Experiential Learning Instruments:
An Examination Of The Concept Of The Instrumental
Approach In Experiential Learning

Glen S. Hall

Department Of Graduate And Undergraduate Studies

(Submitted in partial fulfillment of the
requirements for the degree of
Master of Education)

Faculty of Education
Brock University
St. Catharines, Ontario
© January, 1995
Acknowledgements

Grateful acknowledgement is due to the people who have helped me in the process of researching, writing, and revising the following pages. I would like to express my gratitude, respect, and thanks to those whose input has gone into producing this thesis. To my advisor, Nora McCardell, I wish to express my sincerest thanks for her tireless efforts on my behalf. Her meticulous commentaries, questions, and critiques were central to the production of this work. Her help and guidance were of the utmost importance to my process of scholarly research and writing.

I also wish to thank John Novak and Patricia Cranton whose critical insights caused me to reexamine my materials in ways that enhanced both the depth and credibility of this study. Thanks are also due to Rosemary Young whose expeditious work on my behalf helped me through a difficult period of conflicting obligations and projects.

To David Hunt, I would like to express my appreciation for his encouragement and advice at the outset of my studies in education. His kindness and generosity at that time allowed me to glimpse an area of learning that is ideally suited to my own approach to life and teaching.

I also wish to express my thanks and respect to Idries Shah whose writings and lectures have given me the tools to understand the concepts presented herein. I hope that what the reader finds in my writing has the same ring of truth that I find in his works.

Finally, my deepest thanks and love go to my wife, Lynn, whose selfless work and loving support made my studies and writing possible.
Abstract

Experiential Learning Instruments (ELIs) are employed to modify the learner’s apprehension and/or comprehension in experiential learning situations, thereby improving the efficiency and effectiveness of those modalities in the learning process. They involve the learner in reciprocally interactive and determining transactions with his/her environment. Experiential Learning Instruments are used to keep experiential learning a process rather than an object. Their use is aimed at the continual refinement of the learner’s knowledge and skill. Learning happens as the learner’s awareness, directed by the use of ELIs, comes to experience, monitor and then use experiential feedback from living situations in a way that facilitates knowledge/skill acquisition, self-correction and refinement.

The thesis examined the literature relevant to the establishing of a theoretical experiential learning framework within which ELIs can be understood. This framework included the concept that some learnings have intrinsic value—knowledge of necessary information—while others have instrumental value—knowledge of how to learn. The Kolb Learning Cycle and Kolb’s six characteristics of experiential learning were used in analyzing three ELIs from different fields of learning—saxophone tone production, body building and interpersonal communications.

The ELIs were examined to determine their learning objectives and how they work using experiential learning situations. It was noted that ELIs do not transmit information but assist the learner in attending to and comprehending aspects of personal experience. Their function is to telescope the experiential learning process.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>iv</td>
</tr>
<tr>
<td>PREFACE</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Background to the Problem</td>
<td>4</td>
</tr>
<tr>
<td>CHAPTER ONE: BACKGROUND—LEARNING AS ADAPTATION</td>
<td></td>
</tr>
<tr>
<td>Statement of the Problem Situation</td>
<td>10</td>
</tr>
<tr>
<td>Purpose of the Study</td>
<td>11</td>
</tr>
<tr>
<td>Questions To Be Answered</td>
<td>13</td>
</tr>
<tr>
<td>Rationale</td>
<td>14</td>
</tr>
<tr>
<td>Importance of the Study</td>
<td>16</td>
</tr>
<tr>
<td>Scope and Delimitations of the Study</td>
<td>18</td>
</tr>
<tr>
<td>Outline of the Remainder of the Document</td>
<td>19</td>
</tr>
<tr>
<td>CHAPTER TWO: A REVIEW OF THE LITERATURE RELATED TO EXPERIENTIAL LEARNING INSTRUMENTS</td>
<td>21</td>
</tr>
<tr>
<td>Foundations of Experiential Learning</td>
<td></td>
</tr>
<tr>
<td>Foundational Theorists</td>
<td>21</td>
</tr>
<tr>
<td>Contributing Streams</td>
<td>28</td>
</tr>
<tr>
<td>Current Experiential Learning Theorists</td>
<td>37</td>
</tr>
<tr>
<td>Experiential Learning Instrument Theorists</td>
<td>40</td>
</tr>
<tr>
<td>Critics of Kolb’s Experiential Learning Theory</td>
<td>43</td>
</tr>
<tr>
<td>Summary of Review of Literature Relating to ELIs</td>
<td>46</td>
</tr>
<tr>
<td>CHAPTER THREE: CHARACTERISTICS OF EXPERIENTIAL LEARNING</td>
<td>48</td>
</tr>
<tr>
<td>Process and Structure of Experiential Learning—</td>
<td>59</td>
</tr>
<tr>
<td>Kolb Learning Cycle</td>
<td></td>
</tr>
<tr>
<td>CHAPTER FOUR: AN EXAMINATION OF THE CHARACTERISTICS OF THREE EXPERIENTIAL LEARNING INSTRUMENTS</td>
<td>63</td>
</tr>
<tr>
<td>Case Study—Overtone Exercise</td>
<td>75</td>
</tr>
<tr>
<td>Summary</td>
<td>82</td>
</tr>
</tbody>
</table>
PREFACE

Introduction

Two insects eat from the same place
But from one is a sting and the other honey.
Both kinds of deer have the same grazing and water —
From one dung, the other musk.
Each of two canes feeds from one thing:
This one is empty: the other full of sugar.

Jalaluddin Rumi (Shah, 1977, p. 30)

This was a study of the "instrumental" approach to experiential learning. In this approach, Experiential Learning Instruments (ELIs) were used by learners to help them to learn from their own personal experience. While everyone will have experiences during their lives, not everyone will be equipped to make the most of the learning opportunities these experiences bring. It is these instruments' function to increase people's effectiveness at learning from their own experience.

The ELIs are tools that can be used by learners both while they are studying in a traditional educational milieu and, more particularly, once they have left it. They can be used by those learners who wish to continue learning from their own personal experience in a life-long, on-going way, deepening and enriching their specialized as well as their general knowledge.

An ELI is a cognitive "instrument" that helps the learner to focus her attention on a specific aspect or aspects in the application of her knowledge in a real-life situation. (NOTE: The pronoun she will be used throughout this
study to denote both female and male learners; the pronoun’s use herein is intended to be gender-neutral.) The ELIs can take any form that produces this outcome. Their effect is to aid the learner to focus more clearly and effectively her attention on the consciously learnable elements of her experience while simultaneously permitting the subconsciously learnable elements of her experience to be assimilated and processed.

Experiential Learning Instruments differ from traditional subjects of education in that they themselves are not the goal/end of learning. Instead, they are vehicles, means, methods, approaches, postures, conduits and implements whereby learning can be concentrated, telescoped, refined and deepened. Experiential Learning Instruments are the means by which the “ends” of learning can be achieved. The “ends” here indicate real personal knowledge/skill, not collections of memorized pieces of second-hand information on given subjects.

Essential to the “experiential” component of ELIs are the elements of focused and subsidiary awareness in the learner. While the learner’s attention may be focused by means of an ELI on a specific aspect or aspects of a learning experience, she also will be peripherally aware of other aspects of the experience that are not readily verbalized or even consciously categorized or understood. ELIs direct the focused awareness of the learner; the experience itself permits the learner’s subsidiary awareness to process related tacit aspects.

