University of Michigan. His dissertation was not completed on a topic related to self-directed learning. Hiemstra is retired as Professor Emeritus and Chair of the Adult Education Program from Syracuse University in Syracuse, New

York, and Elmira College, Elmira, New York. Hiemstra was inducted into the International Adult and Continuing Education Hall of Fame in 2000 for his leadership in the field and for his contribution to the literature of adult education for over three decades. In 2005, he received the Malcolm Knowles Memorial Self-Directed Learning Award for his contributions to scholarship in the subject. Over the years, approximately 26% of the dissertations Hiemstra has chaired have dealt with some aspect of SDL. Overall, approximately 19% of his publications have dealt with SDL. His dissertation committee members were: Gale E. Jensen (chair), Arthur W. Bromage, C. Russell Hill, Lewis H. Hodges, and William K. Medlin. He regards his mentor to be Howard McClusky.

In 1966 Long received his doctorate from The Florida State University. While his dissertation was not directly related to self-directed learning, it was concerned with subjects (conformity/dogmatism) that may underlie psychological properties of self-directed learning. Long is retired from the faculty at the University of Oklahoma in Norman, Oklahoma, where he served as Professor of Continuing Professional and Higher Education. He founded the *International Self-Directed Learning Symposium* in 1986 while at the University of Georgia and continues to be instrumental in promoting and organizing the annual research forum. Through his efforts, 16 books and compact discs (CDs) based on research originally presented at the symposia have been published. In 1996 he was inducted into the International Adult and Continuing Education Hall of Fame for his leadership role in the field and for his contribution to the literature of adult education for three decades. Long received the first Malcolm Knowles Memorial Self-Directed Learning Award in 2001 for lifelong contributions to the study of self-directed learning. Over the years, approximately 27% of the dissertations Long has chaired have dealt with some aspect of SDL. Overall, approximately 24% of his publications have dealt with SDL. Long is one of the founding co-editors of the *International Journal of Self-Directed Learning*. His dissertation committee members were George Aker and Hugh Stickler (co-chairs), Wayne Schroeder (major professor and director of dissertation), Melvene Hardee, and Willard Nelson.

Collective Contributions
The participants' combined contributions to the scholarship of self-directed learning, including work directing dissertations, have had a major influence on the field. Half of the four experts dealt with some aspect of self-direction in their own dissertation research. The total number of doctoral dissertations chaired by this group of four was 196, yielding a mean per respondent of 49. Sixty, or 31%, of the dissertations dealt with some aspect of SDL, equating to a mean per respondent of 15. In relation to the total dissertations chaired by the eight major researchers in self-directed learning originally identified through citation analysis (Donaghy, 2005), this group contributed 56% of the total of 351 dissertations and 61% of 99 dissertations dealing with SDL.

The total number of publications for the four researchers was about 528; the mean per respondent was about 132. One hundred forty-three (143) of those publications dealt with some aspect of SDL, yielding a mean per respondent of about 36 publications. In total, an estimated 27% of the 528 articles authored by these experts dealt with SDL. In relation to the total of eight researchers, this group contributed 55% of the total of 963 publications and 72% of 200 publications dealing with SDL. Most significantly, this group has been instrumental in the publication of 21 books and CDs involving self-directed learning, through authoring, co-

authoring, or editing of texts and conference proceedings. In relation to the total of eight participants, this group represents 81% of the 26 books, edited books, conference proceedings, and CDs on SDL.

Themes Extracted from Personal Stories

The results for this section are presented in four themes: personal histories, personal theories of learning, importance of collaborative learning, and ideas about self-direction's future. All citations are from Donaghy (2005).

Personal Histories
Brockett's interest in self-directed learning emerged during his work at Syracuse University as a graduate student in the fall of 1979. He mentioned reading Tough's *The Adult's Learning Projects* and hearing the rumor that Hiemstra might be coming to Syracuse as a faculty member. Brockett's happiness came across clearly as he told about hitting "it off right away" (p. 83) in his relationship with Hiemstra. He talked about the relationship they formed and the chapter they co-authored in *New Directions for Adult and Continuing Education*. Brockett related the importance of having a philosophy of education "modeled . . . by how . . . [Hiemstra] lived, . . . his work, . . . how he practices [and] the way he approaches and works with students." Brockett characterized the relationship as being "treated . . . like a colleague" from the onset of their first meeting (p. 83).

During her interview, Guglielmino started the conversation by talking about the literature of Knowles as her initial inspiration and generator of interest in the methodology of adult education during her graduate studies. Her interest in Knowles' writings helped her reflect on her own life experiences of learning where there was frustration. Her frustration was with traditional "memorization and regurgitation" of information in the classroom, especially when contrasted with the type of teaching/learning interaction she had experienced within her family. She described " . . . the incongruity . . . of the learning experiences that I had outside and inside the classroom . . . [as] one of the major triggers" for her interest in SDL (p. 96). Also instrumental was Alvin Toffler's writing about the need for different ways of learning in the future to accommodate changes in society. This, for her, was the motivation to find an alternative way, which evolved into a dissertation topic focused on the development of expert consensus on the characteristics of highly self-directed learners and an instrument to assess levels of readiness for self-directed learning.

For Hiemstra, the historical aspect of his interview was extremely important. The very first sentence of his transcript recognized the contributions of McClusky, Knowles, and Houle to the formation of the Adult Education Association (AEA) between the years of 1949 to 1955. He mentioned that he was "fortunate to have had a relationship with all three of those people very early" in his career (p. 102). The very first of the group he met was Houle, when he applied for admission to the University of Chicago in the late 1960s. The first meeting he had with McClusky was at The University of Michigan during his doctoral studies. Knowles came into the picture through his books and an interview on andragogy that Hiemstra produced for Nebraska Educational Television. A conference presentation by Tough on adult's learning projects, combined with the Knowles interview, "had a huge impact" on him (p. 104). Hiemstra gives

credit to Houle as the father of SDL, or perhaps the grandparent because of his relationship with "people like Allen [Tough] and Malcolm [Knowles]" (p. 102). Hiemstra gives much credit to the efforts of Long and suggests Long's dedication to this line of study and to the international symposium may prove, in time, to be more important than the work of either Tough or Knowles.

Long's personal history was framed by comments concerning his early days in Florida. He talked about Wayne Schroeder, his major professor, dissertation director, and later colleague at Florida State University. Schroeder acquainted him with Allen Tough's writing shortly after Long became interested in how public officials learned to do their jobs in Brevard County, Florida. Long also talked about how Dewey's use of the term "problem" helped to frame his interest in SDL. Long's interest in learning problems faced by city and county officials came about when he was the Director of Florida State University's Urban Research Center located in Titusville, Florida. He had previously served as Director of Public Relations for the City of Tallahassee, Florida and was thus acquainted with the problem. Long recalled the history of self-directed learning research started for him in the mid 1960s. He pointed out, however, that when he was an undergraduate at Florida State University (1955-57), he was "impressed by the work of William Heard Kilpatrick. . . . [whose] efforts to apply Dewey's theory. . . . [of] learning from experience" appealed to him (p. 123). Last, his recollections during the interview suggested that the convening of the symposium was a very important development in self-directed learning as it continues to meet annually after 19 years. Worthy of mention is the personal emphasis that Long has placed upon the annual symposium to the development of the concept of self-directed learning.

Personal Theories of Learning
In his role as a faculty member, Brockett discussed the personal importance of being "proactive about taking the knowledge that I have in . . . [an] area . . . [and] helping people develop it" (p. 134). To Brockett, whatever SDL is called, it was always about "people taking responsibility for their own learning and playing the key role in making decisions about what they learn, when they learn, how they learn, and being in control of that" process. For Brockett, it is about focusing "on the individual. . . . , the teaching-learning situation, and the social context." To him these are three important points. It seemed that overall, the most important part of Brockett's formula for self-directed learning is helping people reach their potential. This was mentioned on numerous occasions throughout his transcript. To him the important "helping skills . . . [are] empathy, respect, genuineness, . . . [and] immediacy" (p.134).

Similar to others, Guglielmino recognized the many ways to define SDL. During the preliminary phase of her dissertation research, she rapidly became aware of the lack of a common definition. This led her to conduct a "Delphi survey of the best minds who were thinking about self-directed learning . . . and come up with at least a beginning definition of what a highly self-directed learner looks like" (p.141). It was interesting that Guglielmino jumped at proposing a definition of SDL as the first phase of her interview. The framing, however, for Guglielmino's explanation of what SDL meant for her was uniquely connected to her childhood rearing in rural South Carolina. The story started with parents as models of SDL, facilitators of SDL through questioning, and the providers of resources to learn with. For her, the process of SDL in her childhood often started with a question to her parents. Rather than providing a pat answer, her mother would often say, "That's a really interesting question. Let's go see if we can find out"; or

her father would respond with, "What do you think?" (p.142).

Hiemstra's self-directed teaching philosophy is modeled after McClusky. Hiemstra noted an expectation of students taking "responsibility for . . . [their] own learning, . . . [being] collaborative in what you're doing" (p.144). His recollection of McClusky's process is that it was "very participatory. . . . [where a] small group . . . [worked with] stimulator questions . . . [and] groups of . . . learners would in a collaboratory [sic] kind of way get together and discuss topics and . . . [McClusky] encouraged" this process. He noted that McClusky "modeled all these good qualities of patience and genuineness, and interest in whatever you were doing" (p.144). Hiemstra also mentioned his undergraduate course work where he remembered being "very goal directed." He talked about wanting to do "a good job being . . . [the] first born. . . . and . . . having good leadership skills" (p. 145),which may have been dormant while he was involved in the 4-H organization as a youth.

With regard to Long's personal learning theory and its implications for practice, he provided an example from his teaching experience. In the early days of Long's teaching, he was "impressed . . . that students could take control over their own . . . learning . . . if we would give them the opportunity to do so" (p. 151). For Long SDL starts with a question, and a student must first be given an opportunity to learn (question) before a teacher supplies the answer. Long's definition of self-directed learning seems to be summarized by the notion that persons who are self-directed are those who have "control in all areas or most areas of their lives. . . . [versus] those . . . whose lives control them" (p.152). He cited some research reported by Claire Stubblefield to support his view. He is also quick to point out that "we don't always agree on how to define it (SDL). . . . [I observed that the literature defines] self-directed learning in [at least] fifteen ways" (p.152).

Importance of Collaborative Learning
Brockett mentioned the efforts of the SDL research group composed of several of his doctoral students at The University of Tennessee and the experience of trying to do a research project together as a group. He evidenced his enthusiasm for collaboration by saying, "When this group clicked, it . . . gave me a shot in the arm" (p.158). Another example of his perception of the positive aspects of working together was his reference to graduate students as "colleagues." Brockett said to remember the second myth about SDL discussed in the first chapter of the 1991 book, is that SDL takes place in isolation (Brockett & Hiemstra, 1991).

Discussion of the collaborative component of self-directed learning was apparent in the early portion of the conversation with Guglielmino. For her, parents represented the encouragement "and help [for] me [to] find some of the resources. . . . [to] get me started . . . in the right direction" (p. 162). Guglielmino also reported deriving great satisfaction from encouraging her students to apply the concept of collaborative self-directed learning to their own professional settings. As an example, she described the development of a learning community of teachers at an at-risk school by one of her doctoral students. Another example of her awareness of collaborative learning is her use of a Delphi committee during her dissertation. She said, "They gave me what I needed to consider" when defining a self-directed learner (p. 164).

Similar to others in this study, Hiemstra specifically talked about the importance of collaborative efforts. He first talked about this concept when recollecting his experiences in McClusky's

classes at Michigan. As he reminisced about his professor's teaching philosophy, he indicated that McClusky practiced SDL in his classes, even though McClusky did not use the term. Hiemstra went on to say McClusky's students took responsibility for their own learning and that they "would be collaborative in what . . . [they were] doing" (p. 165). Perhaps an important observation by Hiemstra was that McClusky's teaching style was engaging and that this professor showed a genuine interest in his students. To Hiemstra an important aspect of collaboration was his work co-authoring publications with fellow scholars and students.

For Long the connotation of SDL having a collaborative component was interlaced throughout his transcript. It was first presented as a theme when discussion was presented about government officials learning through spouses and coffee groups. As mentioned above in the section dealing with personal learning theories, collaboration was a category that often was discussed in concert with the way participants discussed learning. The two themes frequently were interwoven by Long. Another example of the collaborative component occurred when Long talked about the first symposium. It was described as a "kind . . . [of] collaborative meeting" by him. In commentary about the international aspects of SDL, Long suggested that individuals working in "Europe, . . . Canada and Korea . . . began to . . . work together . . . to communicate. . . . [and try] several different . . . tacks with the symposium to . . . meet [the] needs of . . . people" (p.168).

Ideas About Self-direction's Future
Brockett interjected suggestions about future research when talking about how he has come to know and understand SDL over the years. He first mentioned some of the questions raised by Brookfield with regard to the social considerations not always being a part of SDL. Brockett suggested that this is an area "where we need future work" (p. 174). Another significant part of the discourse on the future of SDL is change. Just as in the transcripts of Guglielmino and Long, Brockett mentioned change. Noting that "the work on self-directed learning is changing" (p. 174), he referenced qualitative studies as one of the different lenses through which SDL is now being viewed.

Discussion of the future role of SDL started early in the conversation with Guglielmino. Even though she had not been prompted, at this point, to talk about the future vision for SDL, she had much to say about the world's rate of change and its impact on the need for self-direction in learning. "We are not even able to predict what it's going to be like . . . in the next 10 to 20 years . . ." she said, [and suggested that] if we're not self-directed learners, we're in big trouble." Guglielmino also referred to the importance of SDL on a societal level, noting, "if you're going to have a successful democratic society, you have to have . . . thinking, reflecting, . . . self-directed learners" (p.182).

When specifically asked to comment on the future of SDL, Hiemstra asserted that within his lifetime, the federal or state governments will not understand the power of the self-directed learning movement and fund research. He believes the field of adult education needs another Lifelong Learning Act similar to the 1970s. Hiemstra feels the move toward SDL is slow and will stay slow. He noted that it is difficult to cause change and he was not confident at all that SDL will move into the prominence some might like to see. Hiemstra said it's a "gloomier future than you might have heard . . . or expected" from him (p.185). He believes everyone must do their "own little bit" to keep it alive. In contrast, he views SDL as an important resource for

learning via the Internet. His opinion is that the Internet "emphasiz[es] self-directed learning . . . and so there's a big role for adult educators in the future" (p.186).

Long noted that changes in technology increase the requirement for more research concerning SDL. The common connection with the future role of SDL, for Long, is change and the rapid rate of its occurrence in modern society. Long points out that we must "get away from the industrial model of efficiency" in education, and technology can help us do that (p.189). He believes effective learning is at least as important as efficient learning. He suggests all that technology currently has to offer is "cascading on us today. . . . [and] that this requires self-direction. . . . [in our world so] we can survive." He then asks, "who wants to just survive?" He says, "I want to overcome. . . and . . . . we can do that . . . [by] knowing how people learn" (p.190).

CONCLUSIONS

The contributions these four scholars have made to the scholarship of SDL are significant. Their stories also have implications for research and practice within the field of adult education. In regard to research, the group recommended follow-up on previous studies, such as Brockett and Hiemstra's (1991) PRO Model. In practice, the group had much to say about aspects such as SDL being an essential attribute for helping one cope in this time of increasing change. We must better understand how people learn if we are to utilize what technology can provide for us.

From the information provided by the participants in this study, some genealogical aspects are worthy of notation. Regarding the experts' relationships to their mentors, it appears that some of the information provided may supplement the conclusions in Maher's (2002) previous study in reference to genealogies of research. It is interesting to note how these participants are interconnected; for example, Hiemstra was Brockett's major professor and Long served on Guglielmino's doctoral committee. Paralleling the conclusions of Maher's dissertation on the field of adult education in general, a lineage also exists among those scholars devoting effort to the specialized area of self-direction.

Within the context of the eight experts included in the dissertation, this group of four contributed over half of the quantifiable pieces of scholarship in every category.

1. This group contributed 61% of the 99 dissertations chaired on SDL.
2. Seventy-two percent of the 200 publications on SDL were by this group.
3. Of the 26 books on SDL authored or edited by the group of eight, 81% came from these four scholars.

Regarding their individual stories, this group had much to say about how SDL evolved for them:

1. The recollection of history was presented primarily by talking about mentors, literature, and family members who influenced the interest in and practice of self-directed learning by these scholars.

2. Personal theories of learning were reflected through their presentation of the responsibility a learner has for her or his learning, the importance of helping skills of the

facilitator, the resources needed, the importance of the learner being self-sufficient, the mentoring process, and the importance of the learners taking control over their own learning.

3. The importance of collaboration in self-directed learning was reflected in comments related to working together and learning from each other, receiving encouragement from resources, empowerment, the parent representing a resource, the engagement of students in the classroom, co-authoring of publications, emphasis on the learner learning in a group, and helping the student, as opposed to directing the student.

4. Comments related to the future of SDL involved suggestions on what research needs to be done, the relationship of change to SDL, the need to develop a better understanding of the power of SDL, and the impact of technology on SDL.

This research was intended to provide new insights and a different perspective on the study of self-directed learning. The personal stories of these major contributors expand the understanding of how an individual's interest in and facility with self-directed learning is developed, the major elements of their personal theories of self-directed learning, and their concepts of the future of the common bond they share, called self-directed learning.

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Robert Donaghy holds a Ph.D. from The University of Tennessee, Knoxville. He specialized in adult education, focusing on the study of learning theory with an emphasis on self-directed learning. The author worked in industry before completing his doctorate and is currently an adjunct assistant professor in Tusculum College's Graduate and Professional Studies Program. (craigdon@bellsouth.net)

A SOLITARY ACT ONE CANNOT DO ALONE: THE SELF-DIRECTED, COLLABORATIVE LEARNER

John Peters and Annie Gray

Self-directed learning is not a lonely thing. It's a very social thing.
Tough, in Donaghy (2005)

ABSTRACT

Self directed learning (SDL) is not a solitary act that one does entirely alone. Leading scholars in the area of study agree that SDL is a relational act, but the literature is heavily weighted toward SDL as an individualized activity. Few studies have explored the collaborative aspects of SDL and fewer still have explored the dynamics of SDL in formal and informal group teaching and learning environments. This paper presents a conceptual model of teaching and learning that includes collaborative learning and explores some implications of the model for future research and practice in teaching and learning contexts.

Our paper is grounded in two apparent paradoxes suggested by the term "self-directed learning" (SDL)[2]. One paradox is that a person engaged in self-directed learning engages alone, yet the literature of SDL and the literature of social constructionism show that hardly anyone learns alone. The other is that self-directed learning is something done outside formally organized activities directed by others; nevertheless, some SDL literature and not a small amount of compelling anecdotal evidence show that SDL can involve participation in activities directed by others.

 Indeed, the very term "self" is a contested term, especially among members of the psychology community who have historically attached a variety of labels to it as well as variously conflicting interpretations of its connection to other constructions such as learning, thinking, motivation, and personality. In other words, "self" is a constructed term and is therefore open to further interpretation by members of various communities of scholars with differing interests in its usage (Gergen, 1999; Gergen & Gergen, 2004).

To fully understand the concept of self and its particular association with learning, one must also consider the origins and consequences of its use in often competing communities of interests. If, for example, the SDL community of scholars coordinates its actions around the notion that SDL is an activity that one does completely alone, then its language and its literature will eventually reflect that particular stance. Other interpretations will be turned away at the door of the scholar's house and sent elsewhere to be considered by scholars with more compatible viewpoints. Fortunately, the first paradox mentioned above suggests that this has not happened in the SDL community, as many of its stalwart members have acknowledged the importance of other people in the activities of self-directed learners. However, the second of the paradoxes seems to be more loosely embraced by the SDL community; self-direction

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[2] "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" (Knowles, 1975, p. 18).

and concomitant participation by the so-directed in formal teaching and learning activities may be too much of a "self"-contradiction to be fully admitted to the house of SDL scholars. While readily acknowledging attempts by some scholars to make the same link (e.g., Bauer, 1985; Brookfield, 1985), our paper takes the liberty afforded us by a constructionist viewpoint and casts the term in the direction of finding a better fit between the concept of SDL and the possibility of co-participation in formal or informal teaching and learning activities. Our paper will offer a way of *conceptualizing* teaching and learning and will suggest some possibilities of the model for advancing an understanding of SDL in that context. We leave the judgment as to its usefulness to members of the SDL family.

THE NON-AUTONOMOUS LEARNER

Allen Tough's seminal work (1966, 1971, 1979) on the adult's learning projects (now incorporated into the broader concept of SDL) was perhaps the first to show that an otherwise individualistic, self-motivated teaching and learning activity often involves a great deal of input from others. Subsequent studies that employed Tough's methodology have confirmed this relational aspect of SDL. Descriptive accounts of self-directed learning activities have consistently profiled learners as frequently involving other people as principal resources. (e.g., Peters & Gordon, 1974; Penland, 1979; Brookfield, 1985). In addition, Candy (1991) has written:

> The self-directed learner in all but the most intimate of personal learning has to rely on and collaborate with those who are practitioners in the field or area of his or her learning…In short, the situated nature of learning ensures that almost all self-directed learning has a social as well as a cognitive component. (pp. 306-307)

Here Candy has indicated that others' experiences serve to ground and place in context the self-directed learning experience, thereby providing the individual learner a more multidimensional, meaningful contextual framework for what he or she is learning. Candy (1991) posited:

> The term self-direction has misled many into elevating the individual above the collective, whereas the nature of knowledge and nature of learning inherently places learners into relationship with others. The myth of the solitary learner—the intellectual Robinson Crusoe—is as untenable as the notion of a world full of wild-eyed individualists owing nothing to social structures or to each other. (p. 311)

Brookfield's (1985) comment on the self directed learner's penchant for a more relational context for the learning experiences has been supportive: "On reflection . . . it is evident that no act of learning can be self directed if we understand self direction as meaning the absence of external sources of assistance" (p. 7).

Of special note is a recent study by Donaghy (2005) of the evolution of scholarship on self-directed learning as experienced by the people who have studied it (Brockett, Brookfield,

Caffarella, Guglielmino, Hiemstra, Kasworm, Long, and Tough). Donaghy found that all eight scholars interviewed discussed the collaborative aspects of learning as important to attempts to understand self-directed learning (pp. 156-157).   His informants referred to "A concept of needing to collaborate in some way with another person or group of persons…" (p.205) when characterizing the self-directed learners that they studied or, in some instances, their own self-directed learning activities. Donaghy concluded that scholars involved in his study readily acknowledged that self-directed learning is something that learners "can't do alone" (p. 205).

Some of the same scholars who stress independent qualities of self-direction grant that such learning does not necessarily take place in isolation from others (e.g., Hiemstra, 2000). However, while this relational feature of self-directed learning has not been lost on most scholars, only a relative few have emphasized it in their models, position papers, or their research designs (Brookfield, 2000; Simons, 2000; Brown, 2000; and Slusarski, 1994). Research and theory building efforts have continued to focus on the strongly individualized, relatively autonomous and personal nature of the process by which adults plan, conduct, and assess their own learning activities outside formal institutional confinements.   Personal responsibility, readiness to learn, personal control, autonomy, personal empowerment, and individual freedom in decision making have been among the ideals and outcomes cited by writers that characterize self-directed learning as a strongly individualistic enterprise (Guglielmino, 1978; Long, 1989, 1990; Candy, 1991; Merriam, 2001). While such factors are indeed vital to understanding the nature of self-directed learning, they omit many other factors, such as relational knowing and the social context of knowing - factors that surely help account for much of the self-directed learning experience.

We assert along with Candy (1991) that there is no such thing as an autonomous learner. Our particular stance on this issue is that the self-directed learner cannot help but relate to others while in the act of learning, if only in terms of his or her own history of learning. Such is the relational nature of learning. Gergen (1997) has stated, "Our capacity to mean (to think, to be intelligible, to count ourselves as individual agents at all) is born of relationship. Relationship precedes individual existence, and not vice versa" (p. 17). We also believe, along with other social constructionists, that people co-create knowledge based on the meaning they make together. Meaning making, as we see it, occurs *in between and among* people and not strictly in individual's heads. As Gergen (1999) has put it, meaning making is "an emergent property of coordinated action" (p.145).

One obvious area in which coordinated action happens is in formal and informal teaching and learning environments in adult education. It is in this context that our paper is best understood. In particular, we believe that SDL can be understood within the context of organized teaching and learning situations just as surely as in the more generally understood situations that lie outside organized group settings. This brings us to consider the ways that SDL and teaching and learning can be brought more closely together, especially ways that emphasize collaborative efforts of self-directed learners and their human resources.