The ELIs also function by helping the learner to monitor experiential feedback in her own experiences. This means that the learner can discern for herself “how she is doing” as far as the learning process is concerned. Experiential Learning Instruments help the learner establish criteria for this discernment. Awareness of the various aspects of the experience and their inter-relationships give the learner feedback data that directly correspond to
the application of her knowledge or skill in a real application situation. It is by means of these data that the self-monitoring takes place. As a consequence, the learner becomes less dependent on teachers’ feedback which is seldom attuned to all the relevant nuances of every learner’s learning experiences.

Experiential Learning Instruments provide learners with ways to extract knowledge from what they are experiencing, ways that would not necessarily occur naturally to the learners. While the experiencing of a situation is essentially the same for everyone, a learner provided with a suitable ELI is additionally equipped to understand what she is experiencing, to conceptualize it usefully, and to employ effectively what has been learned, unlike a learner left to her own devices.

While traditional educational approaches give the learner either information or descriptions relating to the subject being studied, ELIs do neither. Experiential Learning Instruments are conductors of the learner’s awareness in experiential situations and during reflection upon those situations afterwards. Knowledge results from the learner’s personal cognitive efforts as directed and focused by an ELI. While some ELIs embody underlying structures of experience, the structures are not explicit and must be perceived by the learner who then may perceive that structure in her present personal experience.

Experiential Learning Instruments supply a channel for the primary aspect of learning—the direct personal perception of the structure of reality as it manifests itself in the learner’s own experience. Experiential Learning Instruments do not provide names, descriptions or concepts, which are secondary and derivative aspects of learning. Experiential Learning Instruments may form the “frame” within which the learner’s knowledge
takes shape but they provide neither theoretical, informational nor
descriptive data to “fill out” that frame. By analogy, ELIs are to personal
knowledge as lightning rods are to electricity; they are conduits for knowing, itself.

Background to the Problem

Show a man too many camels’ bones, or show them to him
too often, and he will not be able to recognize a camel when he comes
across a live one. Mirza Ahsan of Tabriz (Shah, 1970, p. 18)

The current method of education can be briefly described in this way:

Learners are exposed to materials—written, oral and visual— which
have been abstracted from generally recognized “typical scenarios” to
be met in the subject area under study and are given
exercises/problems/assignments that require the learning,
understanding and development of the ability/skill to apply the
learned abstracted concepts.

This method is based on the assumption that the abstracted concepts
adequately represent all, most, or at least many of the significant parameters
of the “typical scenarios” which themselves have been abstracted from a
global set of living phenomena. The current method of education also
requires that students reach a determined minimum level of competency both in
their knowledge of these abstracted materials and in the practical application
of the abstracted concepts.
However, learners experience difficulties in the *mechanical and automatistic application* of abstracted concepts in living situations because parameters not covered in their studies affect the application of those learned concepts. Also, they often do not recognize the active and inactive inter-relationships between those parameters.

Consequently, learners are unable or unwilling to administer appropriate self-correction that would allow them to adjust their activities to effectively achieve their intended aims. As well, the concepts presented in class may not have included how to recognize that concepts themselves may become *superseded*. As application situations change, what was learned must change in order to *adapt* to the changing knowledge-application environment.

Learners are not taught that some learned approaches or postures towards experience cause the learners, themselves, to abolish the situational impacts that could facilitate self-correction and adjustment (Ornstein, 1986; Shah, 1981). Feedback from knowledge-application situations needs to be monitored in order to adapt behavior in a moment-by-moment way. The knowledge of how to do this monitoring, itself, needs to be learned.

The above-mentioned realities of knowledge acquisition, modification and application are the subject of endless complaints and humour in the places where knowledge is applied. Newly graduated from college or university, employees often find themselves the brunt of more experienced workers' jokes as they try to apply their "book learning" in an environment which seems to bear little resemblance to any of the case studies examined in their academic schooling. Graduates have abstract information and little or no actual experience. And long-time workers perform their tasks at a *survival level competency* giving rise to the old saying (Kolb, 1984), "She doesn't have 20 years experience, she has one year of experience 20 times (p. 4)." In other
words, workers may have plenty of practice, but they may lack a vision of how to deepen their understanding of that practice which would, in turn, permit improvements of their work-related knowledge and performance. Experience itself does not guarantee the acquiring of knowledge/skill.

Contained in these two different but related problems of knowledge acquisition, modification, and employment is the learning problem ELIs are intended to address. Both problems result in learners not being able to adapt effectively to their environments. Both problems are the result of the learner not knowing how to use her present experience to learn how to adapt to the demands of her environment.

But, besides adaptational aspects of experiential learning, there are epistemological aspects, as well. For instance, certain nutrients—ineffable components of experience not readily expressible in language, number or pictures, nor abstractable from experience—can be obtained only by tasting the real experience personally. There is no adequate substitute for this tasting to be found in traditional formal education where the approach to teaching is based upon the principle and process of abstraction from living situations (NOTE: In this study the term traditional formal education refers to all school-based education from kindergarten to college and university. While the primary focus of the present study was on the use of ELIs by adults, particularly in college and university settings, it was intended that ELIs should be thought of as applicable throughout the spectrum of learning phases of people, from children through to the elderly). Concrete experience provides these tastes, forms of knowledge which are tacit (Polanyi, 1958), not explicit (i.e., readily expressible in language).

For instance, it is possible for one to know about honey by studying it. One can know about honey by tasting it. The latter is knowing, the former is
knowing about *knowing*. While knowing about knowing is also a valuable and legitimate form of knowledge, this meta-knowledge derives it validity in part from its submodalities which are initially constituted by accurate experiential knowledge (Dewey, 1938). However, the focus here is that what is learned needs to include some concepts or skills, some instruments, that will enable learners to continue learning in the *actual situations* in which these "nutrients" can truly be imbibed. Learners need to become familiar with the *taste* of knowledge as well as with the verbal and symbolic representations of it in informational form, its secondary formulation. This form of epistemological discernment, itself, must be learned and learned by means of experience, something difficult to do through a classroom lecture or textbook.

Another common problem with the current method of androgogy is the adoption by the learner of an intellectual form of *totemism*. In this state, the learner reveres the materials that have been learned for themselves and not for their ability to achieve their intended aims. While this type of psycho-emotional equilibrating produces an intellectual homeostasis that is comfortable and convenient for the learner (Shah, 1981) as a way of adapting the learner to her ever-changing environment, as a form of evolving learning, it prevents the learner from investigating the potential for modifying her acquired knowledge/skill. What has been learned is "carved in stone" as far as the learner in concerned. Learners have not learned to differentiate between the *vehicle* and the *objective*. They have not learned how to discern when what they have learned has been superseded. Here, learners substitute traditionalism, the following of the behaviors and thoughts of one's predecessors, and ritualized practice for real, living personal knowledge acquired by the process of learning.
An ancillary of the above-mentioned situation is that many forms of knowledge are subject to deterioration over time and consequently these must be reformulated in order to harmonize with transient circumstances in which their application manifests its effects. Learners need to learn a way to provide a self-administered corrective to learned formulation of knowledge so as to achieve this environmental/situational harmonization on a continuing basis.