TEACHING AND LEARNING

At the risk of having overlooked other studies of SDL in the context of teaching and learning, it appears to us that this area of SDL has been under researched. Among the SDL studies that we found, two stood out to us as interesting attempts by researchers to better understand how SDL connects to formal teaching learning settings *and* to investigate the relational nature of learning. One is a study by Brookfield and another is by Bauer. Brookfield (1985) has described how self-directed learners at England's Malvern Hills College participated in the formation of several innovative opportunities especially designed for them and also dependent upon their input for existence. Brookfield commented that his job at the college was, in essence, to make meaningful the teaching and learning experiences of self-directed adults. Based on research he gathered about what teaching and learning opportunities would be most meaningful to adult learners, Brookfield's Malvern Hills projects included a highly collaborative *Return to Study* program occurring within the more formalized teaching and learning setting. This program focused on helping self-directed learners interested in entering the formal college environment gain the confidence and skills needed to operate successfully within that teaching and learning framework. The project's main instructional method relied upon dialogue among class members and an educator/facilitator. Their collaborative, dialogical exchanges built self-assurance and empowered participants to see themselves as already possessing the skills they needed to resume their studies as capable, self-directed learners. This foray into a more collaborative model within the formal teaching and learning setting yielded positive results for participants. Brookfield has written, "Although the return to study program consisted of courses and workshops run by an accredited educator, it can still be considered to have enhanced the self-directedness of adults in the local community" (1985, p. 82). It is notable that collaborative dialogue served to transform participant self-perception as self-directed learners.

Bauer's (1985) account of Columbia University's Adult Education Guided Independent Study program (AEGIS) revealed how self-directed doctoral students within a formalized teaching and learning setting can engage in collaborative activities and still be self-directed learners. Participants engaged in a cohort model throughout their coursework, collaborating with one another in a reading seminar format in order to further their own critical reflection skills as self-directed learners. Bauer wrote:

> Participants help each other as well as themselves in tackling these important tasks. Participants are written into each other's contracts as evaluators when their areas of expertise and interest converge. This opportunity for extended, intensive contact among cohort members . . .is seen as vital in solidifying smaller networks, which prove an invaluable source of professional, academic, and moral support to these adult learners negotiating such a fast-paced doctoral program. (p. 45)

As Bauer's account of the AEGIS program suggests, there are novel ways of making the SDL experience within the formal teaching and learning environment more collaborative, and thus, possibly more meaningful for self-directed learners. However, we have only scratched the surface in our attempts to better understand such teaching and learning environments. In

addition to more studies in this area of SDL the field could use new conceptual models for use in guiding such inquiries. Although he did not specifically identify a focus on teaching and learning as a priority area of inquiry, we consider this claim to be in keeping with the spirit of Brockett's (2000) call for new advances in theory and research in SDL as well as in line with Merriam's (2001) position that additional theory development is needed to support research in the broader domain of adult learning. Our response to their call takes the form of a re-conceptualization of the types of teaching and learning that have some important implications for understanding SDL. We refer to a relatively new typology of teaching and learning.

A TYPOLOGY OF TEACHING AND LEARNING[3]

Teaching and learning experiences for educators and students vary greatly when seen through the lens of different methodologies. Peters and Armstrong (1998) have constructed a typology that addresses three specific models for those engaged in the teaching and learning endeavor. In this model, the first type (T-I) is "Teaching by transmission, learning by reception." The second type (T-II) is "Teaching by transmission, learning by sharing." The third (T-III) is "Collaborative learning."

In T-I, the primary focus is subject matter that reflects the experience of the teacher or another expert, rather than that of the students. The focus of T-I is on individual learning, and the teacher, who is the principal source of information, mediates the subject matter. The flow of communication is from teacher to learner and sometimes from learner to teacher. The most familiar form of T-I is the lecture.

T-II also focuses on individual learning, and the teacher is the primary, though not the only, source of information. The students may also serve as principal sources of information, and they are given opportunities to make meaning of the subject matter in terms of their own experience. The flow of communication is from teacher to student, student to student, and student to teacher. The most familiar form of T-II is the lecture-discussion format; various applications of cooperative learning also fall into this category.

In T-III, collaborative learning, the emphasis is on both individual and group learning. The teacher becomes a member of the group and participates with students in the joint creation of new knowledge. The flow of communication is from member to member, member to group, and group to member. The basis of their joint action is the members' own experiences.

From the student's perspective, the primary source of information in T-I and T-II teaching and learning is from the outside, while information in T-III comes from inside the experience as well as from the outside. In T-I and T-II, the focus is primarily on someone else's experiences, while in T-III it is on members' experiences. In T-I, interaction is directed from the point of view of a designated other, and both the learning process and content are determined by someone other than students. In T-II, there is room for additional meaning-making in terms of students' own experiences as they are able to work together to interpret the teacher's subject matter knowledge. In T-III, meaning is based in students' experiences as well

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[3] Please refer to www.campus-technology.com/techtalks/events/collab.pdf for graphic illustrations of types of teaching and learning.

as the teacher's experiences, and the process of creating new knowledge is open to yet-to-be discovered possibilities.

The first two types of teaching and learning are familiar to most educators and to nearly everyone who has engaged in some kind of formal teaching and learning experience. However, T-III, as we define it, is the least familiar member of the typology. It also offers some interesting possibilities for self-directed learners that go beyond those found in T-I and T-II.

Elements of Collaborative Learning (T-III)

Collaborative learning refers to people jointly engaged in multiple ways of knowing for the purpose of creating new ways of going on together, individually and collectively. The knowers involved are groups as well as individual members of groups. In the Peters and Armstrong typology, collaborative learning is expressed in terms of four elements: multiple ways of knowing, the construction and development of a dialogical space, a focus on construction of knowledge, and cycles of action and reflection.

Multiple Forms of Knowing
This element includes *knowledge-that*, *know-how*, and something that Shotter (1993, 1994, 2005) calls *knowledge from within*. *Knowledge-that* refers to propositional knowledge, or the kind of knowledge that is expressed in such forms as theory, principles, and descriptions of events. *Know-how* is practical knowledge, including skill at doing things. *Knowledge from within* is more difficult to describe, but Shotter has referred to it as a special kind of knowledge that can exist only in a particular group and in particular situations, from within the group and situation itself. This is something that people working together do in order to further their interests in going on together. This kind of knowing cannot be said, but it can be felt, or "known" by those who construct it through their sensitivities to one another and the context they create for themselves. Finally, knowing is seen as a form of action and incorporates Polanyi's (1958) concept of tacit knowledge.

Tacit knowledge is knowledge that isn't say-able. For example, students might enter a classroom expecting to engage in T-I teaching and learning, only to encounter a teacher who is determined to engage in T-III teaching and learning. If they are unfamiliar with T-III teaching and learning as most students and teachers are, the new environment is almost certain to be confusing to them. Alderton and Peters (2002) found that, when asked to describe their frustration, students who entered a T-III environment for the first time could not fully describe what they expected in the first place. Although students remarked about the apparent lack of structure and teacher-directed behavior "missing" in the T-III environment, students differed widely in their attempts to define terms such as class, learning, and teaching. Like most teachers, they had long since taken for granted and reacted tacitly to the expected T-I or T-II teaching and learning environment. Their tacit knowledge of what was supposed to happen in a classroom was challenged by the uniqueness of the T-III environment and they were faced with the need to re-examine their taken for granted assumptions, expectations and ways of being in classrooms. According to Alderton and Peters, the students lacked a way of being in classrooms that equated to the T-III environment. Their tacit knowledge formed over nearly a

lifetime of being in T-I and T-II environments proved to be the greatest obstacle to students' ability to engage in collaborative learning, especially in the early stages of their new experience. Alderton and Peters concluded that students needed to experience a new way of being in a teaching and learning environment and to build on their experience through repeated practice. Such experience, they argued, begins with co-creating a dialogical space.

Dialogical Space
In collaborative learning, learners form relationships that permit them to dialogue with one another. T-III is especially dependent on members being able and willing to engage in dialogue as their principal mode of discourse. This stands in comparison to T-I, in which the principal mode of discourse is monologue and to T-II, in which the principal mode of discourse is discussion. Dialogue is fundamental to joint knowledge construction. It helps participants to create new knowledge and ways of knowing. Once generated, these, in turn, serve as the basis for further developing what they already know and what they cannot create individually. Isaacs' (1999) model of dialogue is a good example of this mode of discourse, especially as it stands in sharp contrast to discussion. A dialogical space sustains the kinds of relationships among participants that foster successful meaning making through dialogue (Latham & Peters, 2005).

Focus on Construction
Participants necessarily see themselves as not only already knowing something and being capable of knowing something, but also as creators of knowledge. Whereas in T-I the learner's focus is on receiving information from a teacher and in T-II from other learners, in T-III the learners and teacher intentionally and jointly co-create what none already knows or could know alone.

Cycles of Action and Reflection
These cycles may be likened to reflective practice (Peters, 1991), in which participants individually examine their assumptions and ways of knowing that they bring to the collaborative learning experience, as well as jointly examine what it is that they do together while engaged in knowing. Here the previously unspoken, taken for granted, largely tacit knowing and knowledge come into play as participants attend to what otherwise goes unspoken or unnoticed. For example, in T-I and, for many, T-II settings, participants already know how to act and what to expect of one another and the teacher. These are among the things that traditionally schooled learners will take for granted. However, these same expectations and actions will not fully apply to participation in a T-III experience. Thus, participants are faced with learning a whole new way of engaging in teaching and learning, something that requires them to critically reflect on how they have dealt with teaching and learning experiences in the past and how they engage with others in the moment of knowing. This action-reflection-action process is perpetually performed as their experience develops in T-III, something that does not necessarily need to happen in T-I and T-II settings (Peters, Creekmore, & Duncan, 2003).

In addition to the elements of collaborative learning, there are several key features of this type of teaching and learning that help differentiate it from the other two types. There are also features of the typology as a whole that need to be understood in order that any one type can be fully appreciated for its special role in informal and formal learning environments. First, the

typology should be understood as a set or grouping of types, not as a hierarchy or linear representation of types of teaching and learning. One type is no more important than the other and each has its place in the scheme of teaching and learning. Second, teachers and learners can, and often do, employ more than one type in a single class or workshop experience. Third, the choice of a type depends on a number of criteria, such as the nature of the subject matter involved, the purpose of the teaching-learning experience, the experience of the teacher with one or more of the types, and the institutional context in which teachers and learners are expected to work. Fourth, whereas T-I and T-II are principally ways for individuals to learn, T-III is a good way for both groups to learn and individuals to learn. The important distinction here is that T-III involves *group learning,* and not (as in T-II) just learning *in* groups.

Should these or other criteria call for T-III teaching and learning in a particular situation, it is extremely important for both teacher and other learners involved to realize that they will necessarily adopt a very different stance toward teaching and learning. For example, instead of assuming the position of sole or even principal source of subject matter knowledge, the instructor in T-III is as much a co-learner as any other participant in the experience. For most teachers new to this stance, letting go the reins and much of the power that goes with being a teacher is indeed very difficult and demands considerable discipline and practice. For those who enter a T-III experience as "learners" (or students, or workshop participants), much is similarly required of them. Instead of looking to the teacher as sole source and single authority, they must also turn to one another and to the teacher as co-learner. Much in the way of re-positioning oneself is required as well. In our experience with T-III (as both teacher and student), we have found this to be a matter of struggling against a long personal history of learning in formal T-I and T-II teaching and learning settings, a struggle that requires us to develop an altogether new way of being in teaching and learning. As we collaborate with others, we look to ourselves as co-constructors of knowledge and ways of knowing, not merely as transmitters and receivers of information derived from the exclusive domains of others. We focus our attention on what we do jointly as well as individually, and not just the latter; we let go the holds we have on others as we do the defense mechanisms that prevent us from yielding to the other in the interest of doing more together than we could possibly do alone. Yet, in all this way of being, there is still the self-directed aspect of learning – not least of which is the responsibility that each of us has for our part of the experience and our relational responsibility to the group.

For the teacher, positioning oneself as a co-learner doesn't merely consist of facilitating what others do (as is often the case in T-II). The teacher is both a facilitator and participant in the T-III teaching-learning experience. His or her learning experience is not merely incidental either, for the teacher enters the experience with the full intent to learn alongside others who might be called students. To cite another example, grading, as it is understood in the strictest institutional context, may itself take on new meaning; grading may become a necessary evil - a burden that is to be lessened to the extent of freeing up all participants to engage in co-construction of knowledge without fear of reprisal or loss of status. In our own practice, we often assign everyone an "A" and provide them with minimum requirements that must be met in order that they keep their A grade; then we get on with learning together. As instructors, we will likely need to lay aside our conventional notions of "measuring" and "transfer" of learning. For example, in T-II, we hope that what the group manages to learn together will

somehow transfer to the individual; in T-III, we are at least as much concerned with what the group learns as we are with what the individual learns. In this sense, we are not following the usual expectations of T-I and T-II; rather, we are valuing a whole new outcome that takes the form of what the group as a whole accomplishes (or the self-directed learning of the group). We don't have standard measures to apply to such an outcome; perhaps we ought to reconsider our assumptions about the value we place on measuring individual outcomes that flow from group work as well.

In the end, SDL is as much a part of the learning experience in T-I as it is in T-II and as it is in T-III, because in each type individuals develop and take away what they might from the experience with others. They are learning *from others* in T-I (mainly the teacher) and in T-II (as much from other learners), and they learn *from and with others* (both the teacher and other participants) in T-III. In all cases, they carry the responsibility for deciding, implementing, weighing, and valuing what they learn – no less than what they would do if they were nowhere near a formal teaching and learning environment and operating "on their own." In this sense, the three types can be understood as social environments in which individuals can pursue their learning project goals. However, in another sense, the three types are representative of what we associate with the organized teaching and learning environments familiar to most of us. As social environments in which people variously coordinate their actions in order to make meaning, they qualify as environments in which SDL can take place.

IMPLICATIONS

The evidence supporting SDL as a relational way of knowing is not in question; however, how the self directed learner connects to formal teaching and learning situations is an open question. It seems clear that not all SDL activities necessarily involve the learner in formal teaching and learning activities, but many do. Whether to label the instances in which the latter occur as cases of self directed learning depends on one's criteria for including and excluding selected features of SDL. Any such distinction may, for example, depend on the proportion of time spent on projects under one's own direction vs. time spent under the direction of another person. Using Tough's original criterion of "fifty-percent or more time spent on one's own" (1971) time in a learning project, people can indeed make other-directed activities a part of what they do if, in the longer-term, they spend the majority of their time learning "alone." Given the possibility that various types of teaching and learning could become a part of particular SDL activities, it seems reasonable to recommend that scholars interested in new conceptualizations of SDL consider adding constructs of teaching and learning to their portfolio of interests. We think the typology discussed in this paper is a candidate for such portfolios.

We can only begin the process of sorting out some implications that the typology has for re-conceptualizing how SDL links to formal and informal teaching and learning activities. One such implication relates to the proclivity of the self-directed learner to use other people as information resources. It seems to us that T-I and T-II are the two types of teaching and learning that serve as a potential source of information for some SDL undertakings. This is because these two types involve transmission of information from a more knowledgeable person (in T-I, a teacher, and in T-II, a teacher and/or other learners) to a less knowledgeable

person. A person who needs particular information might find it more efficient to engage in a T-I or T-II activity than to seek the information on her or his own. A T-I or T-II alternative seems ready-made for some projects in which the uninformed self-directed learner needs existing information. However, T-III presents an altogether different alternative to the learner.

T-III involves people who work together in order to construct new knowledge. Their goal is to come up with knowledge or a way of going on together that none of them can construct alone. These are not the kind of information-seeking, resource-finding activities usually mentioned in research on SDL. Thus, we need to add the T-III experience to the repertoire of possible topics of research in the SDL community-- that is, how self-directed learners might become involved in teaching and learning activities that call on them to be *co-constructors* of new knowledge or skills (including group knowledge and skills) as a part of an SDL activity.

Another implication of the typology of teaching and learning is that engagement in T-III activities requires participants to re-frame their way of seeing themselves in a teaching and learning environment. Most of us are likely to enter a first-time T-III experience with expectations and ways of knowing better suited to T-I or T-II. Among the adjustments required is to see ourselves as co-constructors of various forms of knowledge and knowing and not as learners who are dependent on a teacher or our peers as primary sources of information. This applies to teachers as well as their students.

T-III activities may involve no more than an informal group of people with interests in getting together to work through a shared problem or idea that requires their joint effort. Initially, there would likely be a leader, facilitator or at least an animator of such an activity, but ultimately any and all participants could serve in this capacity. Self-directed learners could therefore see such a collaborative learning activity as a group-based activity that is *part* of their overall SDL experience, depending on what else they do. This means that others involved are more than resources; instead, they become co-participants in the self-directed learner's project.

A final implication is that research in SDL related to teaching and learning might be based in some systematic conceptualization of teaching and learning and not simply a definition that takes for granted the notion that everyone in the educational community will automatically understand the meaning of teaching and learning. It should be clear from our brief overview of the Peters and Armstrong typology that not all types of teaching and learning are alike, and that what they call T-III teaching and learning in particular presents a wholly new way of framing what takes place the name of teaching and learning. Of course, we aren't suggesting that the typology of teaching and learning be universally adopted, but we are suggesting that it is the sort of conceptualization that is needed if research in this area of SDL is to be advanced beyond its current state.

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John M. Peters, Ed.D., is a professor and coordinator of the doctoral program in collaborative learning at the University of Tennessee. He was founding director of the UT adult education program and conducted the first large-scale study of adult learning projects in 1971-72. (jpeters@utk.edu)

Annie J. Gray, M.A. is an assistant professor of English at Pellissippi State Technical Community College in Knoxville, TN, and a doctoral student in the University of Tennessee's Educational Psychology/Collaborative Learning Program. (ajgray@pstcc.edu)

KOREAN PROFESSORS' PERCEPTIONS OF IMPORTANT TEACHING AND LEARNING TASKS

Huey Long, Ji Woong Cheong and Chija Kim Cheong

ABSTRACT

In this study, 20 Korean university professors identified teacher and learner tasks they perceived to be important. Previous research indicates only limited information is available concerning perceptions of important learner tasks (Choy, 2001; Long & Agyekum, 2002; Long, Cheong, & Cheong, 2003). Each professor identified up to five important teacher tasks and five important learner tasks. The professors identified 76 different teacher tasks and 81 different learner tasks. General instruction tasks (lecture, evaluation and feedback) dominated the teacher tasks. Learner tasks focused on preparation, attendance and attention in the classroom. Professors also expected that the learner would be creative, inquiring, and self-motivated. The professors seem to believe that information giving is a major instructor task and expect depth processing and knowledge construction from learners. Professors fail to specifically identify instructor tasks that facilitate the inquiry and self-managed learning they identify as important to learners.

The literature concerning self-direction in learning has expanded at an impressive rate over the past forty years. Much of this literature is concerned with the actions of the self-directed learner, personal characteristics of the individual who assumes responsibility and makes choices that determine learning outcomes, and the relationship between the learner and facilitators of learning such as teachers and trainers. But little of the literature addresses what learners and teachers in formal education settings should be doing to accomplish learning.

Information concerning teachers' perceptions of important tasks to be completed by instructors and learners is limited (Choy, 2001, Long and Agyekum, 2002, Long, Cheong and Cheong, 2003). There is much material concerning the classroom activities of teachers, but there are few studies that compare the tasks that teachers identify as being important for both parties in learning. The state of the literature on this topic limits our ability to observe and discuss the interface between these two kinds of perceptions.

Since student control and choice have been identified as important elements in learner assumption of responsibility for learning, it is likely that learner perceptions of instructor and learner tasks may affect student-learning behavior. Based on Choy's (2001) observation that the literature on learner ideas about responsibility is limited, Long and Agyekum (2002) investigated the issue. Using a small sample of 13 adult graduate students who were engaged in a masters degree program that placed emphasis on self-direction, Long and Agyekum expected to identify similar perceptions among learners concerning learner and teacher tasks. Their findings, however, revealed only limited agreement among the students' perceptions of important tasks. They reported that students in their sample revealed restricted agreement upon the important instructor and learner tasks. Though limited, agreement on instructor tasks was greater than agreement on learner tasks. The identified tasks could be classed as psychological and action tasks with the former comprised of attitudinal elements and the latter referring to

procedural activities. Psychological tasks were mentioned more frequently as student tasks and procedural activities were more often identified as instructor tasks.

PURPOSE

The purpose of this research is to identify Korean professors' perceptions of professor tasks and learner tasks. Such information should add to knowledge about the potential influence of professors' classroom actions on student learning. For example, how do the professors' tasks that are perceived to be important relate to similarly perceived learner tasks? Are professors' tasks consistent or inconsistent with expectations concerning students?

CONCEPTUAL FRAMEWORK

An extensive body of literature focuses on teacher responsibilities and tasks. It appears that educators have been particularly keen on identifying, describing and imparting an array of things that teachers should do in the classroom. It is suggested that teacher failure in some, if not many, of the identified tasks will affect student achievement. Recent reform literature has implied that the disappointment with American public schools is directly attributable to teacher failure. Long and Agyekum's (2002) findings, however, indicate that such assertions are one-sided. Problems in learning are not solely attributable to failure of teachers to responsibly conduct their classrooms. Students comprise the other most significant party to learning. Even though it is obvious that students have responsibilities and tasks in learning, that side of the equation has been neglected.

Educators and trainers interested in self-direction in learning are especially interested in the concept of student responsibility and learner tasks. At least one concept of self-directed learning (Long, 1990a, 2000) associates private and public actions of learners with learning. Nevertheless, the topic of learner tasks and responsibilities has received little research attention. It is theorized that students in typical classroom settings can engage in self-directed learning. More specifically it is posited that effective classroom learning is in reality a result of greater self-direction rather than dependence upon the instructor. If this is the case, student perceptions of important learning tasks vis-a-vis perceptions of important instructor tasks should be helpful in linking self-direction in classroom learning. Bouchard (l998) indicates that problems associated with identification of teacher and learner tasks are found in the research methodology that establishes an *a priori* list of tasks. Therefore, this inquiry is based on an open qualitative research design with no predetermination of important tasks. This paper reports the results of a follow-up to previous inquiries on this topic. It differs from previous investigations, however, as this investigation identified perceptions of teacher and learner tasks as noted by Korean university professors.

LITERATURE REVIEW

Long and Agyekum (2002), Bouchard (2001), and Bulik (1998) indicate that a better understanding of learners and instructor tasks is desirable. Improved understanding should contribute to improvement in learning. Citing Willinsky (1990), Bulik (1998) notes the need for students to accept greater responsibility for learning. Bulik emphasizes that learner tasks

such as critical thinking and problem solving are important. Bouchard (1998) indicates that individuals engaged in self-directed learning encounter difficulties because they have been conditioned to rely on teachers' task performance. Specifically, students are accustomed to teachers setting learning goals and teachers identifying and organizing materials. Consequently, the apparent learner tasks would appear to mirror these teacher activities. Bouchard's findings revealed that teachers engage in two major kinds of tasks identified by Long (1989, 1990 a & b): psychological and pedagogical.

Teaching tasks have been identified by a variety of scholars in an effort to systematize, explain, and analyze critical activities in which teachers engage. After reviewing much of this literature, Long (2002) identified seven major kinds of teacher tasks that were common to the different sources. The seven major tasks identified by Long are as follows:

1.   Presenting goal information
2.   Establishing goal relevance
3.   Planning learning activities
4.   Getting attention
5.   Checking comprehension
6.   Providing feedback
7.   Evaluating

RESEARCH DESIGN

Data were collected from 20 volunteer Korean University professors of education. The professors were requested to list the five most important teaching tasks performed by teachers in order of importance. Later the same professors were requested to list the five most important learning tasks, in order of importance, performed by learners. These lists were collected and systematically analyzed.

Assumptions and Limitations

The findings and interpretation of this research are influenced by certain assumptions and limitations. It is assumed that the participants in this research accurately identified key important learner and teacher tasks. Also, it is assumed that the identified tasks actually are manifested by appropriate teacher and learner behaviors in classroom teaching and learning. The findings reported are limited to the participants providing information.

Sample

Sixteen male and four female professors comprised the sample. Their teaching experience ranges from 1-30 years. Five professors report between 21 and 30 years of experience. Three professors have twenty years of teaching experience; two have ten years of experience. Five of the remaining 10 professors have from 12-17 years of teaching experience. Four reported 5-10 years of teaching experience, and one listed one year of experience. The median years of teaching experience are 14.5. The professors reported eleven different majors: three each were professors of Korean language and mathematics, and two each in English education,

curriculum and instruction, social studies, music education, and technical/home economics education. Other teaching fields include fine art education, physical education, school administration, and science education. The professors in the sample appear to be fairly representative in terms of teaching tenure and subject matter specialization. Only one of the teachers reported less than five years of teaching experience.

FINDINGS AND DISCUSSION

Instructor Tasks

A maximum of 100 instructor tasks was possible. The professors identified 98, 20 at levels 1, 2, and 3. Of the 98 total tasks identified by the professors, 76 were different tasks. Agreement was limited to approximately one-fourth of the identified tasks. The variety of instructor tasks identified by the professors differs at the five levels of importance: 12 different tasks were identified at level 1, 17 at level 2, 13 at level 3, 18 at level 4, and 16 at level 5. Specific tasks identified at each level are reported in the endnotes. Please note some of the tasks have been slightly edited to reflect clearer English expression.

Two or more professors agreed on twelve instructor tasks. The task on which there was greatest agreement was effective lecturing. Not only was this task mentioned most frequently, it was also mentioned most at the most important level. The following is a list of the tasks identified by 2 or more professors.

1. The instructor should lecture effectively (5 professors at level 1).
2. The instructor should prepare a teaching plan and aids relevant to course (4 professors at level 3).
3. The instructor should select appropriate content relevant to student level (3 professors at level 1).
4. The instructor should transmit content as planned (3 professors at level 1).
5. The instructor should grasp students' traits and levels including their names and interests (3 professors at level 3).
6. The instructor should clearly present model course content and issues (2 professors at level 2).
7. The instructor should develop and apply relevant teaching methods (2 professors at level 2)
8. The instructor should conduct research in major area (2 professors at level 2).
9. The instructor should provide students with the opportunity to think and exchange ideas on a given issue (2 professors at level 3).
10. The instructor should work/study subject matter (2 professors at level 3).
11. The instructor should grasp learners' profiles/characteristics (2 professors at level 4).
12. The instructors should conduct comprehensive course evaluation (4 professors at level 4); 9 professors identified professor feedback actions separately in variously worded statements at levels 2-5.

Collectively the Korean professors address six of the seven general teaching tasks identified by Long's (2002) review of the literature. The only general task in Long's list not addressed by the professors was activities associated with obtaining learner attention. Tasks associated with

presenting goal information and tasks establishing goal relevance were mentioned only at the lowest levels of importance: once at level 4 and once at level 5. In contrast, tasks concerned with planning learning activities were identified at each level of importance. Tasks associated with professor feedback to students and evaluation were identified at levels 2-5.

The teacher tasks can be classified according to type: tasks that are described as (1) professor action, including classroom actions and activities beyond the classroom; (2) knowledge tasks, and (3) being/attitude tasks. Professor action tasks account for 65 of the 76 different tasks. Twenty-two of the action tasks were identified as out of classroom tasks. Nine tasks are knowledge tasks, and two are being/attitude tasks.

The instructor tasks can be further classified according to the following:
Psychological tasks 5 (7%)
Student-centered activities 14 (18%)
General instruction tasks 55 (72%)
Classroom management activities 2 (3 %)

The psychological tasks address instructors' personal being or attitude characteristics such as "the instructor should demonstrate respectable human character" (item 4, level 3), the instructor should "keep the lecture objectives and key points in mind" (item 9, level 2), the instructor should "have desirable and sacred attitude toward teaching" (item I5-level 4), and the instructor should "respect students' humanity and give interesting lecture[s]" (item I6-level 5). The last task mentioned above is interesting in its implication. It is more likely that the professor's response was actually intended to address two objectives: the professor should respect students because of their human nature, and that lectures should be interesting. Nevertheless the juxtaposition of the two tasks brings a smile to those who have had their humanity ignored by dull lecturers.

Student-centered tasks reflect the professors' concern for motivating students, stimulating students to think and reflect, and seeing students as persons beyond the classroom. Approximately 20% of the identified tasks reflect these kinds of concerns. General instructional tasks account for 55 (72%) of the instructor tasks: 37 related directly to activities conducted within the classroom and 18 are concerned with things the professor does outside of the classroom. The former are usually simple and clear tasks such as "the instructor should give effective lectures relevant to the subject" (listed by 5 professors). Another example is, "the instructor should show practical application of related theories."

General instructional tasks concerned with activities that take place out of the classroom include tasks involved in instructional preparation and professional activities. For example, "the instructor should understand research trends. . ." or, "the instructor should prepare teaching plans and aids relevant to the course."

Four general purposes dominate the general instruction tasks. The professors' preparation for teaching (11), provision of evaluation and feedback (10), development of students' critical, independent and reflective thinking and comprehension (7) and motivating students (6). Table 1 illustrates professor tasks by type and level.

Table 1. Teacher Tasks as Identified by Korean University Professors
by Level of Importance

Level	Psychological	Student- Classroom	Beyond	N	Centered	Actions Class
1	0	3	4		5	12
2	2	1	10		4	17
3	1	4	5		3	13
4	1	4	9		4	18
5	1	4	5		6	16
N	5	16	33		22	76

It seems as if the professors perceived the most important tasks (Level-I) at a more abstract level than tasks at the lower levels of importance. For example, "the instructor should give effective lecture relevant to the subject." Lecture is a frequently mentioned action task, mentioned by 13 professors: at level 1 by 5 professors, 4 professors at level 2, 1 professor at level 3, 1 professor at level 4, and 2 professors at level 5. Providing feedback and evaluation is another task often mentioned by the professors. It was cited by 12 of the professors. Guidance and counseling was a task mentioned by 4 professors. Tasks associated with encouraging, stimulating, and supporting creativity, critical thinking, and personal inquiry were mentioned, and 6 professors at levels 3-5 cited self-directed learning.

The identified professor tasks seem to present the instructor as a person who engages in general instruction activities such as preparing course content and presenting information. Concomitant with the above, the instructor is engaged in student-centered activities including evaluation, feedback and motivation. While professors are expected to address activities to encourage, stimulate, and support creativity, critical thought, and self-direction, these activities do not appear to be viewed as being as important as lecturing and other information-presenting actions.

Learner Tasks

It was possible for the 20 professors to provide a list of 100 learner tasks. The professors identified 81 different learner tasks among the 96 activities they listed. The greatest agreement exists at level 1: 19 professors cited 13 different1earner tasks. Twenty professors identified 15 different learner tasks at level 2. Little difference in number of tasks exists at level 3-5, with 17 or 18 tasks identified at each level. The greatest diversity exists at leve14: 19 professors identified different tasks.

Tasks identified by two or more professors are as follows:

1. The learner should understand the course outline/content. (5 professors at level 1)
2. The learner should attend class. (3 professors at level 1)
3. The learner should actively participate in the lecture. (2 professors at level 2)
4. The learner should perform learning assignments given at every class session. (4 professors at level 2)
5. The learner should be prepared to learn (the text) and review what has been taught. (2 professors at level 2)

6. The learner would engage in small group discussion. (2 professors at level 3)
7. The learner should participate in all field (experiential) learning activities. (2 professors at level 3)

Three general learner task types are distributed across the five levels of importance: learner action, action-psychological, and psychological. The greatest agreement on the nature of learner tasks is found at levels 1 and 2 where 13 and 15 different tasks, respectively, were identified. The modal number of learner tasks at the lowest three levels is 18 (18, 17, and 18 different tasks at levels 3, 4, and 5). Table 2 illustrates the listing of identified learner tasks by type and level.

Table 2. Learner Tasks Identified by Korean University Professors by Type and Level

Level	Action	Action-Psychological	Psychological	N
1	9	3	1	13
2	9	5	1	15
3	10	4	4	18
4	7	9	1	17
5	10	3	5	18
N	45	24	12	81

The general types of learner tasks are action, action-psychological, and psychological. As found in the list of teacher tasks, action tasks account for the largest proportion of the activities: 56%. Action tasks require the learner to perform some activity, that is, to do something. Action-psychological tasks require the student to perform some mental operation. The psychological tasks require the learner to reflect some mental state. Examples are as follows:

1. Action: "The learner should attend class." (level 1)
2. Action-psychological: "The learner should understand the course outline/content." (level 1)
3. Psychological: "The learner should have [a] sincere attitude toward the course lecture." (level 1)

Action tasks relate to such things as class attendance, class participation, and class preparation. Class participation and class preparation emphasize independent effort; inquiry, concentration, depth processing, and creativity manifest independent processes.

Action-psychological tasks include critical review, active construction, evaluation, making connections, and being enthusiastic about learning. Psychological tasks include being of respectable character, being diligent in creativity, maintaining relationships, and having the ability to do the above.

The above learner tasks identified by the professors appear to present a profile of learner expectations. Accordingly the learner is represented as being expected to take positive action steps such as attending class, attending to content, actively engaging content and fellow

learners while being inquisitive, thoughtful, and engaging in synthetic, synergistic, and constructive mental operations.

Comparison of Instructor Tasks and Learner Tasks

The 20 professors provided two lists of tasks: instructor tasks and learner tasks. Of the possible 100 tasks of each kind, 76 different instructor tasks of 98 tasks were identified (77.5%) and 81 different learner tasks of 96 (84.4%) were identified. The numerical difference in the two lists was negligible. The two lists also reveal greater consensus at level one and greater divergence at level 5. Both lists contain a range of specific to abstract tasks. The tasks reflecting the greatest agreement suggest conclusions. See Table 3 for a side-by-side comparison:

Table 3. Instructor and Learner Tasks with Greatest Agreement

Instructor Tasks	Learner Tasks
The instructor should lecture effectively (5 at level l).	The learner should understand the course outline /content (5 at level 1).
The instructor should prepare teaching plans and aids (4 at level 3).	The learner should attend class (3 at leve1).
The instructor should conduct comprehensive evaluation (4 at level 4).	The learner should perform learning assignments at every class session (4 at level 2).

The top three tasks as presented in Table 3 suggest an abstract convergence between the instructor and learner tasks that is obscured among the total tasks cited. The professors' perceptions appear to reflect a traditional approach to classroom learning where the instructor plans, organizes, and presents information. Consequently, the learner tasks are appropriately responsive.

Analysis of all of the tasks included in the two lists seems to suggest limited articulation between instructor tasks and student tasks concerning instructional tasks and learners' self-managed learning tasks. In other words, the professors appear to mention learner tasks that focus on self-direction and self-managed learning more frequently than they mention specific instructor tasks designed to accommodate, encourage and support these kinds of learner efforts. While the instructors mention instructor activities related to motivating students, few tasks clearly identify specific actions instructors should engage in to accomplish that goal.

CONCLUSIONS

The purpose of this research is to identify Korean professors' perceptions of professor tasks and learner tasks. Two general questions are, how do the professors' tasks that are perceived to be important relate to similarly perceived learner tasks? And are professors' tasks consistent or inconsistent with expectations concerning students?

The research procedure successfully identified Korean professors' perceptions of a number of instructor and learner tasks. More specific conclusions concerning the identified tasks are

enumerated below. The two general questions are addressed with some ambiguity by the professors. The tasks which the professors agreed upon most were relatively consistent in expectations of instructors and learners. The tasks seem to reflect a highly traditional set of expectations. The findings indicate some agreement between perceived instructor tasks and learner tasks related to the stimulus-response model of teaching and learning. That is, the instructor plans, organizes and presents while the learner attends, prepares and performs according the instructor guidelines. The learner tasks on which less agreement existed are associated with being inquisitive, thoughtful, and engaging in synthetic, synergistic, and constructive mental operations. The gap between these two different kinds of learner tasks is further emphasized by limited reference to specific instructor tasks to accomplish these student self-managed learning activities.

1. Professors demonstrate limited agreement on specific instructor tasks.
2. Instructor tasks are often identified at an abstract or general level.
3. Most frequently agreed upon instructor tasks concern the planning, organizing, presenting information and then evaluating learner performance.
4. Limited differences exist in the range of tasks identified for instructors and learners.
5. Instructors' tasks were dominated by general instruction tasks to be carried out within the classroom.
6. Instructor tasks concerned with aspects of self-managed learning were identified infrequently.
7. Most frequently agreed upon learner tasks concern responsive actions; such as, the learner should understand the course outline/content, attend class, and prepare for class.
8. Learner tasks concerned with aspects of self-managed learning were mentioned more frequently than related instructor tasks.

Analysis of the two lists seems to suggest limited articulation between instructor tasks and student tasks concerning instructional tasks and learner's self-managed learning tasks. In other words, the professors appear to more frequently mention learner tasks that focus on self-direction and self-managed learning than they mention specific instructor tasks designed to accommodate, encourage and support these kinds of learner efforts. The instructors do mention instructor activities related to motivating students, but few tasks clearly identify specific actions instructors should engage in to accomplish that goal.

IMPLICATIONS

The instructor-learner tasks identified by the instructors do not greatly diverge from traditional classroom activities. Despite the great range of both instructor and learner tasks, agreement concerning the most important task was noted. Beyond the stimulus-response model of instruction the professors seem to have some uncertainty about the relationship between what they do in classroom instruction and what learners should do. It would appear that over time many instructors would identify how tasks they perform would impact on tasks they expect learners to accomplish. For example, limited importance attributed to instructor activity to communicate and establish learning goals and the relevance of those goals seems to be inconsistent with the expectations that learners demonstrate high levels of self-managed learning. The instructors place a great emphasis on tasks associated with giving information

through lecture while seldom identifying instructor tasks designed to encourage learners to raise questions, pose alternative problems, identify ways to accomplish depth processing, and so forth.

Proponents of self-direction in learning such as Long, Bulik, Carr, Ponton, Confessore, Derrick, and Pilling-Cormick have identified the complex social environment that fosters or inhibits self-directed learning. Their ideas and concepts, however, are not prominent in the instructor tasks identified here. Unfortunately, the gap that isolates teacher tasks from learner tasks as found in this study does not seem to be unique to this sample of participants. If anything, it is possible that this sample is more sensitive to the importance of learner tasks associated with self-managed learning than would be true of many similar samples.

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APPENDIX A
Instructor Tasks Identified by 20 Korean University Professors

The instructor should…

Level One: Twelve instructor tasks, perceived as the most important tasks:

  1. effectively lecture relevant to the subject. (5)
  2. motivate the students to realize why his/her course should be taught.
  3. identify needs of the student's work after graduation.
  4. select and develop the course contents relevant to the level of students. (3)
  5. transmit the contents of the course as planned. (3)
  6. introduce new discipline and knowledge.
  7. show practical application of related theories.
  8. work on academic research.
  9. work on teaching materials.
10. select textbooks.
11. do extensive literature survey relevant to teaching the subject.
12. keep professional teaching standards.

Level Two: Seventeen tasks
  1. clearly present model course contents and issues. (2)
  2. create a good learning climate.
  3. ask questions and check students' level of understanding on what is taught.
  4. read students' reports/papers and return them with comments.
  5. understand the research trends in relation to the subjects.
  6. develop relevant teaching methods and apply them. (2)
  7. give guidance and counseling to the students.
  8. give (effective/practical) lecture.
  9. keep the lecture objectives and key points in mind.
10. understand students' learning psychology.
11. prepare good lectures.
12. link with what was taught in previous lecture.
13. conduct research in major areas. (2)
14. teach the students research and learning methods.
15. transmit effectively the contents.
16. make sure the contents were well understood by the student.
17. review teaching material.

Level Three: Thirteen tasks
  1. provide students with the opportunity to think and exchange ideas on a given issue. (2)
  2. induce students to actively participate in the lecture.
  3. prepare/teaching plan and aids relevant to the course. (4)
  4. demonstrate respectable human character.
  5. work/study on the subject matter. (2)
  6. grasp students' traits and level including their names and interests. (3)
  7. encourage students to keep their desirable attitudes toward the course.
  8. conduct creative research and present its result.
  9. check students' assigned home work.
10. guide effective teaching method to transmit the course content easily.
11. kindly respond to the questions raised by students and give adequate guidance.
12. inspire creative thinking.
13. deal with the applicable content.

Level Four: Eighteen tasks
    1.   help students to discuss and think.
    2. apply desirable teaching methods.
    3. check the reports submitted by students.
    4. give instruction based on small group work.
    5. encourage students to play an active role in their community.
    6. try to improve teaching course and methods.
    7. actively participate in related academic societies.
    8. present a strategic plan for students to take action before, during and after lecture.
    9. be cognizant of the relationship between the course topics and human history.
    10. learn good communication and guidance.
    11. give field experience to students and check with their feedback.
    12. conduct valid and reliable evaluation.
    13. conduct equitable and educational evaluation on the assigned works.
    14. grasp learners' profiles/characteristics. (2)
    15. have desirable and sacred attitude toward teaching.
    16. have professionalism on the subject matter.
    17. give students guidance and counseling service.
    18. present the students some way to self-directed learning.

Level Five: Sixteen tasks
    1. lead students to consider various factors on some issues broadly.
    2. reflectively review the lecture.
    3. conduct (comprehensive) evaluation on the course. (4)
    4. enable students to independently learn (self-teaching).
    5. offer some follow-up learning tasks.
    6. seek some cooperative services from related institutions.
    7. adequately respond to the students' feedback and encourage them.
    8. present some future prospect on the course.
    9. give guidance and counseling service.
    10. present the way to apply in the field.
    11. have accountability for the nation and education.
    12. urge students to create ideas for better education.
    13. have experience of administrative and social activities.
    14. demonstrate his/her research work.
    15. prepare some case stories for learning motivation.
    16. respect students' humanity and give interesting lectures.

APPENDIX B
Learner Tasks Identified by 20 Korean University Professors

The learner should….

Level One: Thirteen tasks
1. understand the need and objectives of the course.

2. understand philosophical foundation of the course.
3. understand the course outline/contents. (5)
4. attend the class. (3)
5. actively participate in learning course.
6. be well prepared to learn by way of performing reading assignments.
7. have sincere attitude toward the course lecture.
8. read the text and learning materials.
9. independently solve the learning tasks.
10. work on the course.
11. join the laboratory lecture/work.
12. acquire knowledge on the course (art and culture).
13. learn logical thinking and inquiring mind.

Level Two: Fifteen tasks
1. listen to and understand the contents of lecture.
2. actively participate in the lecture. (2)
3. ask questions with regard to the course.
4. answer the question raised.
5. perform learning assignments given at every class session. (4)
6. be prepared to learn (the text) and review what has been taught. (2)
7. read books to think broadly of the course unit.
8. concentrate on lecture.
9. understand the course contents of lecture.
10. deeply understand the historical background of the theme.
11. apply the knowledge learned and take necessary action.
12. learn well.
13. understand how to effectively teach children.
14. materialize the ideas learned.
15. have practical experiences (in fine art).

Level Three: Eighteen tasks
1. clearly elaborate his/her ideas on the issue.
2. attend the lecture class and ask questions.
3. raise questions.
4. collect more data related to lecture content and read them.
5. express and report what he/thinks and has learned.
6. discuss in small group session. (2)
7. listen to the lecture and actively participate in class activities with other friends.
8. participate in all field (experiential) learning activities. (2)
9. keep cooperative relation with instructor and class fellows.
10. keep desirable attitude toward the lecture while the teaching class is going on.
11. have future prospect in relation to the learning theme.
12. creatively work on the theme and report its results.
13. think of prospective good teacher.
14. work on good teaching method.
15. secure professionalism in the subject matter.

16. understand himself/herself through analysis of portfolio works.
17. have ability to apply what is taught in lecture.
18. grasp the key points of the lecture contents.

Level Four: Seventeen tasks
1. have critical thinking on the lecture and text contents.
2. evaluate his/her own learning.
3. write reports of what has been learned.
4. learn how to write and communicate well with others.
5. read literature broadly related to the course.
6. keep sincere and healthy human relations.
7. reflect on the course after practice and present direction for improvement.
8. actively participate in discussion.
9. work on creative construction.
10. enthusiastically perform assignment (and report its result). (3)
11. synthesize what is learned and have ability to internalize.
12. impart communication skill.
13. manage well the class attendance.
14. submit creative reports.
15. construct good teaching-learning model.
16. understand diverse perspectives (historical, cultural and technical) on fine art.
17. sincerely link with the field.

Level Five: Eighteen tasks
1. critically review what has been learned in the course.
2. keep good human relations with instructor and fellow students.
3. keep the regulations.
4. continue to keep new knowledge learned from the course.
5. dedicate and render service to his/her own community.
6. keep follow-up guidance with the instructor.
7. participate in discussion.
8. have self-evaluation.
9. synthesize what is learned and construct his/her own historical perspective and philosophy.
10. lay some foundation for professional expertise.
11. work on application to the professional field.
12. create synergy effects for creative and excellent learning.
13. have respectable character as a desirable prospective teacher.
14. get used to good teaching methods.
15. enjoy creative works and internalize emotion.
16. acquire knowledge and behavior as a liberal man.
17. apply what is learned in the course into the practical field.
18. read related literature for himself/'herself beyond what is learned in the class.

Huey B. Long, Ph.D. (longhb@yahoo.com) is retired Professor Emeritus of Continuing Professional and Higher Education. He has written extensively on self-direction in learning and is the founder of the International Self-Directed Learning Symposium.

Ji Woong Cheong, Ph.D. is retired professor of Community and Agricultural Education. He has received a number of international study awards including a Postdoctoral Fellowship at the University of Oklahoma.

Chija Kim Cheong, Ph.D, has served in leadership positions in professional associations in South Korea. She has received a number of international study awards including a Postdoctoral Fellowship at the University of Oklahoma. She has frequently published research concerning self-directed learning.

A COMPARATIVE STUDY ON THE SELF-DIRECTED LEARNING OF PRIMARY STUDENTS IN HONG KONG AND MACAU

Magdalena Mo Ching Mok, Shing On Leung and Peter Wen-jing Shan

ABSTRACT

Self-directed learning is an important element in the recent education reform in Asian-Pacific countries. This study explores differences and similarities in the self-directed learning of primary students in Hong Kong and Macau. Data from samples of 1,253 students from 10 Hong Kong schools and another 1,562 students from 10 Macau schools who were currently enrolled in primary-3 and primary-5 in the two locations were analyzed. Three-way comparisons (location, gender and year levels) on primary students' perceptions of the usefulness of self-directed learning strategies were undertaken. The students' deployment of self-directed learning strategies was also compared. Results were discussed in terms of implications to education reform in Hong Kong and Macau.

This study explores differences and similarities in the self-directed learning of primary students in Hong Kong and Macau. Self-directed learning refers to a process whereby the learner assumes a major responsibility for the initiation, planning, implementation and monitoring of their own learning (Boekaerts, Pintrich, & Zeidner, 2000). Since the turn of the century self-directed learning has been the focus of numerous education reforms of major education systems, particularly those in the Asia Pacific Region. Reforms in the Region take on delicate nuances according to local demands, but they converge on a common theme premised upon the development of students into lifelong learners who have the competence to take charge of their own learning. Learning to learn is an important focal point of the Hong Kong education reform (Curriculum Development Council, 2001).

THEORIES OF SELF-DIRECTED LEARNING RELEVANT TO THIS STUDY

A basic tenet of self-directed learning is that the learner participates cognitively and actively in the learning process, including goal setting and planning (Gollwitzer, 1996; Pintrich, 2000), information processing and active construction of new knowledge (McCombs, 2001; Phillips, 1995), self-monitoring on learning progress (Zimmerman, 1998), self-adjustment based on feedback, the control of learning environment for effective learning, and selection and modification of learning strategies (Chan, 1993).

In self-directed learning, the learner intentionally and systematically uses such learning strategies as repetition, elaboration or reorganisation (Weinstein, Husman & Dierking, 2000) in order to enhance the learning outcomes. Although some of the learning strategies are spontaneous, learning strategies are learned and can be modified (Weinstein, 1978; as cited in Weinstein, Husman & Dierking, 2000). Consequently, differences in the use of learning strategies are to be expected if the teaching curricula between countries place different levels of emphasis on them. Recent studies identified differences in the use of learning strategies for academic achievement between Hong Kong students and their counterparts with a Western cultural background (Watkins & Biggs, 2001).

The deployment of self-directed learning strategies is affected by a number of factors, which can be broadly classified into cognitive and metacognitive factors, motivational factors, and individual factors. Three cognitive and metacognitive factors, motivational factors, and individual factors are identified to be relevant to self-directed learning (Mok & Cheng, 2002), namely, the pedagogical (e.g. knowledge about resources for learning; awareness of one's own level of prior knowledge and learning style), sociological (e.g. awareness of social resources available to support learning) and psychological levels (e.g. self awareness of affective feelings toward the learning task).

Biemiller, Shany, Inglis and Meichenbaum (1998) report that skillful self-learners have high cognitive and metacognitive levels. Motivational factors are crucial to the initiation, perseverance, and monitoring of self-directed learning, although there is comparatively less research on the regulation of motivation than on cognitive regulation (Pintrich, 2000; Schunk & Zimmerman, 1998). Motivation is affected by the perceived relevance and utility of the tasks (Wigfield & Eccles, 1992), learner's goal orientation (Niemivirta, 1999; Pintrich, 2000), self-efficacy (Bandura, 1997; Boekaerts, 1997; Pintrich, 2000), appraisal of the possible outcomes (Pintrich, 2000; Zimmerman, 1994), and attributional beliefs (Boekaerts, 2002; Chan, 1994; Chan & Moore, 1997; Weiner, 1984, 1986). Individual characteristics have also been found to affect self-directed learning of children; the most often reported was students' gender. Females were found to use more self-directed learning strategies than did boys in a number of studies, including Zimmerman and Martinez-Pons' (1990) research which found girls in Grades 5, 8, and 11 used significantly more goal-setting, planning, record keeping, self-monitoring, and structuring of learning environment to enhance outcome than boys did. The OECD Programme for International Student Assessment (PISA) study (OECD, 2001) also reported that females were more inclined than males to take charge of their learning.