The human brain has evolved to meet survival purposes, not educational ones (Ornstein, 1991). The brain’s pattern of functioning related to learning can be characterized simply—“I will learn just enough to get by” (i.e., to survive). It can be noted here that many, if not most, workers in most fields are generally content to just “get by” and rarely, if ever, make concerted and continuing efforts to improve their performance beyond their acquired “survival-level” competency. The current educational model is a product of this pattern of brain function (it would be anomalous if it were otherwise). This model inadvertently entrenches and sanctions the brain function pattern leading to survival-level competency learning.

The application and modification of acquired knowledge/skills is governed by this pattern that leads to stasis in learning, which occurs only when external pressures elicit a survival-based need to learn which in educational situations is usually equated with grades and in the workplace with retaining one’s position. The brain of any learner is biologically programmed to accept the homeostatic state in which “survival” is not threatened (Ornstein, 1986).

Improvement and refinement of acquired knowledge/skills will not take place without the presence of a need to do so. The current model of
education does not provide its learners with instruments that enable them to develop and maintain an internal locus of control of the need to learn, itself.

In short, considering the above-mentioned points, many learners studying in existing educational institutions do not learn how to learn. Moreover, upon graduation, they will not have acquired the cognitive instruments that would enable them to learn how to learn from their personal experience in the future. They will apply their acquired knowledge/skills without having a conscious and deliberate way or ways to refine and improve them by learning during those applications and, afterwards, by means of focused reflection upon those applications.

The foregoing is not intended to be an indictment of current educational methods but a description of the situation that learners find themselves in which creates the need for what, in this study, are being called Experiential Learning Instruments (ELIs). These ELIs can reasonably be acquired in traditional andragogical and/or pedagogical situations and institutions or in non-academic environments. Experiential Learning Instruments already exist in abundance. But a general lack of awareness of what they are, how and why they work, how they could fit into the existing experiential theoretical framework, and how and when to employ ELIs effectively has inhibited a more thorough and practical study and application of them in education.
CHAPTER ONE: BACKGROUND—LEARNING AS ADAPTATION

All living organisms must adapt to their environment in order to survive. The human organism also must adapt to its circumstances. For the human species, the natural process of adaptation has become "learning."

Technology has allowed human beings to transform their surroundings so as to minimize the need to adapt physiologically. Nevertheless, humans must now adapt to the environment created by that technology and the proximity of other humans. For *Homo Sapiens,* unlike for other organisms, genetic physical evolution has been, for the most part, neutralized. It has been replaced by an evolution of a different kind, conscious evolution, learning.

The human species has evolved from its "nonreflective union with the 'natural' order" (Kolb, 1984, p. 1) by being able to reflect upon experience, encode the resulting thoughts by means of symbols, transmit and preserve thoughts and feelings so that others may learn from them. All these capacities are the distillate of what has been learned from experience, the experience of the entire human race.

If learning truly is humanity's mode of adaptation, experiential learning is its most highly individualized and personalized form, for each individual must learn to adapt to her own personal circumstances. Time, place, people, culture, all are different for each person; no one lives with another's heredity, upbringing, and experiences. And learning from experience means learning from personal experience. There is no other form of experiential learning.
Statement of the Problem Situation

Experiential Learning Instruments have existed in a wide range of embodiments and have been in recorded use for more than a thousand years (Shah, 1977). They continue to be used across the spectrum of applications of human knowledge, in areas ranging from business (Covey, 1990) to psychiatry (Deikman, 1982) to music (Liebman, 1989) to personal health and stress reduction (Davis, Eshelman, & McKay, 1988).

Experiential Learning Instruments perhaps can most easily be conceptualized by thinking of what they do rather than of what they are. Experiential Learning Instruments function by helping the learner to modify her apprehension and/or comprehension of experience in a way that effectively telescopes the learning process. Their function is, therefore, heuristic. One way of accomplishing this modifying effect is by getting the learner to direct her attention to a specific element or elements of her experience that is under-attended. In some circumstances, directed attention may be modified by the ELI which may require the learner to adopt a specific posture or attitude towards her perception of the experience. When ELIs involve learning a skill, they help the learner to monitor and then to use experiential feedback from living situations in a way that facilitates self-correction and refinement of the skill and the perceptions and knowledge related to that skill.

It may be ELIs' bewildering diversity that has been partially responsible for their seeming insusceptibility to analysis and categorization within an educational theoretical framework. But with the publication of David Kolb's seminal work on experiential learning (Kolb, 1984) and continuing neuro-psychological studies of bi-hemispheric cognitive specializations in the brain (Gazzaniga, 1967; Sperry, 1967; Levy-Agresti &
Sperry, 1968; Levy, 1985; Zangwill, 1961), both a theoretical framework and a psycho-physiological rationale for ELIs are now available.

The problem remains, however, how to analyze ELIs using the present theoretical framework of experiential learning. Since ELIs are instruments which enable learners to learn from their personal experience, the question that needs to be answered in the context of this study is, "How can ELIs be understood/explained within the context of contemporary experiential learning theory?"

The current study has been designed to address the needs of a manageable problem—Using a few representative examples of ELIs, how would the four components of the experiential learning structure, called the Kolb Cycle, serve to explain how and why ELIs work?

The Kolb Cycle has been used often since its first publication to explain elements of experiential learning (Boud, Keogh, & Walker, 1985; Hashway, & Duke, 1992; Hunt, 1991; Schon, 1987). It divides the process of learning into four parts: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE). Each part brings its own particular type of knowledge to the learner. Each learner has strengths and weaknesses in different areas of those four parts. While each learner develops a personal style of learning based upon those strengths and weaknesses, when using experiential learning methodology to educate adults (Kolb, 1984; Hunt, 1991) one goal is to provide the learner with ways, strategies, instruments to improve those facets within those less developed parts of the learning cycle that will help the individual to learn more efficiently and effectively (Kolb, 1984) and to enhance and refine the more highly developed aspects as well.
The review of the literature indicates the only thorough study of ELIs to date has been done from the perspective of practical applications of ELIs in the teaching of mentally disabled learners (Feurstein, & Rand, 1977; Feurstein, 1980). How ELIs fit within the currently-used theoretical framework of experiential learning, how they can be understood using that framework does not appear to have been examined given this present study's review of the available literature.

Purpose of the Study

The purpose of this study then was to analyze several Experiential Learning Instruments (ELIs) using the Kolb Experiential Learning Cycle with a view to discovering and categorizing some basic characteristics of ELIs as they can be understood using the current experiential learning theoretical framework and its terminology.

Questions to Be Answered

Three general questions were addressed by this study. They were:

1. What are the basic characteristics of ELIs as they can be understood and defined using experiential learning theory?
2. In what ways do ELIs help learners to learn from their personal experience?
3. What are some criteria for the selection and use of ELIs?
These questions were answered using the Kolb Cycle framework and, as noted, its terminology. Reference were also made to studies in reflective practice, viewed herein as an offshoot of experiential learning, and psychological studies pertaining to the brain’s hemispheric specialization in the process of learning.

Rationale

Although the existence, use and effectiveness of ELIs has been known for some time—albeit not using the term Experiential Learning Instruments which has been coined in this study to give a name to instruments which heretofore have remained illusively unidentified—there has not been a study which has sought to explain them and identify their characteristics using any widely accepted educational theory and its terminology.

Indeed, although ELIs are widely used to enhance the learning process, most users have made little effort to understand them in a conscious, systematic way. The emphasis here on the word “conscious” is necessary because ELIs are often used unconsciously or in less-than-deliberate ways which can hamper their effectiveness.