CULTURE AND SELF-DIRECTED LEARNING

Independent research evidence supported the importance of context to self-directed learning (Chan & Watkins, 1994; Henderson & Cunningham, 1994; Chan & Moore, 1997; Winne & Stockley, 1998). One important contextual factor is local culture. The educational values espoused by the society are reflected in the values of self-directed learning held by students and vice versa (Garrison, 1997; Zimmerman, 2001). Tsui (1998) found cultural differences among college students who were of American, Chinese-American, and Chinese (in Taiwan) origin in their attributions and achievement motivation, even after controlling for gender and age. Recent studies by Biggs (1991) identified differences in the use of learning strategies for academic achievement between Hong Kong students and students with a Western cultural background.

Macau is a Special Administration Region of the People's Republic of China, which was handed over from Portugal in 1999 after about 450 years of rule. Macau, Hong Kong and Guangdong form a triangle in the Pearl River Delta, and Macau lies 60 kilometers from Hong Kong and 145 kilometers from the city of Guanzhou. Macau is a very small city with an area of only 23.8 square kilometers and a population of only 458,500 persons. In the academic year 2003-04, there were 68 schools with 39,350 primary school students in Macau (note, this is different from the 83 schools reported by the Statistics Department which included special

schools or schools already closed down). Among the 68 schools, there are 6,252 and 7,341 students in primary-3 and primary-5 respectively.

Hong Kong is also a Special Administration Region of the People's Republic of China, which was handed over from Britain in 1997 after 155 years of British rule. Hong Kong is a much larger city compared to Macau, composed of the Hong Kong Island, Kowloon Peninsula, the New Territories and 235 islands, but it is relatively small compared to other cities and areas in the Asian-Pacific region. It has a total area of about 1,098 square kilometers and a population of 6,803,000 in the year 2003 (Census & Statistics Department, Hong Kong Government, 2003). At the time of the survey, Hong Kong had 797 local primary schools and 483,218 primary students (Education and Manpower Bureau, 2003).

As can be seen from the above, the education systems of Hong Kong and Macau are very similar. Both have had strong influences from the western culture as a result of foreign rule (Portuguese and British). Both are located at the mouth of the Pearl River (Zhujiang), in southern China and serve as main gateways to China. The school curriculum of Macau is naturally shaped by the Portuguese system but it has also been affected by Taiwan (historically), China (more recently) and Hong Kong because of the recruitment of teachers from these places. Nonetheless, Hong Kong has tended to adopt a more aggressive approach in the recent education reform, with a strong emphasis on encouraging students to "take the initiative to learn, to think and create, and foster in them positive attitude and values" (Hong Kong Education Commission, 2000). Against this background, it was decided to identify differences and similarities between primary students of the two locations in their attitudes and practices with regard to self-directed learning.

PURPOSE

This study was designed to compare Hong Kong and Macau primary students' perceptions of the usefulness of selected self-directed learning strategies and their deployment of those strategies. Gender differences in perceived usefulness and deployment of self-directed learning strategies were also explored.

RESEARCH METHODS

This comparative study between Hong Kong and Macau is based upon a large-scale survey of primary students in these two locations undertaken in 2003. As in Bray and Thomas's (1995) framework, the focus of comparison is on States/Provinces (Level 3), across education groups (primary-3 versus primary-5 and boys versus girls), and on self-directed learning strategies (perceived usefulness and self-reported deployment) of education of primary students. The approach adopted is one of simultaneous comparison (Bereday, 1964, as cited in Bray & Koo, 2004) utilising specifically designed questions and parallel sampling methods to compare and contrast self-directed learning of primary children of the two locations.

The sample was comprised of 2,815 students invited from 10 randomly selected primary schools from Hong Kong and another 10 primary schools randomly selected from Macau.

These schools were representative of their school populations in the respective locations. From each school, 2 classes of primary-3 and 2 classes of primary-5 students participated in the study. There were 1,479 male and 1,245 female students in the sample (91 students did not report their gender). Details of the sample are presented in Table 1.

Table 1. Sample Distribution

	Year 3	Year 5	Total
Hong Kong	613 (48.9% of HK) 296 M, 290 F	640 (51.1% of HK) 299 M, 326 F)	1253 (44.5% of sample) 595 M, 616 F
Macau	737 (47.2% of Macau) 411 M, 307 F	825 (52.8% of Macau) 473 M, 322 F	1562 (55.5% of sample) 844 M, 629 F
Total	1350 (48.0% of sample) 707 M, 597 F	1465 (52.0% of sample) 772 M, 648 F	2815 (100% of sample) 1479 M, 1245 F

Note:
1. M = male; F = female.
2. Gender was not reported by 91 students.

The ten randomly selected Hong Kong schools included nine government-aided schools and one private primary school. Eight were co-educational, one was an all-girls school and another was an all-boys school. Six schools had Christian or Catholic affiliations and four did not have any religious affiliation. The schools were represented in all four Districts (Hong Kong, Kowloon, New Territories East, and New Territories West) according to classification by the Hong Kong Education and Manpower Bureau. A sample of 1,253 primary-3 and primary-5 students was selected from these schools.

The ten randomly selected Macau schools included three Catholic schools, one Christian school, one government school and five schools belonging to the Chinese Education Association, the largest education association in Macau. These schools had student enrollments with a wide range of demographic characteristics and socio-economic status. A sample of 1,562 primary-3 and primary-5 students was selected from these schools.

The instruments for this study were two self-directed learning scales presented in the form of a questionnaire. The *Self-directed Learning Strategy Usefulness Scale* (hereinafter referred to as the Usefulness Scale) was designed to measure primary students' perception of the usefulness of self-directed learning strategies. The second scale, entitled *Self-directed Learning Strategy Deployment Scale* (hereinafter referred to as the Deployment Scale), was designed to gauge the extent of deployment of the self-directed learning strategies by primary students. The Cronbach's Alpha coefficients for the internal consistency of the Usefulness and Deployment Scales were, respectively, 0.75 and 0.76, suggesting that the scales had reasonable internal consistency. The scales were found to be of strong validity for use with primary students in an earlier study (Mok, 2004).

Each of the two scales consisted of ten items of situated self-directed learning strategies identified from the literature and created as stimuli for pupils' responses on a 3-point Likert scale. A 3-point, rather than a 5-point, Likert scale was used because of the age of the respondents. Pilot studies suggested that the former was more reliable for young children from age eight to 12, who were found to have some difficulties in responding to more refined gradation than 3 categories in the response scale.

The ten situated self-directed learning strategies in the questionnaire were developed based on self-directed learning literature and included sharing with peers; seeking help in learning difficulties (Newman, 1994); attending to and concentrating on instructions in class; making notes while studying (McCombs, 2001); self-monitoring on progress (Butler & Winne, 1995; Wong & Watkins, 1996; Zimmerman, 1998); planning using a timetable and organising learning around the timetable (Gollwitzer, 1996; Kuhl & Goschke, 1994; Pintrich, 2000; Zimmerman, 1994); setting learning goals (Gollwitzer, 1996; Pintrich, 2000); rehearsing and revising on weak areas after assessment; reflecting upon possible applications of what one is learning; and establishing a productive work environment (Purdie & Hattie, 1996; Schunk, 1996 & 1998; Zimmerman, 1998).

The data collection was designed for simplicity and clarity. The student was presented with a situation; for example, "Mary takes notes while she is reading." Then two questions were asked, corresponding to the two self-directed learning scales. For the *Usefulness Scale,* the question was, "How useful do you think this is?" The student chose from one of the three responses: "not useful at all," "quite useful," and "very useful." For the *Deployment Scale*, the question was, "How often have you done this?" The student chose from one of three responses: "never," "sometimes," and "often." The items were coded such that a higher rating indicated more perceived usefulness or more deployment that did a lower rating. Each scale was formed by unweighted average of the items making up that scale.

Students completed their questionnaires in class under the supervision of their class teachers or the researchers. It took about 30 to 40 minutes to complete the questionnaire. There was no incidence of any difficulty recorded. Primary students were able to complete the questionnaire by themselves and seemed to enjoy the process. Data were analyzed using SPSS (1999).

RESULTS

Perceived Usefulness of Self-directed Learning Strategies

Hong Kong Primary Students
Hong Kong students rated most of the 10 strategies to be useful to their self-directed learning. All the strategies in the *Usefulness Scale* were endorsed by over 45% of Hong Kong primary students as "very useful." In addition, 10% or fewer students considered these strategies to be "not useful at all." The average rating and percentage distribution for these strategies are presented in Table 2.

Within the items included in the questionnaire, the three strategies considered most useful by the Hong Kong primary students were:

1. Choose a quiet environment to study (10A, mean 2.69, very useful to 74%).
2. Ask for help in learning difficulties (2A, mean 2.67, very useful to 70%).
3. Set a study timetable for revision (6A, mean 2.65, very useful to 70%).

The three strategies considered least useful by the Hong Kong primary students were:
1. Take notes while reading (4A, mean 2.44, very useful to 53%).
2. Ask oneself questions while studying (5A, mean 2.41, very useful to 51%).
3. Reflect on the applications of what is being learned (9A, mean 2.35, very useful to 45%)

Although these items received the lowest ratings relative to the others, over 90% of Hong Kong primary students still considered the strategies useful to their self-directed learning.

Table 2. Percent Distribution of Means of *Usefulness Scale* Items

	Hong Kong				Macau			
Usefulness Scale	Not Useful %	Quite Useful %	Very Useful %	Mean	Not Useful %	Quite Useful %	Very Useful %	Mean
Q 10 A. Choose quiet environment	5	20	74	2.69	5	22	73	2.69
Q 2 A. Ask for help with difficulties	3	26	70	2.67	7	26	68	2.62
Q 6 A. Timetable for revisions	6	24	70	2.65	6	24	70	2.64
Q 8 A. Revise after test	6	28	66	2.59	4	30	66	2.61
Q 7 A. Set learning targets	5	33	63	2.58	7	31	63	2.56
Q 1 A. Discuss with classmates	3	38	59	2.56	4	38	58	2.54
Q 3 A. Take notes in class	7	32	61	2.54	5	34	61	2.56
Q 4 A. Take notes while reading	9	38	53	2.44	10	37	54	2.40
Q 5 A. Ask self questions	10	39	51	2.41	8	40	52	2.44
Q 9 A. Reflect on applications	10	46	45	2.35	10	41	50	2.44

Note:
1. Percentages within location might not add to 100% because of rounding error
2. Response scale was coded as: 1 = not useful, 2 = quite useful, and 3 = very useful

Macau Primary Students

Macau students' ratings on the *Usefulness Scale* were very similar to those of Hong Kong students. The results are presented in Table 2. Macau primary students rated most of the 10 strategies in the *Usefulness Scale* to be useful to their self-directed learning. All the strategies were endorsed by half or more of the Macau primary students as "very useful." In addition, no more than 10% of the students considered these strategies to be "not useful at all."

The three strategies considered most useful by the Macau primary students were:
1. Choose a quiet environment to study (1-A mean 2.60, very useful to 73%).
2. Set a study timetable for revision (6A, mean 2.64, very useful to 70%).
3. Revise those items that I don't know after test (8A, mean 2.61, very useful to 66%).

The three strategies considered least useful by Macau primary students were:
1. Ask oneself questions while studying (5A, mean 2.44, very useful to 54%).
2. Reflect on applications of what is being learned (9A, mean 2.44, very useful to 52%).
3. Take notes while reading (4A, mean 2.40, very useful to 50%).

It is noted that although these items received the lowest ratings relative to the others, a large proportion of Macau primary students still considered the strategies useful to their self-directed learning.

Comparison between Hong Kong and Macau Students' Ratings
of Usefulness of Self-directed Learning Strategies

Hong Kong and Macau students were very similar on their perceptions of usefulness of the self-directed learning strategies, as illustrated schematically in Figure 1. It can be seen that some strategies were perceived to be more useful by Hong Kong students compared to their Macau peers and vice versa for other strategies; however, the differences were small. On average, there were more differences among strategies within Hong Kong and within Macau than between Hong Kong and Macau. Hong Kong students and their Macau peers perceived managing the learning environment, strategic help seeking, revision after test, and setting a study timetable to be more useful strategies than others. In addition, primary students of both locations considered self-questioning, reflection on application and note-taking to be less useful strategies than others.

For both countries, items requiring more sustained and reflective roles of the learner (e.g. Item 9, reflection about application; Item 4, making notes while reading, and Item 5, self-questioning) received lower ratings than those related to external factors (e.g. Item 10 on finding a quiet environment to study) or those requiring less reflection or sustained action (e.g. Item 2, help seeking; Item 6, making a time table for study, and Item 8, revising items after a test). If self-directed learning means the learners' internalization and self-initiation of learning efforts, then primary students need further development.

Analysis of Variance on Usefulness of Self-Directed Learning Strategies

A three-way Analysis of Variance (ANOVA) was undertaken to examine the differences between year levels (primary-3 and primary-5), gender (male and female) and locations (Hong

Kong and Macau) in primary students' perceived usefulness of self-directed learning strategies. The means and standard deviations by gender, level, and location are presented in Table 3. The

Figure 1. Comparison between Hong Kong and Macau on the Perceived Usefulness of Self-Learning Strategies
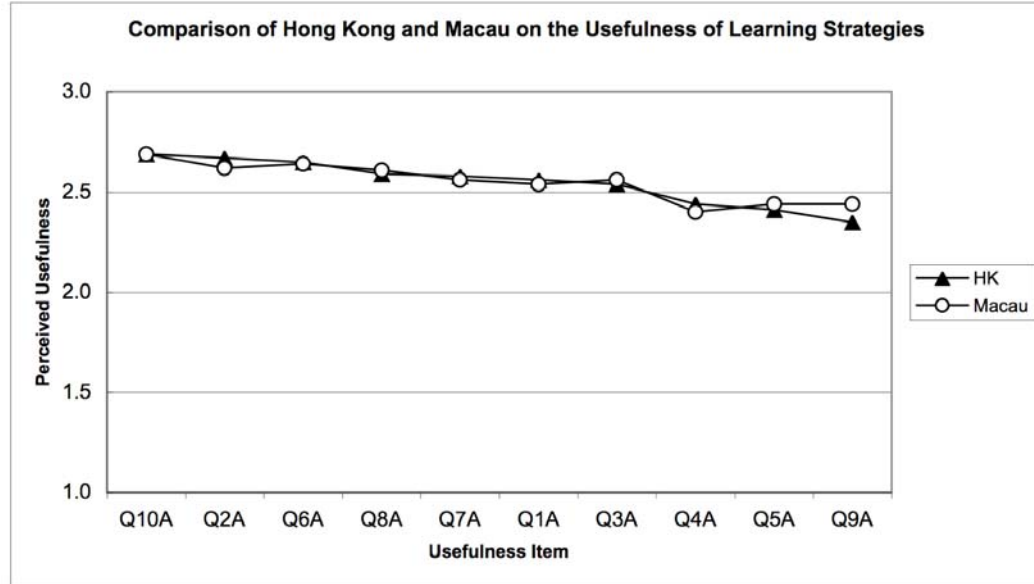
ANOVA results are presented in Table 4. The dependent variable was the *Usefulness* scores on the scale. The *Usefulness Scale* mean values are represented in Figure 2.

Table 3. Usefulness of Self-Directed Learning Strategies: Means and Standard Deviations by Gender, Location, and Level.
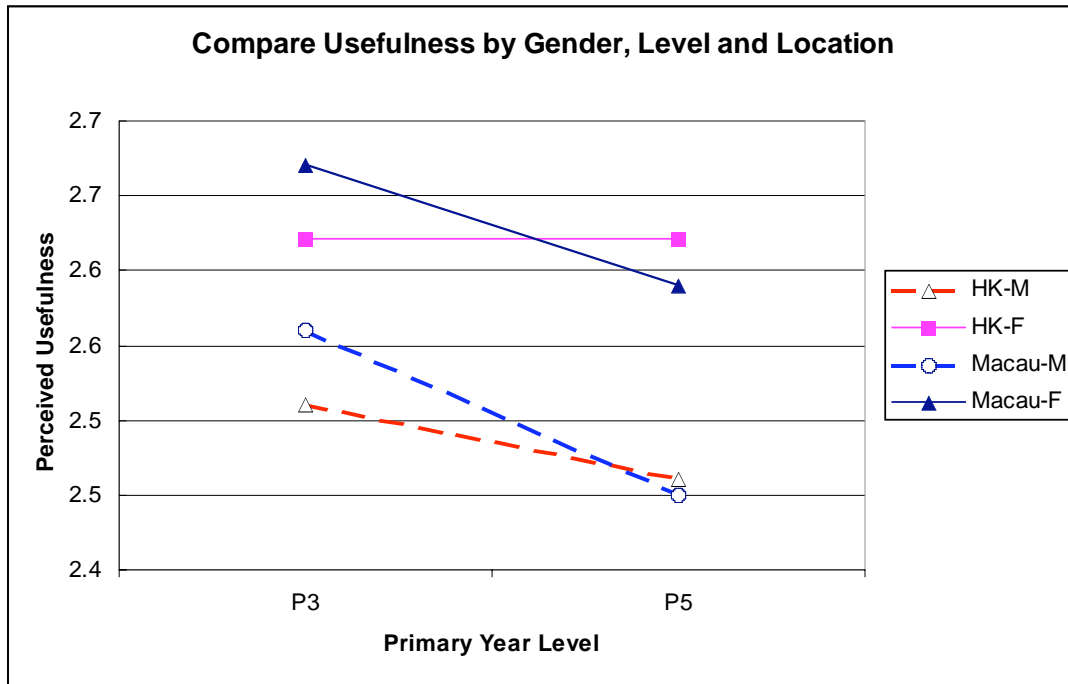
			Usefulness		
Hong Kong	Gender	Level	Mean	S.D.	N
	Male	Year 3	2.51	0.38	285
		Year 5	2.46	0.35	296
	Female	Year 3	2.62	0.29	284
		Year 5	2.62	0.31	319
Macau	Male	Year 3	2.56	0.34	396
		Year 5	2.45	0.37	459
	Female	Year 3	2.67	0.26	297
		Year 5	2.59	0.29	317

Table 4. Usefulness of Self-Directed Learning Strategies: ANOVA Results.

Source	F	df	Sig.	Partial Eta Squared
Location	1.70	1	0.192	0.001
Gender	99.32	1	0.000	0.036
Level	22.18	1	0.000	0.008
Location – Gender	0.29	1	0.593	0.000
Location – Level	7.36	1	0.007	0.003
Gender – Level	3.44	1	0.064	0.001
Location – Gender – Level	0.43	1	0.511	0.000

Note: Model R squared = .051 (Adjusted R squared = .048)

Figure 2. Comparison between Gender, Level and Location on *Usefulness Scale*

It can be seen from Table 4 that there was no significant interaction effect except for the location by the level interaction (F = 7.36, p<0.01, Partial Eta Squared = 0.003). These results implied that the difference in perceived usefulness of self-directed learning strategies between Primary-3 and Primary-5 students was not the same for Hong Kong and Macau students. This is illustrated in Figure 2; which shows that, although on average Primary-3 students perceived more usefulness than Primary-5 students (F = 22.18, p<0.001, Partial Eta Squared = 0.008), the difference is more pronounced for Macau students than for Hong Kong students. The graph also shows that this pronounced difference between Primary-3 and Primary-5 students in Macau holds true both for female and male students and illustrates the non-significant three-way interaction effect among gender, year level and city. In addition, it can be seen from Figure 2 that females always perceived more usefulness than did males, irrespective of location or level. Statistically (Table 4), there is significant gender effect (F = 99.32, p<0.001, Partial Eta Squared = 0.036) and no significant interaction effect concerning gender. Further, there is no significant location effect. Primary students of Hong Kong and Macau were similar on average in their perceived usefulness of self-directed learning strategies.

Deployment of Self-Directed Learning Strategies of Primary Students

Hong Kong Students
Hong Kong students reported moderate deployment of the ten self-directed learning strategies included in the questionnaire. The mean ratings on the three-point Likert scale (1: Never, 2: Sometimes, and 3: Often) for the items ranged from 2.34 to 1.75, which meant that typically, primary students "sometimes" deployed these strategies. The mean ratings and the percentage

distributions of students regarding their deployment of the self-directed learning strategies are presented in Table 5. All items were often deployed by between 16% to 46% primary students. At least two in every five students often chose quiet environments to study or sought help from others when met with learning difficulties. On the other hand, some strategies were never deployed by a large group of Hong Kong students. Notably, as many as one student in three never takes notes while reading or during class. Further, reflective strategies, including reflection on application of what was learned or engagement in self-questioning during learning, were never deployed by around three in ten students.

Table 5. Percent Distribution and Means of *Deployment Scale* Items

Deployment Scale		Hong Kong				Macau			
		Never %	Sometimes %	Often %	Mean	Never %	Sometimes %	Often %	Mean
Q2B	Ask for help with difficulties	6	54	40	2.34	5	58	37	2.32
Q10B	Choose quiet environment	12	42	46	2.33	17	44	39	2.22
Q8B	Revise after test	21	48	32	2.11	19	47	34	2.16
Q7B	Set learning targets	21	49	30	2.09	22	51	28	2.06
Q1B	Discuss with classmates	9	74	17	2.08	12	72	15	2.03
Q6B	Set timetable for revision	28	41	31	2.03	35	37	28	1.93
Q5B	Ask self questions	27	50	23	1.96	31	49	20	1.89
Q9B	Reflect on applications	29	51	20	1.92	26	49	24	1.98
Q3B	Take notes in class	32	46	23	1.91	27	54	18	1.91
Q4B	Take notes while reading	40	44	16	1.75	42	43	15	1.73

Note: 1. Percentages within location might not add up to 100% because of rounding error.
2. Response scale was coded as: 1 = Never, 2 = Sometimes, and 3 = Often.
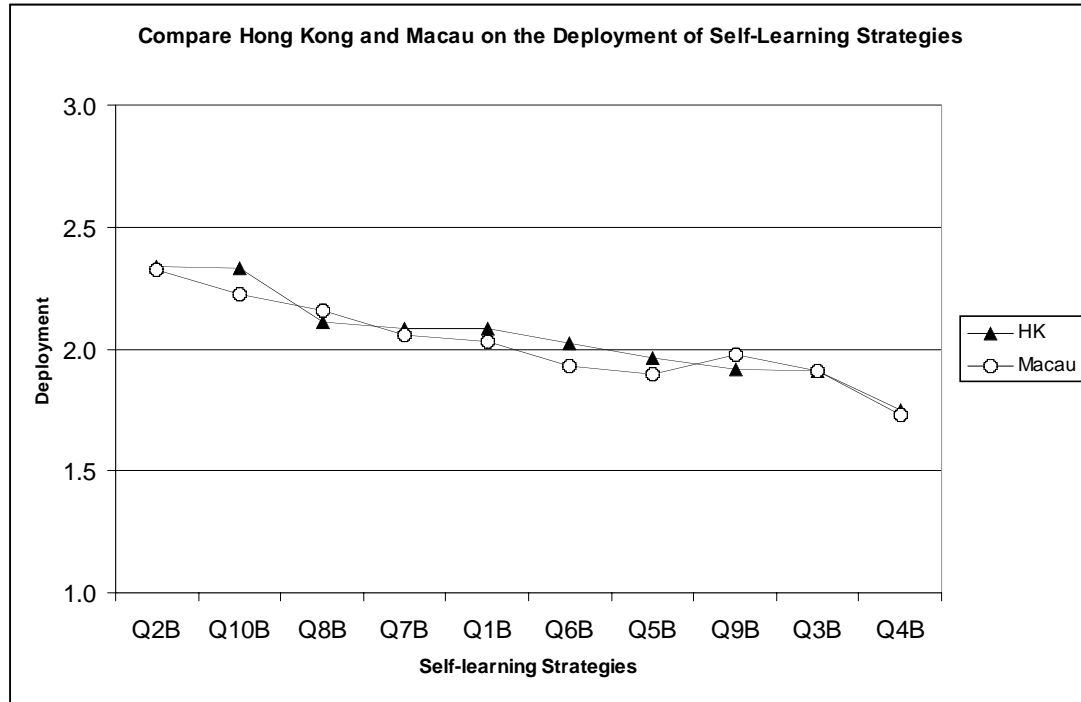
Macau Primary Students
Macau primary students had a pattern of deployment of self-directed learning strategies very similar to the pattern of their Hong Kong peers. The mean ratings of items on the three-point Likert scale ranged from 2.32 to 1.73, suggesting that typically, Macau primary students "sometimes" (rather than "often" or "never") deployed the self-directed learning strategies included in the questionnaire. The more popular self-directed learning strategies, including finding a quiet location to study, strategic help seeking and revising after the test, were often employed by more than one-third of the Macau primary students. In contrast, as many as one in three students reported that they never deployed such self-directed learning strategies as taking notes, setting a timetable for study, and self-questioning. These results are presented in Table 5.

Comparison between Hong Kong and Macau Students on Deployment Scale
The three most often deployed (highest mean ratings) self-directed learning strategies for both Hong Kong and Macau primary students were the same (I ask for help in difficulties, I choose quiet environments, and I revise after tests). The three least often deployed (lowest mean ratings) self-directed learning strategies by Hong Kong and Macau primary students reflected agreement on two items (I take notes in class and I take notes while reading). Hong Kong primary students identified "I reflect on applications" as a strategy never deployed by 29% of the students. Macau primary students identified "I ask myself questions" as never deployed by 31% of the students. Hong Kong and Macau students were very similar in their deployment of

individual self-directed learning strategies, as shown in Table 5 and depicted in Figure 3. Most of the strategies averaged around the "sometimes" deployed category (coded as 2).

Figure 3. Comparison between Hong Kong and Macau Students on *Deployment Scale*

A three-way Analysis of Variance (ANOVA) was undertaken to examine the differences between year levels, gender and locations in primary students' deployment of self-directed learning strategies. The means and standard deviations by level, gender, and location are presented in Table 6. The dependent variable was the *Deployment Scale* scores. The ANOVA results are presented in Table 7.

Table 6. Deployment of Self-Directed Learning Strategies: Means and Standard Deviations by Level, Gender and Location

| | Gender | Level | Deployment | | |
			Mean	S.D.	N
Hong Kong	Male	Year 3	1.93	0.39	283
		Year 5	2.01	0.35	295
	Female	Year 3	2.11	0.38	284
		Year 5	2.16	0.34	322
Macau	Male	Year 3	2.00	0.43	393
		Year 5	1.93	0.36	458
	Female	Year 3	2.14	0.38	294
		Year 5	2.09	0.32	316

Table 7. Deployment of Self-Directed Learning Strategies: Analysis of Variance Results

Source of Variance	F	df	Sig	Partial Eta Squared
Location	0.93	1	.336	.000
Gender	119.56	1	.000	.043
Level	0.06	1	.808	.000
Location – Gender	0.14	1	.711	.000
Location – Level	15.96	1	.000	.006
Gender – Level	0.05	1	.825	.000
Location – Gender – Level	0.77	1	.380	.000

Note: Model R Squared = .052 (Adjusted R Squared = .049)

It can be seen from Table 7 that there was no significant interaction effect except for the location by level interaction (F = 15.96, p<0.001, Partial Eta Squared = 0.006). The interaction effect means that whereas Hong Kong Primary-5 students deployed more self-directed learning strategies than Primary-3 students, the situation was reversed for Macau students. Macau Primary-5 students reported less deployment than did the Primary-3 students in Macau. Ignoring year-level of students, however, there was no difference between locations. The non-significant location effect means that Hong Kong and Macau students had similar deployment of self-directed learning strategies. Further, when students were pooled across locations, there was no difference between Primary-3 and Primary-5 students, as indicated by the non-significant difference across year levels. On the other hand, females of both year levels in Hong Kong and Macau reported significantly more deployment than did their male counterparts.

DISCUSSION

This study explored similarities and differences in self-directed learning between Hong Kong and Macau primary students. Hong Kong and Macau have strong links geographically, politically, economically, historically, in terms of ethnicity and the use of Cantonese as the main language (dialect) used at home. Both locations had been colonies of strong European countries for over one hundred years, and interface between China and the western world. Both recently experienced decolonisation and became Special Administrative Regions of China. In recent years, Hong Kong had strong influences on the educational practices and curriculum of Macau primary schooling but the influence was never one-way. In the early colonial years, many ideas and models of the Hong Kong education system were borrowed from Macau (Adamson & Li, 2004). From this perspective, Macau and Hong Kong might be expected to have more similarities than differences. On the other hand, the Hong Kong government uses an aggressive approach in their education reform as compared to the more progressive approach to education reform used by the Macau government.

It was found in this study that primary students from Hong Kong and Macau the had similar perceptions regarding the usefulness of self-directed learning strategies. Hong Kong and Macau primary students could not be differentiated in terms of their deployment of self-directed learning strategies either. On the other hand, female students perceived more usefulness in the

strategies and reported more deployment of the strategies than did male students in both locations, even after year level and location were statistically controlled.

Two differences between the two locations were observed in this city. The most obvious difference between the two locations was that Primary-5 students in Hong Kong deployed self-directed learning strategies more often than did their Primary-3 peers but in Macau, Primary-5 students reported less deployment of self-directed learning strategies than did Primary-3 students. Taking into account the decrease in perceived usefulness of self-directed learning strategies of an average student as they progressed to senior primary levels, the decrease in deployment from Primary-3 to Primary-5 of Macau students is expected. The unexpected upward trend in deployment of Hong Kong students from Primary-3 to Primary-5 might be attributed to the emphasis of Hong Kong teachers on self-directed learning as a result of the recent education reform. Since the reform, there have been many changes in teaching and learning at primary schools, including an increase in the use of project learning, inquiry learning, service learning, visits to museums, and learning through experiments and exploration. For logistical reasons, these inquiry-based learning activities are easier to be implemented at senior than at junior primary levels. Given the cross-sectional (versus longitudinal) nature of the study design, the explanation can only be speculative and tentative. Nevertheless, in a parallel study on the Hong Kong sample only, Primary-5 students were found to be more conversant with the sources of knowledge other than school learning than were Primary-3 students (Mok, Ma, Liu, & So., 2005).

The second difference between Hong Kong and Macau concerns the female students. Whereas female students in Macau decreased in their perceived usefulness of self-directed learning strategies from Primary-3 to Primary-5 in line with the male students of both locations, Hong Kong Primary-5 female students maintained the same level of perceived usefulness as their Primary-3 counterparts. The authors could not think of any explanation for this observation of Hong Kong female students except that perhaps teaching at Primary-5 in Hong Kong had been so successful that counter the trend of increasing negativity observed in other studies of children's attitudes as they grew up (e.g. Moore, Chan L., Lai, Mok, Au, Lee, Chan P., Wai, & Law, 2002).

Other than the above differences, Hong Kong and Macau primary students are very similar – which is not surprising, given the similar cultural backgrounds shared by the two locations. It is clear from this study that while both Hong Kong and Macau primary students considered the list of ten strategies to be useful or very useful to their self-directed learning, strategies external to the learner had more appeal than reflective strategies. External strategies here refer to choosing quiet study environment and strategic help-seeking. These external strategies were considered more useful by primary students of both locations than were reflective strategies such as reflecting upon the application of what was learned, self-questioning, and note-taking during reading or in class. This result may be because it is easier for students at the level of maturity at primary levels to relate to concrete and external resources than to abstract and reflective strategies. If this is the case, then the study has implications for Hong Kong and Macau schools because education reforms in both systems place strong emphases on the development of reflectivity in children. Further research has to be undertaken to inform

policymaking with regard to the alignment between students' mental capacity and reform strategies.

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Professor Magdalena Mo Ching Mok is a Professor and Director, Centre for Assessment Research and Development at The Hong Kong Institute of Education. (mmcmok@ied.edu.hk)

Dr. Shing On Leung is an Associate Professor of Education, University of Macau. (soleung@umac.mo)

Professor Peter Wen-jing Shan is a Professor of Education, University of Macau. (wjshan@umac.mo)

MEDICAL STUDENTS' PERCEPTIONS OF SELECTED INSTRUCTIONAL METHODS

EunMi Park, Chris Candler and Samuel Durso

ABSTRACT

Multiple studies in higher education indicate that student engagement and active learning are essential aspects of successful learning outcomes and institutional success. The Liaison Committee on Medical Education, the accrediting authority for medical education programs, urges medical schools to adopt an instructional mode for students that promotes self-directed, independent study to enhance student-initiated active learning outcomes. Trends in active learning instructional modes in medical education also include problem-based learning (PBL) and team-based learning (TBL). The present study reviews medical student perceptions of the effectiveness of a variety of instructional modes and their preference for the degree of future use of each in the medical education curriculum. The data reveal that first- and second-year medical students believe self-study to be, and value it as, the most effective instructional method for their stages of learning and that they desire an increase in the use of this mode.

Multiple studies of higher education indicate that student engagement and active learning are essential aspects of successful learning outcomes and institutional success (Astin, 1991; Johnson, Johnson, & Smith, 2000; Kuh, 2001; McKeachie, Pintrich, Lin, & Smith, 1986; Pascarella & Terenzini, 1991; Pike, 1993). Many higher education institutions have incorporated and fostered the findings of such studies into their educational settings (Astin, 1991; Educational Commission of the States, 1995). Some accrediting agencies recognize the importance of these educational goals and urge institutions to develop systematic educational program objectives and assessments.

The liaison committee on medical education (LCME) is the nationally recognized accrediting authority for medical education programs leading to the MD degree. According to the LCME (2003), "the medical faculty must design a curriculum that provides a general professional education, and fosters in students the ability to learn through self-directed, independent study throughout their professional lives" (p.11). The explanatory annotation states, "the LCME urges schools to develop a system of evaluation that fosters self-initiated learning by students and disapproves of the use of frequent tests which condition students to memorize details for short-term retention only" (p.14).

PROBLEM STATEMENT

Medical school educators and administrators have implemented various instructional modes to go beyond the traditional instructional mode of lecture and foster active learning. Such endeavors include self-study, problem-based learning (PBL) (Kinkade, 2005), and team-based learning (TBL) (Haidet, O'Malley, & Richards, 2002; Michaelsen, 1983). Many educators and administrators in medical education who use these instructional methods hope to motivate their learners positively and to encourage them to engage in active learning behaviors. Education studies demonstrate that when adult learners are motivated, they are more likely to engage in an active learning process and to achieve an enhanced learning outcome (Wlodkowski, 1999).

They are also more likely to have positive perceptions of such instructional models (Berg, 2005), as learner satisfaction results from perceived positive value. According to Keller (1983), satisfaction is one of the key elements of his motivated instructional design model and it is perceived to arise from the three motivations to learn such as intrinsic reinforcement, extrinsic reward, and the equity of instruction (Keller, 1983; Small, 2000). Learners' perceptions can reflect their beliefs and may shape their attitudes and behaviors (Fishbein & Arjen, 1975). The study of personal perceptions is a valuable approach to understanding students' assessments of the effectiveness of instructional designs; knowing how learners interpret and perceive their learning environment is useful information when attempting to understand instructional effectiveness. The insights gained in the current study will provide a useful indicator for medical educators and administrators who must navigate their current curricular implementation activities.

PURPOSE

The purpose of this study was to explore medical students' perceptions of the effectiveness of current instructional methods implemented to stimulate their active learning in a medical education community.

OPERATIONAL DEFINITIONS

Problem Based Learning (PBL) Instructional Mode

Although it is one of the most significant instructional methods for curriculum design in professional education (Boud & Feletti, 1991), there is no universal definition of PBL (Maudsley, 1999). However, PBL generally connotes an instructional strategy (Spencer & Jordan, 1999) or an educational method and curricular philosophy (Maudsley, 1999) by which student learning activities are aimed at problem understanding, instead of employing instructors' educational activities to transmit knowledge to students.

According to Kinkade (2005), PBL is a curriculum of carefully selected and designed problems that demand from the learner acquisition of critical knowledge, problem-solving proficiency, self-directed learning strategies, and team-participation skills. Students work in small groups, generate hypotheses about the case and learning objectives, work outside of class to fill these deficiencies, and then reconvene to teach each other and solve the problem.

The present study defines PBL as an instructional mode in which one or more facilitators foster student-oriented interactions to use critical thinking, typically in a smaller sized-group, to identify possible explanations of applicable concepts, principles, and reasoning in an integrated relationship to the specific problems the facilitator prepared prior to the session. It avoids instructor-oriented knowledge transmission without student interaction. PBL facilitators in many medical schools, like the present study school, present clinical cases through multimedia and PBL sessions and include students' self-establishment of activities for further learning objectives.

Team-based learning (TBL) Instructional Mode

Although TBL, also called Team Learning (TL), has increased as a novel instructional method for curriculum design in professional education (Michaelsen, 1983, 2004; Searle, Haidet, Kelly, Schneider, Seidel & Richards, 2003), there is no universally accepted definition of TBL (Haidet, et al., 2002; Searle, et al., 2003). Educators in some medical education institutions select the narrow definition that TBL is a single teacher-directed instructional method for a larger-sized class incorporating small-group activities in a classroom teaching setting (Haidet, et al., 2002; Searle, et al., 2003) based upon Michaelsen's model (Michaelson,1983; Michaelson, Knight, & Fink, 2004). The format is implemented in three or four major phases: an individual readiness assurance test (IRAT), a small-group readiness assurance test (GRAT), whole-group application questions, and/or an appeal. Immediate feedback is provided by the instructor for questions that are repeated for the IRAT and GRAT, or extended application questions. The instructor prepares questions for each phase prior to the class for the represented target concept and principle areas (Haidet, et al., 2002; Michaelsen, 1983, 2004; Searle, et al., 2003).

The present study defines TBL as an instructional mode utilizing the format of IRAT, GRAT, and application question phases in a classroom for a relatively larger group. This instructional design emphasizes "constructive controversy" (Johnson, Johnson, & Smith, 2000):

> An instructional procedure that combines cooperative learning (in which students work together in small groups to develop a report on an assigned topic, for example) with structured intellectual conflict (in which students argue the pro and con positions on an issue in order to stimulate problem-solving and reasoned judgment). (p.30)

In order to produce each small group's answer in the GRAT and application phases, the assigned small group members need to develop a group consensus, after intra- and inter-team "constructive controversy" among group members.

METHODOLOGY

The case medical school was a public institution located in the southwestern United States. The study subject population included first- and second-year medical students who had received the basic science curriculum in more traditional classroom lecture modes prior to their third- and fourth-year clinical practicum courses. Three hundred medical students were identified as the target population. Two hundred and seventy-eight medical students were studied (a 93% sample of the target population).

Sample

The case sample consisted of 150 men (54%) and 128 women (46%). The average age was 22 years with a range of 18 to 42 years. Six percent were under 21 years old or older than 32 years old. The medical college admission test (MCAT) average score was 9.4; and the self-reported racial composition consisted of 197 white (71%) and 81 non-white (29%). Currently, the

Association of American Medical Colleges (AAMC) reports a profile of U.S. medical schools (academic years 02/03 and 03/04) as 18,196 men (52%) and 16,939 women (48%); with an average age of 22 years (approximately 6% of under 21 years old and older than 32 years old); an MCAT score averaging 9.1; and a racial composition of 23,189 (66%) white and 11,946 (34%) non-white (AAMC, 2005). The case school represented the national average age group, but enrolled slightly higher numbers of whites (5%+), men (2%+), and those with higher MCAT scores (0.3+). Despite this small variance from the norm, the case school has been rated overall as a mid-ranked medical school among 125 medical schools in the U.S., from either the research or primary care perspective (*U.S. News*, 2005).

During the academic years of 2002/3-2003/4, the case school conducted 14 PBL sessions (approximately 12% of formal instruction) for gross anatomy, embryology, human behavior, physiology, neuroscience, and biostatistics and epidemiology courses. During the same period, the case school administered 30 TBL sessions (approximately 17% of formal instruction) for gross anatomy, embryology, biochemistry, pharmacology, neuroscience, physiology, introduction to human illness, human behavior, biostatistics and epidemiology, and integrated medical problem solving courses (OUCOM, 2003; OUCOM, 2004). All faculty who adopted these instructional modes participated in institutional or national training programs in PBL or TBL prior to undertaking their roles as PBL or TBL instructors and facilitators. According to a recent national survey (Kinkade, 2005), the majority of medical schools (70%, 86 of 123 responses) currently use PBL in the pre-clinical years, often called the basic science curriculum years. The case school belongs to this majority group. Of schools using PBL, 45% used it for less than 10% of their formal teaching, while 6% used it for more than half of their formal teaching. Regarding TBL, a recent national survey (Searle et al., 2003) reports ten institutions in the U.S. implemented the instructional mode either called team learning or TBL. The case school was one of the reported schools. Based upon these considerations it was decided that the case school is well suited for the present study, because (a) it offers a balanced number of TBL and PBL sessions within the formal basic science curriculum as well as some self-study formats by individual instructors, and (b) it is a mid-ranked school which does not fall in either extreme of learner performance.

Survey

The study utilized the Active Learning Opinion Survey (ALOS), which was developed by the 20 members of the curriculum committee representing the basic science instructional faculty groups in the case school. They first proposed a pool of 28 items that were then evaluated under standards of content, comprehension, and usability as recommended by Groves et al. (2004). In its final form, the ALOS includes five items that elicit categorical responses on a five-choice Likert-type scale, five that elicit categorical responses on a three-choice Likert-type scale, and one open ended request for additional narrative comments regarding the respondent's experience with PBL and/or TBL. The Likert-type items related to (a) class attendance, (b) effectiveness of instructional methods, and (c) preference for future instructional methods. The total of eleven items of the ALOS were selected for inclusion in the survey because they had more than 90% agreement from 28 pooled questions that were suggested and rated during the survey development process. The five-choice Likert-type items range from "strongly disagree" to "strongly agree" (internal consistency reliability Cronbach's Alpha coefficient 0.68 and

inter-rater reliability Cronbach's Kappa coefficient 0.69); and the three-choice Likert-type items offered the responses "decrease," "no change," or "increase" (internal consistency Cronbach's Alpha coefficient 0.76 and inter-rater reliability Kappa coefficient 0.73).

Procedures

In the two academic years of 2002/3 and 2003/4, 300 medical students were admitted at the case school. In the spring of 2004, 288 first- and second-year medical students were identified for the study and available subjects were asked to respond to the ALOS through the office of educational development support with support from the dean's office and collaboration from the course directors. Data were collected primarily through the paper form of the survey distributed by course instructors. There was an e-mail follow-up to the initial data gathering effort. Two hundred seventy-eight (278) completed surveys were collected for the study (93% response rate defined as completion rate or 97% response rate defined as participation rate).

MAJOR FINDINGS

Class Attendance

The majority of medical students for this study agreed that they usually attend class. Table 1 provides detailed data.

Table 1. Usual Class Attendance

"I usually attend class."	Responses Ranges					Median
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
MS1 (n=143)	7.0%	12.6%	8.4%	25.9%	46.2%	Agree
MS2 (n=135)	27.4%	11.1%	11.9%	17.8%	31.9%	Neutral
Total (N=278)	16.9%	11.9%	10.1%	21.9%	39.2%	Agree

Note. MS1 is the first-year medical students group. MS2 is the second-year medical students group.

Perceived Effectiveness of Instructional Method

Regarding effectiveness of instructional method, there were two major study findings. The percentages of respondents either agreeing or strongly agreeing that the instructional methods were effective are: self-study (84.4%), lecture (62.3%), Problem Based-Learning (57.5%), and Team Based-Learning (32.7%). Table 2 presents the results in detailed response ranges.

Preferences of Method for Future Instruction

When asked for their preferences to decrease, increase, or not change the amount of curricular time devoted to each method, the most frequently expressed desires were: to increase the use of self-study (51.6%), to decrease team based-learning (58.9%), and to make no change in current use of lecture (60.0%) or Problem Based-Learning mode (40.7%). Table 3 presents the results in detail.

Table 2. Perceived Effectiveness of Instructional Methods

"I consider lectures an effective way to learn."	Lecture Response Ranges					*Median*
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
MS1 (n=144)	1.4%	11.1%	19.4%	42.4%	25.7%	Agree
MS2 (n=134)	6.7%	12.7%	24.6%	36.6%	19.4%	Agree
Total (N=278)	4.0%	11.9%	21.9%	39.6%	22.7%	Agree
"I consider TBL an effective way to learn."	TBL Response Ranges					*Median*
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
MS1 (n=144)	5.6%	36.1%	32.6%	17.4%	8.3%	Neutral
MS2 (n=134)	7.5%	27.6%	24.6%	26.9%	13.4%	Neutral
Total (N= 278)	6.5%	32.0%	28.8%	21.9%	10.8%	Neutral
"I consider PBL an effective way to learn."	PBL Response Ranges					*Median*
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
MS1 (n=144)	2.1%	6.9%	27.1%	47.2%	16.7%	Agree
MS2 (n=134)	10.4%	14.9%	23.9%	34.3%	16.4%	Agree
Total (N=278)	6.1%	10.8%	25.5%	41.0%	16.5%	Agree
"I consider self-study an effective way to learn."	Self-Study Response Ranges					*Median*
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
MS1 (n=144)	.0%	2.1%	10.5%	41.3%	46.2%	Agree
MS2 (n=134)	2.3%	2.3%	14.3%	37.6%	43.6%	Agree
Total (N=278)	1.1%	2.2%	12.3%	39.5%	44.9%	Agree

Regarding further consideration of other instructional methods for the future, a small number of subjects (*n*=36) responded. In addition about 30% of respondents (*n*=85) responded to the request for open-ended comments, 24 of the first-year medical students and 61 of the second-year medical students. Samples of responses are presented below.

Sample Comments Provided by First-year Medical Students
- PBLs are really helpful. I like learning in a small group with a professor. The concepts that we have covered in PBLs are very clear to me and may not have been so clear had we not done a PBL.
- I like the PBL mode just because it relates to clinic and forces us to look stuff up. The class time for TBLs should be decreased; haven't got much out of that.
- Make PBLs more effective. PBLs can be good if the facilitator is knowledgeable. TBLs are worthless.
- I like how it [PBL/TBL] makes information we've learned in class more clinically relevant. It is, however, a big investment of time for relatively low yield of information. Therefore, an occasional PBL/TBL is nice, but you wouldn't want too many. The most key (*sic*) aspect of a successful PBL/TBL is having a good moderator, especially someone with a good sense of humor and who is well-liked and who knows their stuff.
- PBL was fun ☺ TBL was not fun ☹
- TBLs are usually a waste of time. TBLs too often degenerate into mind games from those that write the questions or debates on unimportant details. They are an inefficient

use of time for the return. The small, and more importantly, separate groups of a PBL session can get a lot more discussion and learning in.
- I felt PBL helped a lot in integrating the material and was effective in my learning. TBL was just useless quizzes that were a burden.
- I found that the PBL/TBLs are a good way to learn, but it still doesn't feel like a 'real' experience which would probably be the most effective way to learn.

Table 3. Preference of Future Instructional Methods over the Course of an Academic Year

Lecture		Lecture Response Ranges			*Mode*
		Decrease	No Change	Increase	
	MS1 (*n*=142)	31.7%	65.5%	2.8%	No Change
	MS2 (*n*=133)	23.3%	54.1%	22.6%	No Change
	Total (*N*=275)	27.6%	60.0%	12.4%	No Change
TBL		TBL Response Ranges			*Mode*
		Decrease	No Change	Increase	
	MS1 (*n*=143)	45.5%	42.0%	12.6%	Decrease
	MS2 (*n*=132)	73.5%	23.5%	3.0%	Decrease
	Total (*N*=275)	58.9%	33.1%	8.0%	Decrease
PBL		PBL Response Ranges			*Mode*
		Decrease	No Change	Increase	
	MS1 (*n*=142)	26.1%	41.5%	32.4%	No Change
	MS2 (*n*=131)	34.4%	39.7%	26.0%	No Change
	Total (*N*=273)	30.0%	40.7%	29.3%	No Change
Self-study		Self-Study Response Ranges			*Mode*
		Decrease	No Change	Increase	
	MS1 (*n*=143)	1.4%	46.7%	51.7%	Increase
	MS2 (*n*=132)	5.3%	43.2%	51.5%	Increase
	Total (*N*=275)	3.3%	45.1%	51.6%	Increase
Other		Ranges for Other Consideration			*Mode*
		Decrease	No Change	Increase	
	MS1 (*n*=20)	3	10	7	No Change
	MS2 (*n*=16)	2	6	8	Increase
	Total (*N*=36)	5	16	15	No Change

Sample Comments Provided by Second-year Medical Students
- TBLs should NOT affect your grade. Also, there should be much fewer (*sic*) TBLs. Studying (cramming) for a TBL every week or two disrupts our study habits & is very inefficient.
- I do NOT learn well with a quiz almost every week that has questions in it that just make us argue.
- PBLs 1st year were much better & much more beneficial than those of 2nd year.
- TBLs are stressful and take away valuable study time!
- Good class, but I've missed good lectures.
- Waste of time! I felt like people learn in different ways and TBLs forced people out of their niche.

- TBLs are effective; however, when we have several quizzes a week over the course of several weeks, it gets to be a major hassle.
- They are a waste of time and NOT an effective learning style. They force you to cram material in your head that you never really learn, so when the test comes around you are way behind.
- TBL screws up my study schedule & makes what study I do less effective. Workshops are okay because you can get as much out of them as you want.
- The thing that increases my learning in TBLs is the prep I do on my own beforehand. Rather than calling them "TBLs," a more appropriate name would be "quiz." PBLs seem to be more of a way to waste time than anything. I would appreciate less instruction in Neuroscience and more instruction in Phys.
- Don't make students attend mandatory classes. We're BIG kids. If we made it this far, we probably know how we learn the best.

CONCLUSIONS

The main conclusion drawn from the study data is that first- and second-year medical students value self-study and believe that it is the most effective instructional method for their stage of learning. They expressed preference for an increase in the use of this mode.