The rationale for this present study was to provide both a theoretically systematic initial study of ELIs as well as to prompt the readers of this study to begin their own conscious, deliberate investigation and use of these learning instruments in their own learning and teaching processes.

The driving force of this study from the writer’s point of view was the perceived need in the academic community—serving an increasing student population of workers and professionals who are returning to college and university to upgrade their out-of-date skills and knowledge—for ways to
address the students’ desire for useful, relevant and effective methods for achieving their practical goals in life-long learning. These are students who have personal experience but have been unable to extract the needed knowledge and skill development from that experience. They want and need to know how to do this.

The dispensing of new information and the teaching of new skills will not achieve the desired goal for these learners. The new information and skills will eventually be superseded and the learners will be in the same position they find themselves in now. What they need is to “learn how to learn” through an approach that will allow them to learn what they need from their own experience in a self-guided, on-going way.

For university and college teachers, ELIs represent one potential answer to the question of what to do about such students and their needs. But since ELIs are little understood by educators as a whole, they can scarcely be expected to be employed to address the existing problem. The present study was intended to be one small step the writer and the reader could take together towards solving this problem. Once educators understand more about how and why ELIs work to help learners to learn from their experience, they will be more likely to study these instruments from perspectives relating to the specialized needs of their own disciplines and students, thereby broadening the base of research and information on this subject and also by finding, creating, testing and refining ELIs for the benefit of the academic community as a whole and for the present and future students.
Importance of the Study

This study’s main importance was to be found in the relationship it attempted to demonstrate between the “instrumental” approach to learning/teaching and the processes of life-long learning and experiential learning.

In detailing how learning instruments work, teachers reading this study can assess the nature of what it is they teach to their students in terms of its instrumental and intrinsic values for learning. Some of what is taught is information having an intrinsic value; it is necessary to know this information in a particular field of study. Some of what is taught has instrumental value; it helps the learner to learn or learn more efficiently and effectively. This distinction is useful for teachers to make because information deemed to have intrinsic value is, over time, eventually superseded by newer, more complete, more correct information. Instrumental approaches, however, can continue to help learners to “learn how to learn.” It must be noted here that material deemed to have intrinsic value is effectively instrumentally valuable as well because its possession and use sparks further learning. In short, there is a continuum between intrinsic and instrumental value and function in learning and both forms of learning modulate each other.

It is not being suggested that the instrumental approach is superior to teaching using information thought to have intrinsic value. Indeed, teaching without such information in the present educational milieu would be impossible. Learners need “grist for the mill,” information, facts and the like, in order to have intellectual material to process. The instrumental approach gives them a way to attend to that material, but it is not the material itself.
The distinction here is one that is important for teachers to understand as it relates to their own teaching methods and materials. It is common in universities and colleges to teach courses for which the institutions do not have state-of-the-art equipment with which the students can work. Therefore, they must be taught "how to learn" on equipment and in situations they have not yet encountered. This is part and parcel of the ELI approach to teaching and self-teaching.

Also, as the world of work changes, the educational system that educates and trains students for that world must adapt. It is an unfortunate consequence of the changing business, technological, scientific and industrial environments that students trained in colleges and universities find upon graduation their knowledge/skills superseded by new developments that were coming into use while the students were learning the previously used formulations.

In their personal lives, too, graduates find what they learned in the academic environment cannot be applied without careful attunement of various factors, the process of "attuning" being something that was not taught or perhaps even mentioned in their classes.

If teaching purports to help the learner adapt to her world by imparting skills, knowledge and information relevant to the learner's survival, it must acknowledge the necessity for a long-term strategy for knowledge/skill acquisition and refinement that is realistic and viable. To that end, ways of teaching and learning that seem to embody useful and effective approaches to long-term knowledge/skill acquisition and refinement need to be investigated and understood if learners are to study and acquire those methods and attitudes that will give them the ability to "learn how to learn" from their experience.
This study also was important to teachers in most if not all fields because it took one approach—the experiential instrumental one—that gives indications that it may serve the above-mentioned goal and examines in light of how it is actually used and how a current learning theory accounts for it. In prompting readers to examine similar instruments in their own fields, the efforts for understanding and harnessing of these learning instruments will become more widespread and, it is hoped, more successful.

Scope and Delimitations of the Study

This study examined some of the characteristics of ELIs by using the Kolb Learning Cycle and its terminology. Three examples of ELIs were analyzed by showing how their use embodies the four stages of learning as outlined by the cycle.

The study demonstrated how these specific ELIs help the learner attend to and cognitively process her experience and thereby learn within the framework outlined by Kolb’s Cycle.

Because of the possible choice from a wide selection of existing ELIs and array of studies to which they can be applied, it was necessary to limit this study to the learning process related to the acquisition of three skills. The analysis of more abstract forms of learning aided by ELIs are beyond the scope of the present study, although it is hoped that the careful reader may be able to extrapolate from the conclusions provided herein to her own fields of educational expertise. Some areas that are related to ELIs have been omitted for considerations of clarity of focus. For instance, ELIs have strong relationship with psychotherapy such as helping individuals to overcome the entropic effects of equilibration and developing psychoemotional awareness.
and control, but the focus of this thesis was education. The purpose of these exclusions was the production of an understandable, unified study primarily designed and written for educators.

Outline of the Remainder of the Document

The second chapter of this study will be a review of related literature. Since there is very little literature specifically on Experiential Learning Instruments, this chapter will focus primarily on literature that forms the theoretical framework within which the present study will examine ELIs. To that end, the following chapter will trace the foundations of experiential learning theory as they will relate to an analysis of ELIs. Revelant streams of educational thought, theory and practice also will be briefly mentioned so as to place both this study and experiential learning in an overall context within contemporary education. Mention will be made, too, of Donald Schon’s theory of Reflective Practice as well as related literature from psychology’s investigations of the brain’s hemispheric specializations as they both supply useful information for the understanding of ELIs.

Chapter three will describe six characteristics of experiential learning and the Kolb Learning Cycle. As this study’s intention was to explain how ELIs work using the framework provided by experiential learning theory and this cycle, it was necessary to describe the main characteristics of experiential learning, the four-part experiential learning cycle itself and its constituent parts.

The fourth chapter will concentrate on describing three ELIs and their operation in experiential situations. The three examples will be described by
using Kolb’s four-stage Learning Cycle categories and the related terminology. A case study of one ELI’s use will be included.

Chapter five will analyze the ELIs’ characteristics within the framework provided by the six basic characteristics of experiential learning and within the learning cycle. This chapter will also describe five criteria that can be used to select effective ELIs for general use in learning.

The final chapter will summarize the conclusions of the study. It will also point out potential areas for the use of ELIs in educational settings. This chapter will conclude with suggestions for the reader’s self-study and exploration of ELIs in her personal learning and teaching life.
CHAPTER TWO: A REVIEW OF LITERATURE RELATED TO EXPERIENTIAL LEARNING INSTRUMENTS

In order to understand the concept of ELIs and their function in the learning process, it was necessary to review the pertinent literature of experiential learning so as to articulate the theoretical framework within which ELIs can be viewed. To that end, this paper examined those areas within the extensive range of the literature that have direct bearing on the theoretical, psychological and philosophical aspects of experiential learning which serve to explain how and why ELIs work and why they should be used to facilitate learning by experience.

This paper could not begin to cover the entire range of literature of experiential learning and it did not purport to do so. Instead, it briefly described elements of experiential learning theory with reference to the relevant sources in the existing literature.