Prior to the study, the faculty leaders at the case medical school hypothesized that medical students would prefer active learning instructional modes in medical education, such as PBL and TBL, and that they would not prefer a passive learning mode, such as lecture. However, the present study did not find this. Most students appreciated the lecture mode with over 72% indicating they would like the same amount or more lectures and 70% indicating the same or amount more PBL, in the future. Meanwhile, nearly 59% expressed a desire for less TBL. Nearly 97% indicated a preference for the same amount or an increase in self-study opportunities.

Faculty leaders at the case school discussed the study findings during two curriculum committee meetings. Upon review, a large number of faculty leaders interpreted the study findings as indicating medical students' preferences for decreased TBL and increased self-study represented a desire to minimize teachers' assignments and required school activities in order to have more private time to prepare for the national license examination. The national license examination may be a very strong extrinsic motivational factor to medical students that might influence their response toward a higher self-study preference rate.

However, these findings may not simply reflect a preference for active over passive learning as demonstrated by the preference for PBL over TBL while the preference for lecture remains the same. The students' responses may also reflect their perception of the relative marginal benefit that each of the offered instructional modes confers toward helping them meet their major learning goals, including the extrinsic goal of passing the national license examination. Furthermore, PBL may be intrinsically enjoyable, while TBL may not be, as reflected by their preference that the latter be decreased. The reasons for these perceptions and learning experiences remain to be explored, perhaps through follow-up interviews seeking expansion of the sample comments noted above and others that contributed to these findings.

Faculty should consider these findings when designing future curricula. Although some faculty are concerned that it may not be cost-effective in terms of the faculty effort and administrative cost needed to prepare for one PBL module, students did not want to decrease PBL sessions. Many faculty members at the case school agreed that the students seemed to enjoy the PBL sessions. Furthermore, as indicated by the survey results, the TBL instructional mode, which the faculty viewed as very cost effective to implement, seemed produce great resistance by medical students. Although the case school faculty had considered increasing this mode, students preferred to decrease it. Finally, most students preferred to increase self-study, while some faculty indicated, as noted above, a concern that students' self-study time may be used for rote memorization of information they anticipate will be needed for the national license examination rather than to promote intellectual inquiry. The reasons for this apparent conflict of views between students and faculty regarding the value and use of self-study time should be examined. Perhaps this could be accomplished through a qualitative model eliciting both student and faculty views on the need to balance preparation for the national license examination and the desire to acquire broader and deeper medical knowledge. For example, students and faculty could engage in separate discussion sessions designed to elicit their views on these issues. With this information in hand, the two constituencies could be brought together for a joint session for the purpose of attempting to achieve consensus on ways of balancing these two important but competing uses of student time.

Further studies should explore why students prefer to decrease TBL and seem resistant to this particular instructional mode. The authors' conjecture is that medical students might feel an imbalance between the amount of effort spent in preparation for the study topic during the pre-test phase and the information required to perform satisfactorily on the in-classroom tests. It is worth noting that in addition to the time spent in class, TBL requires significant pre-class preparation for a study topic that is tested in the IRAT, GRAT, and application phases. Students might feel that this degree of pre-class and in-class effort is not balanced by rewards from achieving satisfactory test scores for a limited number of topic questions. Second, medical students might not value the process of negotiation as an activity, finding the process of reaching group consensus to be tedious. Similarly, some students who reach correct answers independently during the initial phase of individual testing might feel disadvantaged by group members who arrive at incorrect answers during the GRAT phase. This may produce a negative rather than positive learning experience. Third, medical students might feel an imbalance between the amount of effort expended to complete the TBL tests and the incremental gain in long-term retention and recall of the tested knowledge. For instance, students might feel that the time spent during multiple classes to cover a few TBL topic questions would be better spent in self-study which in their experience achieves the same or better long-term retention and recall of valued knowledge. These conjectures are suggested as hypotheses for further studies.

Additional recommended further studies include exploring how teachers and learners understand the definition of self-study. Self-study might include no-class-participation learning; learners' self-determined-learning projects (either solo or group); or pure single learner's independent activities without peer group and with or without teacher's involvement. Since this study did not define self-study, and therefore did not limit the meaning of self-study for the respondents, it may be helpful to explore how teachers and learners perceive the concept of

self-study when choosing their instructional modes and learning modes during a particular course. A study using factorial design is recommended to further explore the relationships among instructional mode preferences and decided outcome factor as the sample data for each factor grows.

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EunMi Park is an Assistant Professor of Medicine and Associate Director of Geriatric Medical Education at The Johns Hopkins University School of Medicine. Dr. Park's research interests are adult learner autonomy and adult learner orientation assessment. Currently, she leads interdisciplinary medical education programs.   (epark12@jhmi.edu)

Chris Candler is the editor of The MedEdPORTAL of the Association of American Medical Colleges. Dr. Candler has worked in educational technology in medicine and served to promote nationwide collaborations and educational scholarship particularly for medical educators. (ccandler@aamc.org)

Samuel C. Durso is Associate Professor of Medicine and Clinical Director and Director of Education at The Johns Hopkins University School of Medicine. Dr. Durso is the author of Teaching Ambulatory Medicine and is column editor for the section Teaching in the Community, Advanced Studies in Medicine. (sdurso@jhmi.edu)

FROM SPOON-FED TO STUDENT-LED: FOSTERING AN ATMOSPHERE FOR WEB-BASED TRANSFORMATIONAL LEARNING

Naomi Boyer and Patricia Maher

ABSTRACT

The purpose of this study was to identify specific examples of transformative learning that occurred as a result of participation in a web-based course model framed around a process of social self-direction. This phenomenological research study involved the use of narrative analysis to examine the reflective comments of graduate students in an educational leadership course. The results indicated several examples of transformative learning that emerged from the atmosphere created by the unique aspects of this course model. Further, the role of the instructor/facilitator surfaced as a critical environmental factor in the fostering of transformational learning.

A course model has been developed to facilitate collaboration and self-direction in web-based environments to respond to the plaguing issues of isolation, level of engagement, and student attrition rates. The assessment and refinement of each iteration of the course model have formed the basis for this global design-based research model. The course model, found in a previous publication (Boyer & Kelly, 2005) provides an overview of the interaction of the learning environment components. Input characteristics include the personal qualities that learners bring with them to any learning situation such as self-directed readiness, content knowledge, previous technology experience, learning preferences, and personal interests. At the hub of the model is metacognition, which requires learners to reflect upon their own, unique personal tendencies as learners. Using Johnston's Interactive Learning Model (1996), the learners apply this knowledge and understanding of metacognitive processing to enhance both individual and group learning effectiveness.

The process portion of the model attempts to capture the learning environment and instructional design. Working both individually and collaboratively, students interact with materials, frameworks, continuous feedback, synchronous and asynchronous communication, and learning tasks in order to accomplish their self-established goals for the course. Aspects that serve as measurable evidence of output include the resulting products and skills, course completion rates, course evaluations, group cohesiveness, and external means of learning verification.

Given the systems design of the model and the extensive data collection techniques, the instruments and protocols are best described in the following equation: *Input + Process + Output = Outcomes (I+P+O = Oc)*. This model is not intended to minimize the interdependence of the components that must be accounted for during data analysis. Each portion of the model *(I+P+O=Oc)* symbolizes mediating characteristics or events that must be considered individually before looking at holistic relationships. This model has been applied in the design of a web-based learning system that incorporates proven techniques from the field of adult education such as choice, active learning, learning style awareness, engagement, self-direction, collaboration, and mutual respect. This online instructional design does not

homogenize learning; rather the process encourages personal and social growth inclusive of individuality and collective action.

At the conclusion of each semester, evidence of student *content* learning related to the course objectives was clearly apparent in the final projects. However, over time, a pattern of re-occurring comments, both verbal and written, from the participants suggested that some type of transformation (Mezirow, 1991) about the process of teaching and learning was occurring. This elusive aspect of the social, self-directed learning model is represented as learning *outcomes,* a dimension beyond output of new skills and completed tasks. This fourth dimension represents the holistic changes many learners have described resulting from participation in this learning process. Each semester the learner/participants' comments and reflections have indicated that many individuals seemed to have been transformed by the learning experience itself. This apparent change included not only personal, intuitive, and cognitive shifts that occurred, but also the influence and impact on those not directly involved in the learning experience.

Although transformative learning was not considered to be one of the primary learning goals of the course itself, it became increasingly evident as an important outcome reported by the students as a consequence of their experience in the course format. As a result, modifications were made in the reflection procedures of the course in order to identify elements of transformative learning. Therefore, the following research question served as the overall purpose of this research phase: What examples of transformative learning can be identified from the students' reflective comments generated through participation in this unique web-based course model framed around a system of social self-direction?

Theoretical Framework

Theoretical support for social learning techniques in formalized education stems from the work of Vygotsky, whose theories directly address the cultural, environmental and interactive elements of cognitive development (Vygotsky, 1978). In this theoretical framework, learning is contextual, tied to cultural identity, and mediated through symbols, resources and strategies which interact with the culture, context and community (Alfred, 2002). Distinct from the individualistic emphasis of behaviorism, the individual's cognition and learning needs are embedded within socially recognized events and interactions. Learning activities, in this environment, become meaningful and relevant as content flows from authentic situations.

The socio-cultural theory base has provided the underpinnings for the development of socio-constructivism and socio-cognition theories. "From the socio-cognitive perspective, ideas about reality are constructed through interactions that are processes of meaning creation" (Stein, 1997). Similar to the constructionist view that individuals are meaning makers, socio-culturalism and socio-cognition are both perspectives that examine engagement and support as critical to the learning process (Billet, 1997). Socio-cognition is the use of problem solving and evaluation, information sorting, distributing and linking that builds knowledge structures by interaction and shared experience (Davidson, 2002). In essence, the transformational elements of social, self-directed learning include: meaning making and interpretation, cognitive

processes and information flow, and the importance of social, contextual, and cultural environment in learning.

Adult learning theories of self-direction and andragogy establish the boundaries for exploration of these theories in the context of adult learning. Thus outlined, the socio-cultural emphasis is minimized without considering the learning process of the proposed research population. Self-directed learning has been defined as, "…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" (Knowles, 1975, p. 18). The adult learning concept of andragogy includes key components of: interaction, task centeredness, individualization and self-directedness (Knowles, 1986). These components are applicable to transformative adult learning regardless of the learning setting or instructional delivery method (Lane, 1997).

The placement of metacognition, or the unique individuality of the learner, at the core of the model represents the importance of a learner-centered approach. The facilitation of metacognitive awareness is accomplished through the implementation of Johnston's Interactive Learning Model or ILM (Johnston, 1996), which uses the Learning Connections Inventory or LCI (Johnston & Dainton, 2003) to establish each learner's individual learning profile. The theoretical basis of the ILM emphasizes the interaction of all three mental processes: cognition, conation, and affectation. Further, these mental processes are embedded into four distinct yet interactive learning patterns, identified by Johnston as Sequential (structure and organization), Precise (accuracy and details), Technical (independence and problem solving) and Confluent (intuition and risk-taking). Using the results of the LCI, each learner is able to identify a profile of the natural power of each of these four patterns, which is then applied as a means to enhance both individual and group effectiveness.

For the purpose of this study, transformative learning is defined primarily on the basis of Mezirow's (1997) definition of transformational learning. He describes transformational learning as the process of change in one's frame of reference through critical reflection on assumptions and beliefs, which leads to the integration of new perspectives into plans and actions. It involves a change in one's "meaning schemes" (Mezirow, 1991, p. 167), acquired in life through culture and context, which influence behavior and choices. Although meaning schemes do build, change, and evolve as individuals acquire new content knowledge and skills, Mezirow emphasizes that the process of transformational learning only occurs as a result of a "disorienting dilemma" (Mezirow, 1995, p. 50). Such dilemmas may include a specific life crisis or major life transition or may be the result of an accumulation of information or experiences over time.

For transformation to occur, individuals must make a deliberate choice to confront the conflict or dilemma. The shifting of one's vision of reality may occur gradually or by dramatic leaps of transcendence (Mezirow, 1991). Regardless of whether the dilemma is sudden or developmental, according to Mezirow, the transformational process occurs as a result of rational critical reflection as a means to reevaluate prior assumptions (Mezirow, 2000) and reflective discourse for the purpose of gaining consensual validation of newly developing perspectives.

One important criticism of Mezirow's theory is the emphasis on rationality, placing too much importance on critical reflection (Grabov, 1997). Grabov's critique flows from the field of analytical psychology and the work of Robert Boyd, suggesting that transformative learning is more intuitive and emotional. The primary difference in the theories relates to whether the emphasis is on reason and logic using the conscious ego in the process of transformation (Mezirow) or whether the emphasis is more psychosocial in nature (Boyd & Myers, 1988).

For this study, the concept of transformative learning was considered from a more multidimensional perspective as described by Wade (1998) in a concept analysis of personal transformation across several disciplines. Wade (1998) concluded that

> personal transformation is a multidimensional concept that is applicable to a variety of disciplines. Although scholars from different disciplines view the concept from their perspectives, the process of transformation is clearly not discipline specific. All disciplines view personal transformation as a non-linear process involving self-reflection and the adoption of new and broader self-definitions. As individuals expand their consciousness with each transformative experience, inter-dimensional awareness is enhanced. (p. 714)

The desire to conduct this phase of the research related to the identification of transformative learning is linked to the elusive outcomes believed to be a direct result of the learning experience. Vaguely described in past articles (Boyer, 2004a; Boyer, 2004b), outcomes are believed to be the inter-dimensional transforming effects or enhanced awareness that the student participants report at the conclusion of the learning process. It is intended that the findings and discussion presented here will help to more clearly define and emphasize the powerful nature of the outcomes portion of this instructional model. King (2002) also used a similar approach in a similar study.

RESEARCH METHODS

Population and Sample

A total of 251 participants have participated in the 14 sections of the technology integration course upon which this design-based research is based (see Table1). The sample for this particular phase was one of convenience, based upon those students enrolled in the two most recent sections of the course that were designed using the described instructional environment. In response to data from each previous semester, the course model was continuously adapted to improve the system of learning, which is noted on the "research iteration" column of the table.

The participants were all adult learners ranging in age from 25-65. Within the population of 251 participants, there were 181 female participants and 70 male participants. Most participants were educators based in K-12 settings, with roles as teachers, district office administrators, or local school administrators. There was an occasional full time student participant who was not currently working in a school. All study participants had at least two years of previous

teaching experience. A sample of 23 students enrolled in the semester selected for this research phase provides the data analyzed for this article.

Procedures

Critical reflection was an integral part of this course model since the inception. Utilizing several technological resources on the Blackboard Course website, students were both expected and encouraged to reflect on multiple aspects of their learning experience.   Each semester reflection questions were e-mailed or posted on the discussion board at specific points in the learning process. The first reflection question, emailed immediately after the initial orientation day, specifically asked students how they felt after that day-long experience, in order to capture their feelings at that stage of the course process. The next two reflections, posted on the discussion board for open interaction, were purposefully designed to be broad and open updates, serving as periodic checkpoints, and intended to identify evidence of student progress. The final reflection directly asked students to reflect back and compare their feelings from the first orientation to the final culminating meeting. This final series of questions was intended to encourage students to reevaluate their assumptions from the beginning of the course, based on their feelings at the end of the process, having successfully accomplished their goals.

Table 1. Study Population by Semester and Gender

Semester	Sections	Research Iteration	Female	Male	Total
1	1	Content Pilot-WebCT	23	6	29
2	1	Learning Contract Pilot	16	5	21
3	1	Content/LC Alignment – Reflective Documents Begin	22	5	27
4	1	Outcomes Assessment	20	2	22
5	1	Courseware to Blackboard	16	8	24
6	2	2 Simultaneous Sections- Data available On both Pre/Post Assessment	26	14	40
7	1	Weekly resources	12	5	17
8	2	2 Simultaneous Sections	18	5	23
9	2	2 Simultaneous Sections- Introduction of Content CD Rom	15	10	25
* 10	2	2 Simultaneous Sections- Synchronous Software Early rubric distribution	13	10	23
	14 Sections	Total Number of Participants	181	70	251

* Sample for this study

Data Analysis

A phenomenological narrative analysis was conducted on the transcripts of the reflection responses from the students enrolled in this research phase (n=23). Researchers were interested in comments from the students that were representative of the distinct phases of transformational learning as identified by Mezirow (1991). This included searching for evidence of disorienting dilemmas, students' intentional choice to confront the dilemma, critical reflection as a means to reevaluate prior assumptions (Mezirow, 2000) and reflective discourse for the purpose of gaining consensual validation of newly developing perspectives.

In order to strengthen the validity of the data analysis, each researcher independently reviewed the transcripts of the reflective comments and identified the emergent themes. This was followed by a collaborative discussion to compare results and reach a consensus about the issues identified and whether each was an appropriate example of an aspect of transformational learning.

FINDINGS

The analysis of student reflections revealed three distinct meta-themes that aligned closely with the elements of Mezirow's (1991) concept of transformational learning. These included evidence of several disorienting dilemmas, many comments suggesting students were intentionally confronting those dilemmas, and multiple examples of transformed awareness and perspectives. Beyond those themes directly related to the transformational learning of the students, a fourth theme was revealed that related to the importance of the instructor role in providing a supportive environment which enhanced the students' comfort and confidence to succeed. There were a total of 131 instances of statements that expressed a change, personal insight, or deviation from previous mental models.

Disorienting Dilemmas

Evidence of disorienting dilemmas was confirmed in many comments from the students as they described their feelings immediately following the day-long orientation session. In their comments they used words such as "overwhelmed," "glazed," "defeated," or "lost." Within this meta-theme, several distinct sub-themes emerged, all of which were indicators of an experience that produced discomforting feelings. Presented in Table 2, the sub-themes include feeling stressed and overwhelmed, under-prepared for the technological expectations, and a dislike of working in groups. The table provides descriptive data about the number of comments from the students categorized into the three distinct sub-themes in addition to several sample comments.

Table 2. Meta Theme One: Disorienting Dilemma

Sub-Themes	# Comments	Sample Comments
Overwhelmed	18	- *Yes I did feel overwhelmed! I learned that although I felt ready for this when I walked into the class, in the afternoon I asked myself am I truly prepared for this adventure. I still have a lot of concerns and questions. I want to do a good job with this, not just get through it. I feel scared that I will fall short of the goal of the class.* - *I was totally lost. Feelings of whether I would be able to do all the work. Feelings of whether I would be able to comprehend everything cause a sense of panic. I was totally blown away by everything that came my way.* - *As I left the class on Saturday afternoon, I felt very stressed and "glazed over." I almost felt defeated in the sense that I was thinking that I couldn't do what is expected of me to pass this course.*
Under-prepared	10	- *I have found that my experience with communicating information through technology has been extremely limited … I feel I lack the technological skills necessary to function as a school administrator.* - *I was really excited about the class because I really feel the need to enhance my technology skills, but I was feeling very lost part of the day on Saturday.* - *I definitely do feel inept at what we were doing in class.*
Discomfort with working in groups	3	- *I realized during yesterday's class that because of this I'm going to have control issues with the group work. At a couple of points I had to remove myself from being in the center of the discussions because I was getting very frustrated when it wasn't going the way I wanted it to go.* - *I was stressed, not because of the work but because of working in groups. It just reinforced how much I DETEST group work. Basically I felt frustrated.*

Conscious Decision to Confront the Dilemma

As the course progressed, students were specifically asked to respond to reflective questions about their progress and feelings at two reasonably equal intervals across the course semester. In an asynchronous discussion area, they discussed their progress toward goals, the status of their group process, and the impact of their metacognitive profile on their work, both individually and as a group. The most obvious observation made about the student responses to both sets of update questions was the absence of terms relating to stress and discomfort and the increasing number of comments that indicated progressively more favorable attitudes toward the learning process itself. Students used terms such as "enjoyment," "feels good," "excitement," "progress," or "accomplishment." The comments in this theme seemed to indicate that students were fulfilling Mezirow's next phase toward transformational learning as they appeared to be confronting their initial dilemmas. Within this overall meta-theme several distinct sub-themes were again evident. Detailed in Table 3, the sub-themes included progress toward goals or accomplished goals, effective or supportive group process, and enjoyment of the learning process.

Table 3. Meta Theme Two: Conscious Decision to Confront the Dilemma

Sub-Themes	# Comments	Sample Comments
Progress toward goals accomplished	22	*- am working on PowerPoint presentations. I did one already for my team that provided training on IDEA compliance. I am now working on one for new teachers coming from non teaching backgrounds on accommodations and modifications for special needs students.* *- have completed and presented the individual goal of presentation software for my Finance Class recently. Reviewed the guidelines and materials for the other individual goal of developing a general working knowledge of technological equipment. Will begin the Scavenger Hunt next.*
Effective/ supportive group process	14	*- I certainly have no concerns or worries about working with my group. They have been MOST helpful thus far! I'm no expert on the learning styles, but judging from the communications so far between myself and the members of my group, I can tell our learning styles are going to mesh nicely. They've both been very supportive and positive all the while!* *- Thunder [group name] has been outstanding and we're working together to assemble the technology plan.* *- We appreciate the strengths of each others learning patterns. I, personally, have learned to trust my team and to go with the flow.*
Enjoyment of the learning process	6	*- I really enjoyed learning how to use this tool!* - Learning lots! *- I like what I'm learning* *- I've learned many new and exciting things about technology in this class. I also understand I have a long way to go.*

New Awareness

The theme of new awareness represents the altered perspective and outcomes that were evident as the course experience came to a close. This new awareness reached far beyond gains in the knowledge and skills related to the intended learning outcomes in the use of technology. The sub-themes that were noted in the transcripts related to increased awareness included skill development, self-management, the process of dilemma to enjoyment, appreciation of the format, leadership and technology awareness, insights into group process, influence of others outside of the course, greater metacognition about personal and team process, and flexibility. Table 4 provides details on each of these sub-themes.

Table 4. Meta Theme Three: New Awareness

Sub-Themes	# Comments	Sample Comments
Skill development (non-transformative)	15	*- I learned so much about technology and more.* *- I was truly uninformed prior to the beginning of this course … Through this course, I have become much more aware of the technology issues faced by educators as well as the resources.*
Self-management	23	*- In this class I really learned that I must manage my time.* *- lots of personal reflections this semester. I like to joke around and all but I had no idea or had forgotten how uptight I can get if something is new.*
From discomfort to enjoyment	16	*- After the first day of class, I did feel completely overwhelmed and was not sure if I could make it through the semester since I really didn't feel like I had*

Table 4 (continued).

		any idea in which direction I was going with the self-directed design. As the semester went on, however, I felt more at ease with the format and after our group's first face-to-face meeting, things really started to fall into place. *- I remember walking out the door thinking to myself, what did I sign-up for. This was my first graduate class and I was scared to death! To be honest, this was a new concept for me, creating your own learning contract. It was a very positive experience working with [my group] and the rest of the class.*
Appreciation of format	10	*-The format ended up being very productive and I really enjoyed working with my group at the pace we had set and on objectives that we had chosen.*
Leadership and technology awareness	19	*-I now have a better understanding of the complexities of the job as an administrator when it comes to technology. I now can see the huge importance of technology in the modern school setting.*
Group Process	16	*- Usually, I don't enjoy group work (due to a lack of control of other members) but I must admit it was nice to have people to learn with, talk to, and lean on during the course.*
Influencing others	10	*- You have encouraged not only learning by us but your class has allowed us to teach and share technology with our peers that have not had the privilege of experiencing your course.* *- I have used my skills almost daily. I have shown some others a few tricks. My relationship with my [Assistant Principal] has become stronger. Some of the things I produced were very useful.*
Metacognition of personal and team process	15	*-In the beginning, my learning patterns were predominant in my mind because I came into this hating group work. But now that I understand how I work, it has helped me become more of a group person.* *- We all knew we were high on the sequential (pattern). Which turned out to work fairly well; however, we are such perfectionists that it took us longer to turn things in since we were never satisfied with the outcome. Therefore, the open format I believe hindered us in turning assignments in on time. We were more worried about the outcome than the time.*
Flexibility	7	*-I have had to give up control and compromise, which has been a very positive experience.* *- I learned to be more flexible and how to work with different learning styles.*

Skill Development

Although not a transformative learning characteristic, skill development was included as a sub-theme due to the constant integration of such comments throughout the transcripts. Almost every student mentioned the level of new knowledge that had been gained from the course content. Despite the lack of transformative value to the skill development theme, the documentation of substantial learning provides evidence that the emergence of other transformative benefits did not disrupt the basic purpose of the course.

Self-management

There were (23) comments indicating an increase in self-management abilities throughout the transcripts, which was the highest instance of any sub-theme. Many students mentioned an

awareness of increased time-management skills. Other students mentioned the confidence to "figure things out," find necessary resources, segment material for understanding, adjust to fear when taking risks, and balance time for greater productivity. This sub-theme included many behaviors that indicated a strong ability and/or greater awareness to self-direct and self-regulate for efficiency, effectiveness, and learning.

From Discomfort to Enjoyment
This sub-theme is closely related to the original disorienting dilemma theme previously identified. However, rather than describe the initial catalyst to change, this sub-theme was about the journey and ultimate destination that was initiated by the early feelings of discomfort. For instance, in Table 4 note the statements describing the meandering path of emotions as the students began to gain confidence in taking control of personal learning.

Appreciation of Format
The comments discussed in the previous section, "from discomfort to enjoyment," demonstrated not only a change in global perspective about the self-directed process but also an appreciation of the format. A number of comments (10) supported the use of the instructional design and the learning contract framework. The sample comments provided in Table 4 as well as several others indicated a growth in overall understanding of the self-directed framework and empowerment that was provided within the instructional design.

Leadership and Technology Awareness
This sub-theme relates to the students' global perspectives of the use of technology as an integral aspect of improved student learning, increased productivity, and leadership vision. This has been identified as a transformative element, as it links to attitudes and mental models rather than skill behaviors. The comments (16) expressed a new understanding of the importance of technology in the functioning of a school.

Group Process
This theme is particularly interesting since one primary concern of educators about teaching in on-line settings is the challenge of maintaining the interaction necessary in the building of a dynamic, collaborative group process. Yet, this sub-theme, found throughout the final reflection transcripts (16 comments), indicated a building of relationships that facilitated learning. There were several examples where students expressed a dislike of group work in traditional settings, but an appreciation for it as a result of this self-directed format. The comments were indicative of an altered perspective in regard to group process.

Influencing Others
Learning that impacts the self is never quite as valuable as learning that transforms the self and then transfers to others, resulting in an exponential benefit on those external to the learning experience. There were a number of reflective comments (10) identified here that indicated a transfer of knowledge from the individual student to others beyond the class members. These comments indicated not only a learning of skills, but a development of personal value for the learning and a transfer of that knowledge to real settings with real people. Learning that has been internalized at a level that can be shared with others provides a basis for transformation.

Metacognition of Personal and Team Process
The results of the LCI, the metacognitive analysis instrument administered during the initial orientation session, appeared to have enhanced the students' personal awareness in order to intentionally direct interactive behavior with others. There were 15 noted instances of comments that identified enriched group process and increased success of the learning communities.

Flexibility
Flexibility can be defined for this sub-theme as the ability to deal with ambiguity, relinquish control, and adapt to changing conditions. For many in the participant group, this was their first experience in the master's degree program. Beyond the fact that many of these students were new to graduate school, there were three major hurricanes that traveled through the area during the semester, leaving many without power, water, and computers for several days. Despite the added barriers to a successful semester, many students (7) expressed an increased ability to "go with the flow." The flexibility described by the students suggested a transformed ability to adapt to changing environmental conditions.

Supportive Environment

Although transformative learning was not an intended goal of this course curriculum, it has become apparent that the environment inherent in the course model, which was framed around ideals deeply rooted in adult education literature, also created a setting that fostered the potential for transformation to occur. Specifically in this case, the role of the instructor/facilitator was confirmed as a critical aspect in creating an atmosphere of trust, support, caring, and a sense of community.

The reflective comments of the students in this research phase confirmed such environmental factors. Their comments represented all course segments from the orientation session, through the update reflections, and in the final comments at the conclusion of the class. Over and over the students referred to a mutual atmosphere of trust and reassurance. In addition, an appreciation was mentioned for timely and effective feedback and guidance. The information in Table 5 represents a tally of all such comments, organized by the point in time during the course semester that they appeared in the reflective comments.

Table 5. Student Comments Related to the Supportive Environment of the Course Model

	Trust & Reassurance	Feedback & Guidance
Orientation	5	4
Updates	1	1
Final Reflection	4	5
Total comments	10	10

n = 23

DISCUSSION AND CONCLUSIONS

Ideas from both Mezirow (1991) and Boyd (Boyd & Myers, 1988) have provided a basis for this discussion on transformative learning. Although there are differences between the two theorists' views relating to the cognitive aspects versus the emotional, intuitive aspects of the

transformative learning process, for the purposes of this discussion attention is focused on the bridge that exists between the cognitive and affective elements of change. A change process was initiated by the disorienting dilemma or discomfort that was clearly evident at the onset of the described course (unfamiliar format, unfamiliar material, and unfamiliar delivery). While the initial reflections described a definite emotional upheaval, at the conclusion of the course the students were able to rationally reflect on the cognitive path that they forged through the learning activities. The affective, subjective elements were clearly expressed in the transcripts, using words at the onset such as "overwhelmed," "lost," or "glazed." As the process unfolded, students used words that indicated the use of cognitive, rational thinking to help clear the path ahead. Representative language included words such as "progress," "accomplishments," and "confidence."

In the case of this program, the student participants frequently referred to feelings of anxiety and discomfort at the onset of the course as they reflected upon their experiences at the conclusion of a day-long orientation program; however, as the course wrapped up, many of those initially disoriented and uncomfortable students described the process of collaborative self-planned learning as rewarding and expansive. They reported that the initial stress had been transformed into creative, productive energy that resulted in altered perceptions about learning. Exit comments even included statements requesting similar learning formats for their future courses. Some also expressed a new awareness of the self-directed learning process that will be valuable as they are inducted into school leadership ranks.

According to both Mezirow (1991) and Boyd (1988) there are several variables that contribute to whether a person will indeed undergo a perspective metamorphosis as a result of an educational experience. Transformation and transformative learning is an individual process that can be mediated by social/group interaction and collective action. However, a number of comments from students in this research phase indicated a radical departure in attitudes and knowledge models, and suggesting that environments can be created that may increase the potential for this phenomena to occur. The sub-theme of changed perspectives about group process indicated that the social emphasis of this instructional design transformed perspectives about collaborative work and team effectiveness.

The sub-theme of self-management suggests a critical transformation in personal responsibility for the learning process. Now more than ever, the ability to remain a continuous lifelong leaner is imperative for success. Learning resources and environments have rapidly expanded beyond the traditional walls of formal education and have become an integral part of organizational growth at all levels. As this process expands, Landsberger (2004) reminds us that "learners increasingly will be from different backgrounds. They will desire and require flexibility in the ways that they study, the resources they use, the sorts of activities that they do and the ways in which they interact and communicate" (p.8). In order to keep pace with such demands, lifelong learners will require the ability to access and navigate the exponentially increasing sources of information for both immediate application and as a means to continue to build new *meaning schemas*.

Although perspective transformation or transformative learning does not need to be a goal of all self-directed learning, if the environment is designed to be supportive of self-direction, the

stage is set for the entire learning experience to be broader, deeper, and more meaningful. It is noted in the themes of "discomfort to enjoyment" and "the format" that students became aware of a greater level of input and control that then altered life views. Focusing the environment on the concepts of self-direction appeared to foster the opportunity for transformative learning to occur. When perspective transformation and transformative learning occurs, learning is more profound and more rewarding. Transformative learning takes students beyond course requirements and objectives, to an internal change in *how* one learns and thinks to become empowered. The comments throughout the transcripts indicated a growing momentum, and sense of empowerment, a sense of confidence that seemed to expand exponentially within the students with each new accomplishment.

The concepts of self-direction and transformative learning appeared to intersect at the juncture of individual investment, commitment, engagement, and reflection. By no means is it suggested here that the use of social, self-directed frameworks to propel transformative learning is an easy process. Rather it can often be quite frustrating, fearful, and ambiguous for students to assume responsibility for learning plans and outcomes. At the same time, the departure from traditional learning models can create discomfort for faculty as power and control become shared. A collaborative process and increased time are necessary for facilitation of individual and group learning contracts, content design, and basic structural frameworks (instructional design).

The role of the instructor is vital to this symbiotic dance of learning. As a member of the community of learners, the instructor serves as a role model and a collaborator. Willingness to change, adapt, reflect, adjust, support, and facilitate demonstrates an openness to taking learning risks while also portraying subject matter expertise. For instance, the system of learning described in this paper has been continuously revised and adapted throughout each of the design segments. The result has been that the instructor has continued to transform her perspective on teaching and learning as a result of engaging in, assessing, and re-assessing this course model.

Until this point in this paper, little emphasis has been placed on the web-based environment. However the results reported here seem to indicate that the web-based environment for which this model was developed increased the potential for transformative learning as the students had to move into higher levels of self-responsibility, autonomy, and self-regulation. The traditional learning boundaries generally related to classroom settings, such as elements of time, space, and fear of meeting externally imposed expectations can limit transformative learning, even though the traditional concept of gaining knowledge and skills may indeed occur. In the face-to-face classroom an instructor often corrals students through what will be learned, how it will be learned, and how learning will be assessed. The shift to the online environment provides fertile ground for the possibility of social, self-directed frameworks where students assume sponsorship for learning and responsibility for outcomes. This social, self-directed web-based environment has been found to be very effective for the expansion of knowledge and the potential for transformative experiences.

It was noted early in the paper that the fourth dimension of the social, self-directed learning model has not yet been visually represented. Beyond output, outcomes include the cognitive

learning process that gives way to intuitive, rich, meaningful experiences that impact the self and others. Outcomes are deeper and substantial, but have been quite elusive to measure or define. Such long-lasting elements of learning are often ignored in educational circles and deserve further exploration. In a previous research phase, results indicated that one such outcome resulting from participation in this course model related to increased leadership abilities (Boyer, 2004b). From this phase of the research, the expected outcome of transformative learning, learning that extended beyond the traditional learning output of increased knowledge or skills, was confirmed. Further studies with larger samples and refined methods would probably confirm Mezirow's (2000) phases of transformation.

The richly expansive results represented in both the products and the attitudes of the students who have been involved in this program to date provided reinforcement that movement away from *spoon fed* and toward *student led* is the more rewarding path, for both students and facilitators. With increasing frequency, the literature supports the benefits of socially constructed, collaborative learning. These were the ideals upon which this course model was framed. After multiple iterations of this process, the reported benefits now include what appear to be increasing opportunities for transformative learning. Such results are an important addition to the literature base in the area of collaborative self-directed learning and may encourage the expansion of similar learning environments into other areas of education.

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Naomi Boyer is Director of Distance Education for the Lakeland Campus of the University of South Florida. As a faculty member and administrator, she both teaches and assists instructors with the process of building and converting courses to web-based environments. Research interests include the exploration of social, self-directed learning in online programs. nboyer@lklnd.usf.edu.

Pat Maher holds graduate degrees in learning disabilities and adult education and has over 25 years of experience in education, both as a practitioner and administrator. She is presently the Director of the L.E.A.R.N. Program at the University of South Florida, Tampa. Her research interests involve the intentional use of metacognition to help individuals of all ages enhance their ability to learn. pmaher@CCHD.usf.edu.

THE ROLE OF SELF-EFFICACY IN AUTONOMOUS LEARNING

Michael Ponton, M. Gail Derrick, Gary Confessore and Nancy Rhea

ABSTRACT

The purpose of this correlational study was to investigate the relationship of self-efficacy with other factors associated with autonomous learning (i.e., desire, resourcefulness, initiative, and persistence). Five instruments were administered to a nonprobability sample of 82 adults: the Inventory of Learner Desire, the Inventory of Learner Resourcefulness, the Inventory of Learner Initiative, the Inventory of Learner Persistence, and the Appraisal of Learner Autonomy (i.e., a self-efficacy scale). The results suggest that self-efficacy does not mediate the relationship between desire and autonomous learning as suggested by a previously hypothesized path analytic model; however, self-efficacy does account for variance in autonomous learning unexplained by desire. Thus, the theorized four sources of efficacy information should be considered in facilitating autonomous learning tendencies. Motivational measures contextualized to autonomous learning are needed to more adequately test the mediating role of self-efficacy.

In 1999, Ponton offered a definition of *learner autonomy* as "the characteristic of the person who independently exhibits agency [i.e., intentional behavior] in learning activities" (pp. 13-14). He asserted that autonomy represents a subset of the cognitive and affective characteristics of the agent under a larger set associated with self-directedness. In contrast to learner autonomy, Ponton suggested that *autonomous learning* refers to the conative manifestations of extant learner autonomy and is a subset of all manifestations associated with self-directed learning. The term "conative" is used with aspects of autonomous learning because "conation refers to his [sic, i.e., the agent's] behavioral intentions" (Fishbein &Ajzen, 1975, p. 12) and subsequent intentional action.

Over the past 6 years researchers have focused on the development of instrumentation relevant to autonomous learning. Such instrumentation include the Inventory of Learner Desire (ILD; Meyer, 2001), the Inventory of Learner Resourcefulness (ILR; Carr, 1999), the Inventory of Learner Initiative (ILI; Ponton, 1999), and the Inventory of Learner Persistence (ILP; Derrick, 2001). The motivation behind focusing on the four conative factors of desire, resourcefulness, initiative, and persistence was based upon earlier work by Confessore (1992) who emphasized the importance of their manifestation in personally satisfying self-directed learning endeavors. A study of these four factors is conceptualized as necessary, but not sufficient, in understanding autonomous learning. While desire is a cognitive/affective characteristic of the agent, resourcefulness, initiative, and persistence represent conative manifestations (Ponton & Carr, 2000). Each of these instruments has been continually refined and analyzed to support validity and reliability (cf. Confessore & Park, 2004).

In addition to the four instruments highlighted, Ponton, Carr, and Derrick (2003) suggested that a measure of self-efficacy in autonomous learning was also needed "to better describe the relationship between motivation and conation" (p. 13). Self-efficacy is the belief that capability exists to successfully execute a given performance. Citing research in multiple domains of human functioning, Bandura (1997) offered a compelling argument that self-

efficacy provides an important mediating role in understanding the relationship between motivation and agency (i.e., intentional acts): that is, valued outcomes or related performance goals will not provide motivation unless the agent believes that requisite capability exists for successful attainments. Ponton et al. asserted that Meyer's measure of desire may have limited explanatory power with respect to autonomous learning because the instrument was designed to measure the extent to which an individual feels able to act intentionally where such intentional action may or may not be manifest as autonomous learning (i.e., Meyer's instrument is not contextualized to autonomous learning while the other three instruments are). Thus, the study of self-efficacy may provide additional explanatory power in understanding and facilitating autonomous learning.

In 2004, Ponton, Derrick, Carr, and Hall developed the Appraisal of Learner Autonomy (ALA) as a measure of self-efficacy in autonomous learning. Methods outlined by Bandura (2001) were followed in developing the ALA. Analysis performed on data acquired from two separate pilot studies resulted in a 9-item instrument that was argued as valid and reliable. Using self-efficacy theory, Ponton et al. hypothesized that self-efficacy (ALA) should mediate the path from desire (ILD) to autonomous learning conation (ILR+ILI+ILP). The purpose of the present study was to investigate this hypothesis and the relationship between self-efficacy and autonomous learning conation.

METHODOLOGY

A nonprobability sample of 82 adults were administered the ILD, ILR, ILI, ILP, and ALA as a battery associated with the online version of the Learner Autonomy Profile (LAP; licensed to Human Resource Development Enterprises). Institutional Review Board approval was obtained for this study from the data acquiring investigators respective universities (i.e., Regent University and The George Washington University). The majority of the participants were doctoral students while others were participants in ancillary research investigations. Because the sample does not represent a random sample of the adult population, generalization of results should be performed cautiously.

The demographics of the sample are presented in Table 1. The majority of the participants were female ($P = 78\%$) and had a graduate degree ($P = 56\%$). The average age of the sample was 35.65 years ($SD = 8.28$) and ranged from 23 to 56 years.

Table 1: Sample Demographics ($N = 82$)

Variable	n
Gender	
Male	18
Female	64
Highest Educational Attainment	
High School Diploma	2
Bachelor's Degree	34
Graduate Degree	46

Note. The age range of the participants was 23-56 ($M = 35.65$, $SD = 8.28$).

Appraisal of Learner Autonomy

The recent development and limited usage of the ALA motivated the authors to conduct additional analysis supporting the instrument's content validity (i.e., item homogeneity); therefore, results from a principal component analysis are presented for the ALA but not the other scales used. Correlation analyses are subsequently presented for all scales in the results section.

All items associated with the ALA support the overall construct of self-efficacy in autonomous learning; therefore, item homogeneity is hypothesized to exist. Gorsuch (1983) asserts that the first principal component represents the best condensation of a group of variables; thus, this form of factor analysis was conducted to uncover uncorrelated (i.e., orthogonal) common factors where each factor sequentially accounts for the maximum remaining variance in the instrument's items (Dunteman, 1989).

The analysis performed was on the correlation matrix and may be dependent upon sampling variability (Kim & Mueller, 1978) thus suggesting the importance of an adequate sample size. Kline (1993) suggests a minimum subject-to-item ratio of 2:1 (p. 121) although he asserts that such rules-of-thumb vary greatly between researchers. However, because the sample size to item number was approximately 9:1 (i.e., 82:9), the sample size was assumed to be sufficient for the principal component analysis performed.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) and the Bartlett Test of Sphericity were used to assess the suitability of the correlation matrix for factor analysis. For factor analysis, the MSA index should be no less than 0.5 (Cureton & D'Agostino, 1983, p. 389) and Bartlett's χ^2 should enable a rejection of the null hypothesis of no difference between the correlation matrix and the identity matrix (Norusis, 1988)—i.e., common factors cannot exist unless partial correlations between the items exist. As presented in Table 2, MSA = 0.86 and Bartlett's $\chi^2(36, N = 82) = 312.86$ with $p<0.001$; thus, the sample was assumed adequate for principal component analysis. Gorsuch (1983) asserts that a minimum factor loading of 0.3 (p. 210) is a generally accepted criterion in identifying relevant item loadings. The results presented in Table 2 indicate that all nine items load above this criterion (minimum loading is 0.507) thereby supporting item homogeneity.

Table 2: Principal Component Analysis of the ALA

Item	Factor Loading
1	0.698
2	0.656
3	0.507
4	0.777
5	0.784
6	0.715
7	0.752
8	0.637
9	0.837

Note. First component explaining 50.85% of the total variance. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) = 0.86; Bartlett's Test of Sphericity approximate $\chi^2(36, N = 82) = 312.86, p<0.001$.

Reliability

Cronbach's alpha coefficient was computed as a measure of internal consistency for all scales used. In general, the alpha coefficient should be no less than 0.7 (Kline, 1993, p. 11). As is evident in Table 3, internal consistency is tenable for all scales.

Table 3: Internal Reliability (Cronbach's Alpha) for Each Scale

Scale	α
Inventory of Learner Desire	0.95
Inventory of Learner Resourcefulness	0.97
Inventory of Learner Initiative	0.96
Inventory of Learner Persistence	0.98
Appraisal of Learner Autonomy	0.87

RESULTS

Table 4 presents the Pearson product moment correlations for all variables measured. Excluding self-efficacy, all correlations are moderate to high (qualitative description according to Hinkle, Wiersma, & Jurs, 1998, p. 120), positive, and statistically significant at the 0.001 level. Self-efficacy has a low positive correlation with all variables ($p<.01$) except for the nonsignificant correlation with desire. The correlation between desire and autonomous learning (i.e., ILR+ILI+ILP) is $r = 0.712$ ($p<.001$) while the correlation between self-efficacy and autonomous learning is $r = 0.399$ ($p<.001$).

Table 4: Intercorrelations Between Variables

Variable	1	2	3	4	5
1. Desire		0.69**	0.66**	0.71**	0.14
2. Resourcefulness			0.89**	0.87**	0.35*
3. Initiative				0.89**	0.41**
4. Persistence					0.40**
5. Self-Efficacy					

*p=.001; **$p<.001$.

Because of the lack of a statistically significant correlation between desire and self-efficacy, the hypothesized path model (i.e., desire→self-efficacy→autonomous learning) is untenable; however, this nonsignificant correlation coupled with the significant correlations between desire and self-efficacy with autonomous learning suggest that desire and self-efficacy explain unique variance in autonomous learning. Thus, a regression analysis was performed (see Table 5). Considering each independent variable separately, desire accounts for more of the variance in autonomous learning ($R^2 = 50.7\%$) than does self-efficacy ($R^2 = 15.9\%$);

however, together desire and self-efficacy account for 59.7% of the variance in autonomous learning. Adding self-efficacy in Step 2 of the stepwise procedure increases R^2 by 8.9%, which is a significant change at the .001 level.

Table 5: Summary of Hierarchical Regression Analysis for Variables Predicting Autonomous Learning

Variable	B	SE B	β
Step 1a			
Desire	2.704	0.298	0.712**
Step 1b			
Self-Efficacy	0.492	0.126	0.399**
Step 2			
Desire	2.539	0.274	0.669**
Self-Efficacy	0.373	0.089	0.302**

Note. R^2 = .507 for Step 1a; R^2 = .159 for Step 1b; ΔR^2 = .089 from Step 1a to Step 2 (*p*<.001 for change).
****p*<.001.

DISCUSSION

Mediating Role of Self-Efficacy

The first purpose of this study was to test the hypothesis that self-efficacy mediates the path from desire to autonomous learning (Ponton et al., 2004); however, the lack of correlation presently measured between desire and self-efficacy suggests that this hypothesis is untenable.

According to social cognitive theory (Bandura, 1997), much of human motivation is cognitively induced. Based upon value attributions of expected outcomes associated with an array of possible activities, favorable courses of action are chosen. Such courses include not only action plans but also specific performance goals that serve as indicators of achievement. Even somatically related performances, like eating, may be motivated by cognitive activity rather than cellular deficiency—an example being eating due to the availability of an anticipated satisfying dish rather than due to hunger.

In general, humans do not engage in activities that are self-perceived as futile. To accomplish valued outcomes or avoid aversive ones, activities are chosen due to beliefs of efficacy. Engaging in activities that one believes cannot be performed successfully is a waste of time and energy as other courses of action that are within the efficacious range of the agent are more attractive. Note that self-efficacy is a perception as actual capability can exist even if not perceived to exist; however, it is the perception that affects activity choice and ultimate levels achievement (Bandura, 1997).

Self-efficacy is a domain specific assessment. For example, a self-perception of tennis capability can be decidedly different than a self-perception of calculus capability. Therefore, measures of self-efficacy must be contextualized to the specific activity being assessed. Generalized measures of self-efficacy provide little predictive utility beyond what trait theories might suggest. A reasonable assertion may also be that measures of motivation should be domain specific as well. To make a general statement that *a person is motivated* makes little sense in understanding that person's commitment to engage in specific activities such as activity X versus activity Y—more relevant measures would address the levels of motivation present to engage in either activity X or activity Y. If a person is interested in engaging in activity X due to expected valued outcomes and if a sufficient level of self-efficacy is present with respect to activity X, then the person may actually be motivated to choose to engage in activity X and persevere to satisfying levels of attainment—this simple example essentially describes the mediating role of self-efficacy between motivation and conation.

In the present study, desire was used as the measure of motivation in testing the previously hypothesized mediating role of self-efficacy (Ponton et al., 2004). In general, Meyer's (2001) instrument is a measure of freedom, power, and change; that is, the precursors to intention formation (Confessore & Park, 2004). However, Meyer's instrument is not contextualized to the domain of autonomous learning, which may explain why the path analytic model is not supported by the present results. To more adequately test the previously hypothesized path analytic model, instrumentation must be developed that measures an agent's motivation to engage in autonomous learning. Such an instrument would measure outcome expectancies, goals, and causal attributions associated with showing resourcefulness, initiative, and persistence in one's learning.

The need for such a motivational instrument should not be interpreted as marginalizing the role of Meyer's measure of desire as the ILD consistently has provided moderate to high correlations with the ILR, ILI, and ILP in several previous studies thus supporting its predictive utility. In addition, the theoretical foundation upon which the ILD was developed does provide a degree of explanatory power as well because the level to which a person believes he or she can act intentionally should affect autonomous participation in many domains of human functioning. However, to fully assess the presence of learner autonomy where both motivation and self-efficacy reside, instrumentation should focus on the specific domain of autonomous learning.

It should be noted that *showing* resourcefulness, initiative, and persistence in one's learning is conceptually separable from what is measured in the present study. The ILR, ILI, and ILP are measures of *intention to show* resourcefulness, initiative, and persistence. These instruments were developed in this manner because it is not possible to know, a priori, whether or not study participants are currently engaged in autonomous learning activities (cf. Ponton, 1999). Further research is necessary to uncover the strength of the relationship between the intention to engage in autonomous learning and the enactment of the behaviors of autonomous learning, the latter being the exhibition of resourcefulness, initiative, and persistence.

Correlational Role of Self-Efficacy

As a single independent variable, self-efficacy is associated with 15.9% of the variance in the dependent variable autonomous learning where autonomous learning is the summation of ILR, ILI, and ILP scores; in a stepwise regression procedure, self-efficacy (i.e., Step 2) explains 8.9% ($p<.001$) additional variance in autonomous learning after desire (i.e., Step 1). These results suggest that self-efficacy is significantly related to autonomous learning in a predictive sense. Due to its theoretical foundations and focus on autonomous learning, self-efficacy also provides explanatory power.

A major goal of research is not just the development of theory but using theory to inform practice. Thus, it is not sufficient to merely understand the variables associated with learner autonomy or autonomous learning but rather to use such knowledge in identifying facilitative schemes. Fortunately, social cognitive theory outlines four sources of efficacy information (Bandura, 1997) that should be addressed by autonomous learning facilitators. These sources are mastery experiences, verbal persuasion, vicarious experiences, and physiological/emotive arousals.