Foundations of Experiential Learning

Foundational Theorists

Experiential Learning was first described by Russian cognitive theorist, L.G. Vygotsky (Kolb, 1984). He used this term to refer to what he perceived as the circumstance of learning, learning from experience being the process that enables human development to take place.

There are three major foundational theorists of experiential learning, John Dewey, Kurt Lewin and Jean Piaget. The elements of their theories that relate directly to an understanding of ELIs are described below.
John Dewey

*I take it that the fundamental unity of the newer philosophy is found in
the idea that there is an intimate and necessary relation between the
processes of actual experience and education.* (Dewey, 1938, p. 20)

The essential element of philosopher-educator John Dewey’s theory of
experiential education was that the learner’s thoughts and behaviors were
modified in an on-going way by her interaction with her environment, in
other words, her experiences.

*every experience enacted and undergone modifies the one who acts
and undergoes, while this modification affects, whether we wish it or
not, the quality of subsequent experiences.* (Dewey, 1938, p. 35)

This “modification” is, in fact, learning itself, albeit not necessarily the
academic form usually associated with formal education. Of course,
experiential learning in Dewey’s philosophy is not restricted to classrooms,
structured curricula or semesters. Instead, he believed that the learning
process was a life-long, continuous act of self-modification, of framing and re-
framing ideas and their resultant actions by means of feedback obtained from
personal experiences. It needs to be noted that not all learning from
experience is productive and, indeed, some experiences, for instance,
traumatic ones, can “modify” the learner in ways that negatively affect the
quality of subsequent experiences. Dewey’s concern was the selection of
developmentally productive experiences.
Dewey contended that the central problem facing education in general was "to select the kind of present experiences that live fruitfully and creatively in subsequent experiences" (Dewey, 1938, p. 28). As was noted by later experiential theorists in analyzing Dewey's idea, he pointed out the need for an interactional type of education that was more concrete and practical than was possible in the verbally-based teaching available in most schools.

*the learner is directly in touch with the realities being studied.... It involves direct encounter with the phenomenon being studied rather than merely thinking about the encounter or only considering the possibility of doing something with it. (Keeton & Tate, 1978, p. 2)*

Dewey felt that "something was missing" in verbally-based learning that could be acquired by incorporating living personal experience into learning situations.

In the following passage from his book *Education and Experience*, Dewey mentioned the *instrumental* role of experiential knowledge in producing further forms of experiential learning. The difference between the instrumental and the intrinsic value of what is learned will be examined later in this discussion.

*As an individual passes from one situation to another, his world, his environment, expands or contracts. He does not find himself living in another world but in a different part of aspect of one and the same world. What he has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situations which follow. The process goes on as long as life and learning continue. (Dewey, 1938, p. 44)*
Kurt Lewin

Social psychologist Kurt Lewin’s major area of research was group behavior. He developed what became known as action research in which real-life or simulated situations were experienced and then analyzed. Lewin was primarily concerned with the integration of theory and practice (Marrow, 1969).

To that end he devised T- (training) groups in which experiences undergone by trainees (i.e., learners) were subjected to theory-based analysis wherein “differences of interpretation and observation...” between instructors and trainees prompted perspectival development (i.e., learning) (Lippitt, 1949). Lewin discovered that

learning is best facilitated in an environment where there is a dialectical tension and conflict between immediate concrete experience and analytic detachment. By bringing together the immediate experiences of the trainees and the conceptual models of the staff in an open atmosphere where inputs from each perspective could challenge and stimulate the other, a learning environment occurred with remarkable vitality and creativity. (Kolb, 1984, p.9-10)

This dialectic tension between concrete experience and conceptual analysis was to become a cornerstone of experiential learning methodology and is an important aspect of the operation of ELIs. The conflict between intellectual theory and actual experience is the central dynamic of experiential learning.
T-groups placed a high value on subjective personal experience in learning. Feelings as well as thoughts became "facts" in Lewin's research. More recent research has confirmed Lewin's belief that learning from the totality of personal experience was vital for individual and organizational productivity (Argyris & Schon, 1974, 1978).

The T-groups employed a broad range of observational "tools," simulations, tasks, role plays, skill-practice routines, exercises and the like in order to give trainees concrete personal experiences upon which newly abstracted concepts could be tested and based.

The common core of these technologies is a simulated situation designed to create personal experiences for learners that serve to initiate their own process of inquiry and understanding. (Kolb, 1984, p. 11)

The word "technologies" here refers to the instrumental function of Lewin's learning strategies. His trainees did not learn role plays, for instance, in order to play roles in their day-to-day lives. Rather, the role plays were used as "instruments" that helped the learners to observe aspects of their own thoughts, feelings and behaviors that were elicited during the role-playing experiences.

As a result of Lewin's work, the field of training and development was radically transformed. There was a movement away from lectures and textbooks to "a complex educational technology that relies heavily on experience-based simulations and self-directed learning designs" (Knowles, 1970). The ELIs generally use actual situations rather than simulations.
However, the employment of ELIs, as was the case with Lewin’s ‘technologies”, is often self-directed.

Jean Piaget

Jean Piaget’s research on the cognitive development processes of children opened up an area of study that had direct bearing on experiential learning—the role of “external” experience on the “internal” mental development of humans. Piaget’s theory described how intelligence is shaped by experience.

He hypothesized that intelligence is not an innate, biological internal characteristic but that it evolves as a product of the interaction between the individual human and her environment (Piaget, 1951, 1971). Piaget’s descriptive studies supported this hypothesis. They indicated that abstract reasoning and symbolic thought developed out of the child’s interactions, struggles and attempts at coping with her own personal environment.

He described the stages of cognitive development as follows:

*Enactive stage*—knowledge is identified in concrete actions and is not separable from experiences themselves.

*Ikonic stage*—knowledge is represented by images that begin to be separable from experiences they symbolize.

*Concrete and Formal Operations*—knowledge is represented by symbols that can be used intellectually, completely separated from experience.
Experiential Learning Instruments—as will be seen later in this study—employ all of these so-called “stages” in the learning process. It may be that Piaget implied here that the earlier stages are abandoned later in life. Knowledge that is identified with concrete action and experiences and knowledge which has only vestigial verbal or imagistic formulations remain part of the experiential learning process of ELIs as do the more intellectually “sophisticated” modalities of knowledge.

Piaget’s concerns were as much epistemological as they were psychological (Piaget, 1971). How humans know and the nature of their knowledge were pivotal in his theory of cognitive development. The process of symbolic representation of experience as it relates to ELIs will be discussed later in this study. However, it should be noted that the symbolization of types of experience does not happen “once and for all” but can be and often is “modified” in Dewey’s words (Dewey, 1938) by subsequent experiences or by intellectual interaction with other symbols.

American cognitive psychologist Jerome Bruner later used Piaget’s concepts to study the possibility of more closely and productively matching experiential learning situations to the level of cognitive development of the learner and to spurring it on (Bruner, 1960, 1966, 1971). Thus we can observe that matching ELIs to the learner’s cognitive structures is a well-established practice (Feurstein & Rand, 1977; Feurstein, 1980; Feurstein, Rand, & Rynders, 1988; Shah, 1978a). Piaget tried to create learning situations in which learners could “discover” or “construct” knowledge rather than being told its contents. Children became “little scientists” who experimented with their experiences, drew their own conclusions and symbolized them according to their needs and level of cognitive symbolic capacity.
His theory spawned a number of similar attempts to understand the cognitive development of humans later in life. Researchers studied the moral development of school children (Kohlberg, 1969), the intellectual and ethical development of college students (Perry, 1970), ego development (Erikson, 1959; Lovenger, 1976), and personality development (Harvey, Hunt & Schroder, 1961). These are mentioned here because they demonstrate psychologists' and educators' belief that cognitive development is a life-long process modified by experience and instrumentalities that become available at different periods in the life span.