In order for learners to feel capable of engaging in autonomous learning, they must have mastery experiences. That is, they must have authentic learning experiences that require the exhibition of resourcefulness, initiative, and persistence in reaching satisfying levels of learning. To promote autonomy (where beliefs of efficacy reside), facilitators should create opportunities for autonomous learning to occur. Of course it is incumbent upon the facilitator to identify appropriate requirements for a learner's level of autonomy; however, there is no reason that activities requiring autonomous learning cannot be incorporated even at very early stages of education provided that requisite learning skills (e.g., reading, acquiring information) are present. Formal education should be based upon the notion that students are assisted in developing their autonomy through progressively structured mastery experiences that require increasing exhibitions of autonomous learning. Through successful learning endeavors and attributing such successes to personal autonomy, beliefs in self-efficacy with respect to autonomous learning capability can be strengthened.

However, if the learner attributes success to factors other than personal capability, self-efficacy may not be enhanced. Thus, the facilitator should use verbal persuasion to inform the learner that success in autonomous learning endeavors is due to individual autonomy rather than facilitative opportunities. Provided the facilitator's opinion is valued by the learner, such persuasions can serve to enhance self-efficacy.

Initially motivating engagement in autonomous learning activities may provide discomfort particularly when high levels of autonomy have not been required in past endeavors. From a motivational perspective, the facilitator should articulate the advantages of being an autonomous learner not only in satisfying proximal course goals and successful program completion but also from the distal perspective of personal empowerment via lifelong learning. Facilitators should help learners to interpret feelings of discomfort (i.e., physiological/emotive arousals) as merely temporary responses due to engaging in

unfamiliar activities rather than as indicants of incapability. In addition, providing evidence of similar others who were successful in autonomous learning tasks can provide vicarious experiences that strengthen efficacy as well—thoughts of "if a person like me has done it, perhaps I can do it as well" increase self-perceptions that success due to personal capability is possible.

If these four sources of efficacy information are considered, a facilitator can structure learning activities and interpersonal interactions in a manner that strengthen the learner's self-efficacy. Coupled with the motivation to engage in autonomous learning activities, a strong sense of efficacy will promote an agent's selection of such activities as well as the subsequent perseverance required to overcome obstacles that interfere with attaining desired levels of learning. To exhibit resourcefulness, initiative, and persistence in learning requires the agent to believe that he or she *can* exhibit these conative factors.

CONCLUSION

The Inventory of Learner Desire may be an inadequate measure of an individual's motivation to engage in autonomous learning activities due to the lack of correlation between desire and self-efficacy. It is presently argued that an adequate motivation instrument should be contextualized to autonomous learning, similar to domain specific self-efficacy scales. Thus, the instrument should be designed to assess the motivation to show resourcefulness, initiative, and persistence in one's learning.

There are many as yet unidentified variables that will constitute the constellation of factors associated with learner autonomy; however, the present study suggests that self-efficacy in autonomous learning must be included in this set. Because of its importance, persons interested in facilitating the development of learner autonomy must consider the sources of efficacy information (i.e., mastery experiences, verbal persuasion, vicarious experiences, and physiological/emotive arousals) in structuring learning activities so that such activities strengthen efficacy beliefs.

This does not mean that self-efficacy is the sole determinant of an agent's engagement in autonomous learning activities (i.e., activities that require personal resourcefulness, initiative, and persistence). According to expectancy value theory and goal theory respectively, such activities must also be perceived as leading to valued outcomes and adopted performance goals should be perceived as correlated to these outcomes. With continued study and instrument development, the impact of motivation in autonomous learning as well as the ability of other factors to explain the variance in autonomous learning will be better understood. While current conceptualizations of both learner autonomy and autonomous learning have led to a refined understanding of psychological factors associated with adult learning, future work will enable facilitators at all levels of education to maximally develop lifelong learners.

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Michael Ponton is a professor in the Regent University School of Education. His research interests are in the development of a better understanding of the role of human agency in adult learning. Dr. Ponton is widely published and enjoys fostering an independence of thought and action in graduate students. He may be reached at michpon@regent.edu.

Gail Derrick is an associate professor in the Regent University School of Education. Dr. Derrick's research and publication interests include autonomous learning, persistence, adult learning, self-efficacy, intentions to learn, and conation. She may be reached at gailder@regent.edu.

Gary Confessore is a professor of higher education at The George Washington University. He has served as the chief academic officer of three colleges over the course of his career

and has published widely on the subject of learner autonomy. He may be reached at hrdegary@hotmail.com.

Nancy Rhea is an assistant professor of curriculum and instruction at the University of Mississippi. Her research interests focus on learning theory, student evaluations of teaching, and the teaching of English as a second language. She may be reached at nwiggers@olemiss.edu.

INITIAL COMPONENT ANALYSIS AND RELIABILITY ASSESSMENT OF THE SPANISH LANGUAGE LEARNER AUTONOMY PROFILE

Gary J. Confessore, EunMi Park, and Ismael Idrobo

ABSTRACT

This study assesses the extent to which the component structure of the Spanish version of the Learner Autonomy Profile comports with that of the English version and also assesses the acceptability of the internal consistency of the Spanish version. The study samples were 350 native Spanish-speakers and 350 English-speakers. Comparisons of the component structures of the two versions were found to be sufficiently similar to assert the Spanish version conforms to the component structure hypothesized and found in the English version. Comparisons of Alphas for the two versions reveal they are of acceptable and comparable reliability. Hence, the Spanish version may be used with confidence to assess learner autonomy in native Spanish speakers.

The Learner Autonomy Profile (LAP) is a battery of instruments comprised of The Inventory of Learner Desire (ILD), developed by Meyer (2001); The Inventory of Learner Resourcefulness (ILR), developed by Carr (1999); The Inventory of Learner Initiative (ILI), developed by Ponton (1999); and The Inventory of Learner Persistence (ILP), developed by Derrick (2001). The battery is available only in electronic form, over the Internet, as a 164-item "Version 3.0" and a 66-item "Short Form." A description of the development and factor validation of this battery was reported by Confessore and Park (2004).

This is the report of the processes by which a Spanish language version of the *LAP* was developed. It covers the translation/retranslation project, as well as the methodology for collection and analysis of data for the initial component analysis and reliability assessment of the Spanish instrument. Comparisons are made to the component structure and reliability of the English language version of the *LAP* (Confessore & Park, 2004).

PROBLEM STATEMENT

Until recently, the *LAP* has been available in the English language only. However, in a period of rapid globalization and multiculturalism, the developers deemed it appropriate that the instrument be properly translated and validated for use with individuals who do not have an essential capacity with the English language. The decision to undertake such a time consuming and expensive effort has, necessarily, been influenced by the global distribution of languages and the potential market for the translated instrument.

The primary purpose of the *LAP* is to provide a scientific assessment of the extent to which individuals hold beliefs, attitudes, and behavioral intentions associated with learner autonomy. In order to make this instrument available to those who do not speak English, it is necessary to produce and validate the *LAP* in languages other than English. Certainly, each translation of the instrument will require an assessment of the extent to which cultural artifacts play a role in the manifestations and perceived value of learner autonomy. In this vein, recent studies (Park, 2003; Park & Confessore, 2000) have confirmed that there are no discernable cultural artifacts that produce unaccounted for variances in responses to English *LAP* items in populations of

graduate students from China, Japan, Korea, Singapore, and Taiwan for whom English is not the first language, and whose English reading comprehension is at or above the U. S. 8th grade level. While such findings encourage the hope that the underlying assumptions about beliefs, attitudes, and behavioral intentions associated with learner autonomy are found throughout the countries studied, that issue must be examined in each translation effort.

A search of data sources that regularly report worldwide statistics on the most widely spoken languages revealed that, while there is general agreement among the many reporting agencies as to the approximate number of people who speak various languages, the numbers vary based upon the operational definitions preferred by each agency (Central Intelligence Agency, 2005; Gordon, 2005). Since language distribution data sources consistently cite Mandarin Chinese, English, and Spanish as the most commonly spoken languages in the world, Mandarin Chinese and Spanish were targeted as languages for the next *LAP* translation projects.

PURPOSE

The Spanish translation effort became the first priority and was begun in June of 2003. The Mandarin Chinese translation project was begun with the identification of a translation/retranslation team in December 2004. While it is anticipated that a Mandarin Chinese language version will follow soon, this manuscript addresses the development and assessment of the Spanish language version of the *LAP* only.

The purpose of the present research effort was to produce a Spanish language version of the *LAP* and to assess the comparability of the component structure and internal consistency of the translated version. It was designed to test the following hypotheses:

Hypothesis 1: The *LAP*'s component structure is invariant across the English language and Spanish language groups.

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

Hypothesis 3: The internal consistency, or reliability, of the *LAP* is not significantly different between the English language and Spanish language groups.

METHODOLOGY

The methodology followed in this research was divided into two distinct phases. First, an appropriately qualified team of translators and re-translators was assembled and charged with expressing each item of the *LAP* in Spanish while accounting, as best as possible, for possible cultural and grammatical issues among the Spanish-speaking nations of the Americas. When the initial Spanish language version had been agreed upon, data were collected over a period of approximately ten months and analyzed as appropriate to test the research hypotheses of the project.

The Spanish Language Translation/Retranslation Process.

Individuals were invited to serve on translation and retranslation teams based upon the following criteria: 1) native Spanish-speaker, 2) graduate level education undertaken in English, 3) experience as an English to Spanish translator, and 4) experience teaching adults. Also, inspection of the list of countries in which at least 10 million people had Spanish as their first language reveals that, except for Spain, they are all located in the Americas (Central Intelligence Agency, 2005). Based upon this information, potential members of the teams were selected to achieve balance across as many Spanish-speaking nations of the Americas as possible.

The lead member of the teams, Ismael Idrobo, a native Spanish speaker, was raised and educated in Colombia. Having retired at the rank of Captain in the Colombian Navy, he had accepted a position as Professor of National Security Affairs at The Center for Hemispheric Defense Studies of The National Defense University in Washington, DC. He had written instructional materials in both Spanish and English, and had translated a variety of materials from English to Spanish or Spanish to English. As a doctoral candidate at The George Washington University, he had focused on the study of adult learning and learner autonomy, in particular.

Idrobo's position at the The Center for Hemispheric Defense Studies placed him in direct association with several other highly educated native Spanish speakers from the Americas who fit the section standards of the project and he was able to enlist their cooperation in this effort. From these colleagues, he assembled a team with participants raised and educated in Chile, Colombia, Dominican Republic, El Salvador, Mexico, Nicaragua, and Puerto Rico. Additionally, an Assistant Professor of Adult Education from The University of Pinar del Rio, Cuba was recruited to serve on the team through participation in the VIII and X Seminario Cientifico Sobe La Calidad de la Educacion: Intercambio de Experiebcias de Professionales Cubanos Y Norteamericanos, Havana, Cuba, in February of 2001 and October of 2003, respectively.

The group selected was then divided into a translation team comprised of representatives from Chile, Dominican Republic, and Nicaragua, and a retranslation team comprised of representatives from Cuba, El Salvador, Mexico, and Puerto Rico. Idrobo, a native of Colombia, served on both teams as primary investigator. Both committees were charged with producing a final document that, as far as possible, accounted for cultural differences among the Spanish-speaking cultures and were directed to resolve word use, spelling and grammatical issues according to the guidelines of the The Real Academia Española (Royal Spanish Academy or RAE). "The RAE has as its goal the preservation and continuity of the Spanish language, and as such is considered conservative. One description of its aim is 'to assure that Spanish speakers will always be able to read Cervantes,' but it also exercises a progressive influence in keeping the formal language up-to-date" (Real Academia Espanola, p. 1). It is based in Madrid, Spain, and is affiliated with national language academies in 21 Spanish-speaking nations.

Data Collection

The Spanish Language version of the *LAP*, produced by the team described above, was made available over the Internet through a website (http://www.hrdenterprises.com/sp/) that parallels the website through which the English language version is accessed.

Study Samples

Spanish speaking participants were recruited by a process of "snow-balling" that began with members of the translation/retranslation team networking with educators and business people in their home countries. Over a period of ten months, 350 Spanish language *LAP*s were completed by respondents from Colombia, Cuba, Dominican Republic, El Salvador, Mexico, and Puerto Rico for whom Spanish is the first and primary language.

A stratified random sample of 350 respondents for whom English is the first and primary language was extracted from a population of 1350 respondents who had participated in an earlier study in which comparisons were made to a population for whom English was the second language (Park, 2004). The sample of English speakers for the present study was stratified to match the Spanish language sample by gender and level of education. Table 1 reports the distribution of participants by language, gender, and level of education completed.

Table 1. Demographics of the Study Samples (*N* = 700)

	Spanish Speakers (n = 350)		English Speakers (n = 350)	
	Frequency	Percent	Frequency	Percent
Male	241	68.9	241	68.9
Female	109	31.1	109	31.1
HS Diploma	132	37.1	132	37.7
Bachelor's Degree	67	19.1	67	19.1
Grad/Prof Degree	151	43.1	151	43.1

MAJOR FINDINGS

Analysis of Component Structure

Hypothesis 1 states: The *LAP*'s component structure is invariant across the English language and Spanish language groups. The validation study of the component structure of the *LAP* extracted a single component for each of the 22 hypothesized components (Confessore & Park, 2004). The present comparison of component structures is based upon the data collected from the Spanish-speakers who responded during this study and the stratified random sample extracted from the larger extant database (See Table 1).

Primary component analysis reveals similar patterns of component structure for the responses submitted by both the English language and Spanish language groups. Table 2 reveals that 16 of the 22 components were found to have the same component structures in both language versions.

Table 2. Structures of the 22 Hypothesized Components of the *LAP*

Component	Number in English ($n = 350$)	Number in Spanish ($n = 350$)
Circumstance	1	2
Expression	1	1
Group Identity	1	1
Growth & Balance	1	1
Love Issues	1	1
Communication Skills	1	1
Change Skills	1	1
Learning Priority	1	2
Deferring Gratification	1	2
Resolving Conflict	1	1
Future Orientation	1	2
Planning	1	1
Evaluating Alternatives	1	1
Anticipating Consequences	1	1
Goal Directedness	1	1
Action Orientation	2	2
Overcoming Obstacles	2	2
Active Approach	1	1
Self-Starting	1	2
Volition	1	2
Self-Regulation	1	1
Goal Maintenance	1	1

The translation/retranslation teams reviewed the wording of each item that analysis of the component matrices indicated was extracted as the second component. Table 3 reports the 11 identified items that did not contribute to produce the single hypothesized component factor loading.

Further Analysis of the Eleven Identified Items

Since the purpose of the study was to learn whether the Spanish language version of the *LAP*, as translated by Idrobo's team, could be reliably used with populations for whom Spanish is the primary or only language, the 11 items (noted above) identified as forming second components were reviewed by the team. In the first phase of review, the team considered the possibility that results for these particular items might reflect differences in word use, spelling, grammatical issues, and cultural influences attributable to the national diversity of the respondents. This discussion drew upon the personal experiences of the team members as representatives of eight different Spanish-speaking nations as well as regular references to the

guidelines provided by The Royal Spanish Academy. These, and subsequent discussions with several Spanish speaking academics, led to the conclusion that the differences in response patterns for these items should not be attributed to either cultural artifacts or equivalence of meaning of the translated version with the original items.

Given the preponderance of the evidence of these results, Hypothesis 1 (The *LAP's* component structure is invariant across the English language and Spanish language groups.) is not rejected.

Table 3. Items Identified Through Factor Loading as Forming a Second Component

Item	English (*n* = 350)	Spanish (*N* = 350)
1	My family had traditions that we practiced	Mi familia tenía tradiciones que seguíamos
2	When faced with a difficult decision about learning something or doing something else, I choose to learn something	Cuando tengo que tomar una decisión difícil entre aprender algo o hacer otra cosa, escojo aprender algo
3	I will spend most of my time doing other things rather than learning	Pasaré la mayoría del tiempo haciendo otras cosas en vez de aprender
4	When I think of quitting a difficult learning activity, I will increase my effort because I recognize the value of the project	Cuando piense en abandonar una actividad de aprendizaje difícil, intensificaré mis esfuerzos porque reconozco el valor del proyecto
5	When I have a lot of reading to complete but I am tired, I will continue because of the future rewards learning will bring	Cuando tenga que leer mucho pero me sienta que el cansado, seguiré leyendo en vista de las recompensas aprendizaje me traerá en el futuro
6	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	Si intento aprender algo, convertiré esta intención en acción y no gastaré demasiado tiempo en analizar las ventajas y desventajas de esta intención
7	I will continue to participate in my learning activity even if I discover that my learning resources may be inadequate	Dejaré de participar en mi actividad de aprendizaje si creo que no tengo los recursos para terminar con éxito la actividad
8	I will continue with my learning activity even if difficulties interfere with my participation	Si alguna dificultad interfiere con mi actividad de aprendizaje deseada, entonces abandonaré la actividad
9	If I desire to learn something, then I will start a learning activity by myself	Si deseo aprender algo, entonces es raro que empiece una actividad de aprendizaje por mí mismo
10	If I desire to learn something, then I will not wait for someone else to help me develop a plan to satisfy this desire	Si deseo aprender algo, entonces esperaré a que alguien me ayude a crear un plan antes de emprender mi actividad de aprendizaje
11	I will put little effort into the accomplishment of a learning goal	No dedicaré mucho esfuerzo para lograr mi meta de aprendizaje

Analysis of Internal Consistency

The first step in this phase of analysis was to establish the internal consistence of each of the four scales and 22 components of both the English and Spanish speaking sample. Next, the Cronbach's Alphas established in step one were compared using Feldt, Woodruff, & Salih's (1987) proofs to compare the reliability coefficient alphas of two independent samples of respondents to the Spanish and English versions of the *LAP*.

The hypotheses tested in this phase were:

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

Hypothesis 3: The internal consistency, or reliability, of the *LAP* is not significantly different between the English language and Spanish language groups.

Table 4. Distribution of Alphas across All Components and Constructs

Language	.600 - .699	.700 - .799	.800 – 899	.900 - .999	Total
English	4	4	8	10	26
Spanish	5	7	7	7	26

Table 4 reports the distribution of groups of reliability coefficient alphas expressed at .100 intervals across the 22 components and four constructs. Alphas of .602 or higher were found for all of the 22 components and four constructs of *LAP*. For the purposes of the present study, it was decided to use .600 as the minimum level to consider a reliability coefficient alpha to be adequate. This decision was guided by the following considerations:

1. Researchers often follow a rule of thumb proposed by Nunnally (1978) that "reliabilities of .700 or higher will suffice" (p. 245).

2. Nunnally (1967) asserts that in studies of "hypothesized measures of a construct" as is the case in the present study, "… reliabilities of .600 or .500 will suffice" (p. 226).

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

4. The purpose of the present study was to compare coefficient alphas obtained from two independent samples to determine the degree of comparability of the scores. There was no interest in which group may have scored higher than the other. Therefore, it was decided to set the standard for acceptable alphas at the higher end of the range mentioned by Nunnally (1967); that is, .600, as cited in item 2, above.

Based upon these results, Hypothesis 2 (The internal consistency, or reliability, of the LAP is sufficient within each of the English language and Spanish language groups.), is not rejected.

Comparison of the Alpha Coefficients Obtained from the Independent Samples

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

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

Standard (3), above, applies to the present study, which tests the hypothesis of equality for two coefficients where the estimates are based on independent samples, that responded to the same instrument. It seeks to learn, as a theoretical and practical concern, whether the learner autonomy profiles of adults for whom Spanish is the first language are measured as reliably using the Spanish version of the *LAP* as those of respondents for whom English is the first language using the English version. The answer to this question requires a test of the null hypothesis that two alpha coefficients of two populations are equal ($H_0: \zeta_1 = \zeta_2$ or $H_0: \alpha_1 = \alpha_2$). In such a case, the research hypothesis itself is stated in the null and is accepted when it is necessary to *fail to reject the null* [italic added]. Sample alpha coefficient is denoted by the superscript symbol ^ (often called "hat" or "caret") over the Greek small letter zeta ($\hat{\text{æ}}$) and its parameter value by ζ in older statistical manuals; recent manuals denote the values by alpha (α for parameter and $\hat{a}$ for sample).

The Feldt approach uses the test statistics $W = (1 - \hat{\text{æ}}_2) / (1 - \hat{\text{æ}}_1)$ (Feldt, 1969), or $W = (1 - \hat{a}_2) / (1 - \hat{a}_1)$ (Feldt, et al., 1987). Feldt et al. (1987) proved that "when the reliability parameters are equal, W is distributed as the product of two independent central F variables. This product, it was shown, could be well approximated by a single F with df N_1-1 and N_2-1 (p. 96)." The critical value of the F-distribution for the sample size of the present study is calculated with df numerator 349 and df denominator 349, the critical value of the F-distribution is $F_{(349, 349)}=1.185$, $p=.05$ or $F_{(349, 349)}= 1.281$, $p=.01$ (Stockburger, 1996). The symbols (*) and (**) indicate significant difference between the two group coefficient alphas which were determined with the critical value for F-distribution with the present study samples.

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

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

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

Table 5 reports that the reliability coefficient alphas for the Spanish and English language groups are not significantly different (Feldt's *W*) for fifteen of the twenty-two components and three of the four scales of the *LAP*.

Table 5. Comparison of Sample Alphas (*N*=700)

Construct / Component	Cronbach's Alpha English Version (*n*=350)	Cronbach's Alpha Spanish Version (*n*=350)	Feldt's *W*
Circumstance	.806	.754	1.268*
Expression	.729	.678	1.188*
Group Identity	.690	.686	1.013
Growth & Balance	.632	.622	1.027
Love Issues	.627	.647	.946
Communication Skills	.615	.709	.756
Change Skills	.755	.772	.931
Desire	**.928**	**.935**	**.903**
Learning Priority	.704	.892	.365
Deferring Gratification	.875	.602	3.184**
Resolving Conflict	.846	.892	.701
Future Orientation	.905	.897	1.084
Planning	.890	.892	.982
Evaluating Alternatives	.835	.784	1.309**
Anticipating Consequences	.833	.790	1.257*
Resourcefulness	**.968**	**.961**	**1.219***
Goal-Directedness	.936	.934	1.031
Action Orientation	.901	.896	1.051
Overcoming Obstacles	.848	.777	1.467**
Active Approach	.862	.864	.986
Self-Starting	.762	.760	1.026
Initiative	**.964**	**.964**	**1.000**
Volition	.901	.885	1.162
Self-Regulation	.929	.918	1.155
Goal-Maintenance	.938	.926	1.194*
Persistence	**.972**	**.967**	**1.179**

Note: $*F_{(349, 349)}=1.185, p=.05$ or $**F_{(349, 349)}=1.281, p=.01$ (Stockburger, 1996).

Based upon the findings, hypothesis 3 (The internal consistency, or reliability, of the *LAP* is not significantly different between the English language and Spanish language groups.) is not rejected.

CONCLUSIONS AND RECOMMENDATIONS

It should be noted, as reported in Table 2, that the component structure of the English version, when assessed using the sample of 350, differed from that found for the larger database of 1350 from which it was extracted (Confessore & Park, 2004). Previous studies using the *LAP* have found no significant *LAP* score differences, when examined in terms of age, gender, domestic status, and level of education, except between respondents with no more than a high school

diploma and respondents with graduate or professional degrees (Carr, 1999; Derrick, 2001; Meyer, 2001; Park, 2003; Park & Confessore, 2000; Ponton, 1999). This led to speculation that the decision to stratify on the basis of gender and level of education only may have precluded assessment of the compounding effects of combinations of demographic factors as conjectured by Park (2003) in the final chapter of her dissertation.

Based upon the findings of this study, it seems reasonable to assert that the Spanish language version of the *LAP* may be confidently used to assess relative learner autonomy in individuals for whom Spanish is the only or primary language. However, it is recommended that Certified and Master Learner Autonomy Coaches working with results of the Spanish version continue to monitor results of the 11 items noted as contributing to components beyond those hypothesized by the authors of the English version.

It is also recommended that further studies be conducted in which samples of Spanish-speaking respondents are grouped by nation so that the issue of potential cultural difference among the several Spanish-speaking nations can be studied further.

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Gary J. Confessore is Professor of Higher Education Administration in the Graduate School of Education and Human Development at The George Washington University. He is also a principal of Human Resource Development Enterprises, a firm that provides instruments for the assessment of learner autonomy, and trains certified and master learner autonomy coaches. (garyc@hrdenterprises.com)

EunMi Park is an Assistant Professor of Medicine and the Associate Director of Geriatric Medical Education at The Johns Hopkins University School of Medicine. Dr. Park's research interests are adult learner autonomy, adult learner orientation assessment, and international cultural differences in adult learning. Currently, she is leading interdisciplinary-based innovative medical education programs. (epark12@jhmi.edu)

Ismael Idrobo was Professor of National Security Affairs at The Center for Hemispheric Defense Studies of The National Defense University and a doctoral student in the Graduate School of Education and Human Development of The George Washington University. He is deceased.