**Contributing Streams**

**Therapeutic Psychologies**

Therapeutic psychologies—psychologies designed primarily to heal psycho-emotional *dis-ease* and prompt psycho-social adaptability—contributed two important concepts to experiential learning theory. First was the concept of adaptation. Central to most forms of psychotherapy is the assumption that healthy adaptation needs a workable integration of cognitive and affective processes (Kolb, 1984).

Psychoanalysis (Jung, 1960; Erikson, 1959), humanistic psychology such as client-centered therapy (Rodgers, 1961), Fritz Perls’ gestalt therapy (Perls, Hefferline & Goodman, 1951), and the self-actualization psychology of Abraham Maslow (Maslow, 1962) all concur that the cognitive “set” of the individual must be capable of adaptation to the affective processes of her experiences.
Cognitive “dissonance” (Festinger, 1954), the inability of an individual’s or a culture’s cognitive framework to account for an experience, can cause psychological dysfunction. Experiential Learning Instruments have been used to aid the learner in integrating her cognitive framework with her experience or in re-shaping that framework (Deikman, 1982).

The other contribution of psychotherapy to experiential learning was its demonstration that socioemotional development is a life-long process (Erikson, 1959; Rodgers, 1961; Maslow, 1962). This indicated that an individual’s ability to integrate her emotions with her social experiences was capable of modification/development/growth throughout the life cycle. Some adults’ social behavior was thought to be modulated by personal emotional frameworks that are dysfunctional or, at least, immature. Modifying, remediating, or eliciting healing/maturation of these emotional frameworks was believed to facilitate greater deliberate and healthful integration of the individuals into their social context. These modifications were, in essence, learning experiences for the individuals who had to undergo and to tactically overcome the emotional upheavals of such episodes of readjustment which, in some cases, may be required repeatedly over a period of time. Each episode would be a form of socioemotional experiential learning.

The psychology of optimal experience (Csikszentmihalyi, 1991) is founded on an approach which is said to involve the individual in such a way that both consciousness and emotion are actively involved in experience. The totality of concentration and deep enjoyment are said to be characteristic of what Csikszentmihalyi specified as an experiential state he called “flow.” Flow is typified by a structured form of thought and emotion which is focused on a particular aspect of experience and which effectively filters out
interference created by disordered thoughts and feelings of anxiety. Flow can be stimulated by employing some types of ELIs.

Flow navigates a course between anxiety and boredom in that it involves the individual in experiences which require focused attention—"only a very select range of information can be allowed into awareness" (Csikzentmihalyi, 1991, p. 58)—active engagement, and the use of a skill or skills at a high enough level that experimentation and a form of reflection-in-action learning are necessary to maintain adequate engagement with the experience. Such experiences not only produce feelings of well-being, but also permit experiential learning through concrete experience, observation, conceptualization and active experimentation. While it is not specifically a goal of ELI use to produce flow experiences, ELIs may produce them as a result of learning.

Radical Education Theories

Paulo Freire stated that it was the educator’s role to equip her students with the instrumentalities of “critical consciousness” (Freire, 1973, 1974). Learners were to be helped to actively investigate the personal experiential meaning of abstract ideas by means of engaging in dialogues with equals.

Like Lewin, Freire made the dialectic between abstract concepts and subjective experience central in his vision of the education process. This ability to stand outside the conceptual framework that the learner has come consciously or unconsciously to accept, to be critically conscious of her beliefs and paradigms, was, to Freire, essential to human development.

Ivan Illich sought ways to “deschool” society (Illich, 1972). He believed that a culture’s cognitive maps caused entire populations to become
hidebound, set or fixated in their thinking about experience, incapable of considering or formulating other perspectives from which to view their situations. He sought a deautomization of the process by which the citizenry were brought to cognitive unanimity. A society without alternative cognitive maps was essentially in intellectual bondage.

While not a radical theorist, Jack Mezirow developed a concept of Perspective Transformation that is epistemologically closely related to the concepts mentioned above (Mezirow, 1978). If an individual can be enabled to acquire another perspective from which to view her experience, a whole new range of symbolic interactions is also acquired. Symbols take on different meanings depending on the perspective from which they are viewed. For example, a literary passage would be experienced and understood entirely differently if, having originally conceptualized it as metaphorical or allegorical work, the reader were later to be apprised that it was a literal description of a factual occurrence. Experience, viewed from a different perspective, permits or requires a completely altered form of interactional behavior, thought and feeling.

Changing the perspective or an aspect of the learner's cognitive framework is another function of ELIs. This change permits the learner to re-integrate with her experience, thereby creating the need to learn how to integrate when incorporating the new perspective. Experiential Learning Instruments can be used to focus the learner's attention on and to stimulate the tension between the learner's current concepts and her direct personal experiences which cannot be accounted for by those concepts. The strictures of conceptual fixations can be loosened by the employment of ELIs which operate by causing the learner's attention to be drawn to aspects of her
experience that are anomalous to her conceptual set. In short, ELIs can be used to elicit or strengthen “critical consciousness.”

Neuropsychological Research

The relationship between the functioning of the brain, consciousness and learning has been a natural area for psychological as well as educational research. Especially promising has been split-brain research which has pointed out the differences in cognitive functions of the left and right hemispheres of the brain (Levy, 1980; Corballis, 1980).

*The relevance of this work for experiential learning theory lies in the fact that the modes of knowing associated with the left and right hemispheres correspond directly with the distinction between concrete experiential and abstract cognitive approaches to learning.* (Kolb, 1984, p. 16)

This statement was echoed in a review of split-brain research literature:

*Such evidence may be taken as support for the idea that the left hemisphere is the more specialized for abstract or symbolic representation in which the symbols need bear no physical resemblance to the objects they represent, while the right hemisphere maintains representations that are isomorphic with reality itself….* (Corballis, 1980, p. 288)
Cognitive isomorphism is the representation of knowledge by means of sensory images which mirror the reality they represent existing, for instance, as visual or auditory facsimilies or icons, whereas cognitive symbolism, employed predominantly by the left hemisphere, represents knowledge by abstract symbols such as words, writing, and numbers which are not required to resemble the knowledge of reality they are intended to represent.

The implication of these studies was that the two modes of knowing are different but equal and complementary. Balance of cognitive functioning, not single hemispheric cognitive hypertrophy, was the perceived goal of intellectual development (Ornstein, 1986, 1991).

Such research tended to contradict Piaget and other cognitive theorists who have insisted that experience-oriented forms of knowing were lower developmental structures of “real knowledge” which they identified with abstract propositional reasoning. Research indicated (Levy, 1980) that there were high-level cognitive functions that were not susceptible to symbolic representation but were “isomorphic,” the experience of reality, itself; there is nothing inherently superior or more sophisticated about abstract symbolic manipulation. Isomorphic representations are capable of similar cognitive uses because they, as do abstract symbols, represent what is known, albeit in an iconic rather than a wholly symbolic way.

For experiential learning, neuropsychological research was crucial in that it pointed out the necessity of concrete personal experience in learning. Learning carried on by abstraction and symbolic representation alone left half of the brain out of the learning process. Also, research demonstrated that there were elements of learning that can only be understood by the right hemisphere’s isomorphic symbolic representations (Robb, 1972; Chall & Mirsky, 1978). This meant that certain knowledge can only be acquired by
personal experience that permitted its direct symbolic isomorphic encoding. There can be no second-hand versions of such symbolic encoding processes.

Experiential Learning Instruments are used during personal experiential learning situations, situations that require real experience. This means that right hemisphere processing of experiential data is not excluded during their employment as it often is in traditional education situations of lectures and textbooks which are decidedly weighted towards left hemisphere processing.

Philosophies

Mentioned earlier, the distinction between intrinsic and instrumental values has been discussed in detail by philosophers going back in history to Aristotle. Intrinsic value was described as being attributable to objects and experiences which were valuable in and of themselves (Wolff, 1992). Jeremy Bentham associated this kind of value with pleasure which was its own end, while Immanuel Kant and Soren Kierkegaard believed that such value was found in human existence (Wolff, 1992). The intrinsic value of human life for these latter philosophers was based upon the concept that instrumental value could derive its existence in its relation only to something intrinsically valuable. Since intrumentality was conceived in its relation to the achieving of ends for human existence and those ends were themselves related in their value to that existence, by using the process of regression it was believed that instrumentalities were rooted in their value to the service of the intrinsically valuable—human existence (Wolff, 1992).
It has been thought that what was learned was *intrinsically valuable*. However, the difference between learning information and the acquisition of actual knowledge has not been widely addressed in education.

Instrumental value was attributable to objects and experiences which *conducted one towards that which was intrinsically valuable*. Experiential Learning Instruments are an example of an approach having instrumental value in experiential learning as they are employed to conduct the learner towards the acquisition of knowledge. *Experiential Learning Instruments are not the object of learning, they are the instrument by which the "object" is acquired.* This relates to Dewey’s concept that what has been learned from one experience modifies and informs subsequent experiences and learning, *each new "learning" superseding the previous "learning"* and itself conducting the learner to ever new “learnings.” Knowledge in this respect can be seen as instrumentally valuable in conducting the learner to more refined forms of knowledge. Dewey, himself, noted (Dewey, 1938) that there was a continuum between instrumental and intrinsic knowledge, not a dichotomy as it might appear, with intrinsically valuable knowledge viewed at one time and in one particular circumstance being seen as instrumental knowledge at another time in another circumstance.

As was noted above, Jean Piaget was as concerned with epistemology, a discipline within philosophy, as he was with psychology. In learning, the two were inextricably bound together. What is learned was seen to be directly related to how it is learned.

Philosopher Stephen Pepper, (1942) in examining the issues of epistemology, devised a typology of knowledge systems which categorized knowledge into its different forms. This has been useful for educational theorists who have wanted to examine the learning process by means of its
outcomes, by what the learner has learned, and by how form influences content in learning (Webster, 1984).

Scientist and philosopher Michael Polanyi is widely cited in both educational and psychological literature. His concept of “tacit knowledge” has had a profound effect on experiential learning theory (Polanyi, 1958, 1969). Tacit knowledge was the term Polanyi coined to categorize forms of knowledge which could not be articulated either by words or by mathematical formulae. Later it was seen that some of these forms of knowledge were the result of right hemisphere processing by the brain (Zangwill, 1961; Bogen, 1969; Williams, 1983; Wonder & Donovan, 1984), what Jerome Bruner called “knowing of the left hand”—the left hand being controlled by the brain’s right hemisphere (Bruner, 1966).

Although Sufism often has been mistakenly associated with religious mysticism, it has been primarily a psychophilosophical approach to education. Its current public spokesperson, Idries Shah, has written extensively on the “technology” of Sufi education (Shah, 1964, 1977, 1978a, 1978b, 1982). He has described in considerable detail the instrumental function of Sufi teaching stories and provoked experiential “impacts,” both of which are highly developed forms of ELIs (Shah, 1964, 1977, 1978a, 1978b). Sufi teaching stories have been used to draw learners’ attention to structural aspects of human experience which are usually neglected, ignored or misunderstood. The cognitive “gap” that results causes considerable psychological, social, emotional and epistemological problems which the Sufis’ ELIs help learners to overcome.

A summary of the foundations of experiential learning should note the contributions of three distinct traditions. The first is the concept that learning is a life-long process, purposeful and self-directed, and that this
understanding of learning should inform the trajectory of education in general. Second is Piaget's theory of learning as a dialectical process that entails "assimilating experience into concepts and accommodating concepts to experience" (Kolb, 1984, p.18). Third, the epistemology of experiential learning involves attempts to understand the relationship between forms of knowledge and how knowledge is learned.

**Current Experiential Learning Theorists**

David Kolb has been instrumental in codifying the disparate elements of experiential learning. His book, *Experiential Learning: Experience as The Source of Learning and Development*, articulated the theoretical basis of experiential learning (Kolb, 1984). The Kolb Cycle—described in detail later in this study—is the four-stage cycle that categorizes the elements of experiential learning and has become the paradigm of researchers in this area of education. Kolb's importance derives from his inclusive vision of what constitutes learning, his conceptual eclecticism, and from his appreciation of those areas of human inquiry that can contribute to an understanding of the process of learning from experience.

Kolb's theory of experiential learning has formed the cornerstone of a considerable body of on-going research and educational literature covering the learning experiences of the young to the old. Studies that relate the theoretical structure of experiential learning to career exploration (Atkinson, & Murrell, 1988), improving students' learning (Brown & Campione, 1981; Stice, 1987), assessing students' approaches and skills in learning (Boyatzis, & Kolb, 1991), supervizing and guidance in the teaching practicum (Fitzgibbon, 1987), and using games and simulations to provide in-class experiences for
students (Thatcher, 1990). The overlap between traditional education and professional development is one area of experiential learning that has also been explored with positive results (Smedley, 1987; Laschinger, & Boss, 1989).

Another contemporary theorist of experiential learning is David Boud. His main area of investigation has been the relationship between experience and the intellectual process of reflection (Boud & Pascoe, 1978; Boud & Lublin, 1983; Boud, Keogh & Walker, 1985). He contended that reflection can be developed in ways that allow the learner to learn more from her experiences. Another area of experiential learning that has been investigated in conjunction with reflective learning has been "autobiographical learning" (Powell, 1985) wherein learners learn to analyze reflectively experiences in an organized way, rather than "naturally," which may be haphazard and unproductive in a learning sense.

Donald Schon has taken a similar approach in *The Reflective Practitioner* (1983) and *Educating the Reflective Practitioner* (1987). His studies of organizational behavior have revealed that managerial workers benefited from exercises that prompted directed reflective thinking on their experiences at work. Schon's efforts have been to help learners be able to learn from their experiences by reflecting upon them in order to be able to perform their skill better. He has demonstrated that experience provides learners with feedback that, were it attended to reflectively, would supply useful data for the improvement of a variety of forms of thinking, performance and interpersonal behavior.

Schon's work with Chris Argyris has dealt with using experience to improve organizational learning (Argyris & Schon, 1978). Also interesting in its relation to ELIs has been Argyris's research on how behaviors inhibit
learning (Argyris, 1976). Certain actions as well as attitudes prevent learners from benefiting from both the learning potentialities of their experience and formal educational situations. This has been corroborated by Shah’s collection of experiential “encounter” literature of the Sufis which showed that humans often “abolish the impact” of experiences that could be used reflectively to learn (Shah, 1981).

David Hunt has contributed to the literature of experiential learning in his work on self-renewal (Hunt, 1974, 1991). He has constructed ELIs that prompt learners to investigate those aspects of their personal experiences that could be profitably reflected upon so as to provide useful data or models for further self-improvement or for renewing their enthusiasm for their professional activities.

One of the profound influences in this area of educational research was George Kelly’s theory of personal constructs (Kelly, 1955). He likened humans to scientists constructing plausible hypotheses to account for their experiences, testing them, reframing and modifying them until workable theories were arrived at that adequately explained their worlds and predicted outcomes of planned actions. His theory of how people construct their own “scientific” explanations of experience was related to Piaget’s concept of how concrete experience and abstract conceptualization interacted with each other to produce their own symbolic representations of reality. Kelly’s theory of personal constructs pointed out the interactional nature of knowledge and experience and the fluidity of formulations of personal knowledge.

Important for this present study is Kelly’s assertion that people construe a picture of reality, test it against their experiences and re-construe their cognitive formulations to more accurately accord with their experiences.
This view of learning forms a central part of this examination of Experiential Learning Instruments.

Another contributing influence is that of Invitational Learning as articulated by William Purkey and John Novak (Purkey, & Novak, 1984). In this approach, an essential component is the inclusion of the learners’ experiences and perceptions in the learning process. Teachers are encouraged to have unconditional positive regard for the learners both to facilitate the learning process and to develop the learners’ self-esteem. This inclusion of the students’ realities allows the learners to corroborate learned concepts through their experiences; this process, indeed, is invited.

Experiential Learning Instrument Theorists

Educational psychologist Reuven Feurstein and his associates, Yaacov Rand and John Rynders, coined the term “instrumental enrichment” (Feurstein, Rand & Rynders, 1988). Working with mentally handicapped learners, they provided students with learning “instruments” that helped them to learn subjects such as physical cause-and-effect relationships as well as more abstract predictive thinking patterns. The program that uses these instruments has been called “instrumental enrichment.” This approach has been researched and tested widely and has become part of a new “interventionist paradigm” in education (Presseisen, 1992; Hoon, 1990; Silverman & Waksman, 1988; Yates, 1987; Shayer & Beasley, 1987).

According to Feurstein, Rand and Rynders, instruments took various forms depending upon what was to be learned. If a cause-and-effect relationship was being learned, a physical apparatus that allowed the relationship to be observed in action was devised. Feurstein stated,
“Understanding requires the ability to compare two successive acts...” (Feurstein, Rand & Rynders, 1988, p. 53). Instruments were employed that helped the learners to compare the effects of two actions. This was similar to Piaget’s use of differing sized beakers to help children to see how the volume of water was conserved despite the apparent difference in size of the containers. For this type of “discovery-understanding” to happen the learner had to be exposed to situations where the perceptual and cognitive conditions permitted her attention to be focused on the operative elements in the experience.

Feurstein and his colleagues noted a particularly significant aspect of experiential learning which points out the usefulness of instruments that help refine the learner’s apprehension and comprehension of personal experience. Some learning theorists consider exposure to a stimulus (i.e., experience) and the “natural” response to it sufficient for learning.

This assumes that the response is at its maximum possible development immediately and that the response does not need to be “connected” with other stimulus-response patterns or responses to bring about other integrated developments. (Feurstein, Rand & Rynders, 1988, p.53)

Experiential Learning Instruments are to be employed to prompt the learner to “label, compare, group, categorize and give meaning to the present experience as it relates to former ones” (Feurstein, Rand & Rynders, 1988, p. 55).

In Feurstein’s and his colleagues’ case, the use of instruments was “mediated.” This meant that the learners were helped to use the instruments by their teachers. If physical assistance were needed in manipulating an
instrument it was given so that the learners could experience its correct operation. Sometimes teachers would direct learners' attention to the consequences of their actions—a necessity in some cases due to the level of mental and perceptual acuity of the learners. In fact, most of Feurstein's use of learning instruments was mediated.

However, the use of instrumental enrichment has not been restricted to slow learners and mediated employment. Adult students, college students and "normal" adolescents have been exposed to the employment of these learning instruments in mediated and non-mediated, self-directed circumstances. The results of studies in these types of situations generally have indicated increased retention and improvement in metacognitive abilities (Feurstein, Rand, & Rynders, 1986; Nickerson, R., 1984).

Another ELI theorist was psychotherapist Moishe Feldenkrais. It was his contention that the correct integration of physical movement would lead to an overall psychological–emotional–behavioral integration of the human organism (Feldenkrais, 1949).

To this end, he studied the relationship between the kinesthetic applications of the body's musculature and the skeletal structure. Motion of the limbs and the trunk was studied in order to find the most efficient postural positions relative to gravity's pull on the body that would permit the least amount of effort to affect the greatest and easiest motion of the limbs and trunk. The intention to move was to be given the most effective channel to be realized through the efficient positioning of the body during movement.

Feldenkrais developed a series of ELIs or exercises that helped the learner to become more aware of the relationships between postures, muscles, bones and movements. This progressive series of exercises permitted the learner to experience the effect of different postures on the intent to move and
its realization. The exercises were not intrinsically valuable but were instrumentally useful in that they allowed the learner to learn to become aware of her movements in order to maximize their efficiency.

A complex, vital corpus of ELI use has been made accessible through the research of educator-author Idries Shah. Gathering and translating written and oral Sufi developmental materials, Shah has collected a broad spectrum of ELIs in the form of teaching stories, meditation themes, encounter narratives and aphorisms that displays sophisticated insights into the nature of human mentation and its interaction with recurring patterns of experience (Shah, 1964, 1977, 1978a, 1978b, 1982).

Teaching stories contain experiential encounters in which characters embody particular thought structures and attitudes. As the characters act and think, an unstated, underlying framework of behavior and thought becomes apparent. The learner, by studying the story, starts to become aware of "equivalences" of behavior and thought in her daily experience. The resulting awareness then permits the learner to act in accordance with her conscious intentions instead of her habitual behavioral and thought patterns. Experimental evidence indicates that, unlike narratives of a literary type, these teaching stories stimulate activity in the right hemisphere of the brain as well as the left much like an actual experience itself would (Ornstein, Herron, Johnstone, & Swencienis, 1976).

Critics of Kolb's Experiential Learning Theory

Not all educational theorists entirely support David Kolb's model of experiential learning. Peter Jarvis has studied how adults learn and noted that they report a more complex process than the Kolb Cycle indicates takes
place during experiential learning (Jarvis, 1987, 1992). Jarvis researched the learning experiences of adults who observed that there were experiences not indicated in the Kolb theory. For instance, in some cases experiences produced no apparent learning whatever, and memorization was thought to be a form of learning that does not seem fit into experiential learning cycle described by Kolb (Jarvis, 1992).

Jarvis deduced a typology of learning with three categories: nonlearning; nonreflective learning; reflective learning (Jarvis, 1992). These categories were further subdivided revealing elements of experiential learning that do not seem adequately represented in Kolb’s theory. For example, learners can respond to experience with nonlearning strategies such as a presumption that there is nothing to learn about, an area of learning also studied by Schutz and Luckmann (1974). Perhaps this might be termed “learning what not to learn,” but it is, nevertheless, not represented in Kolb’s approach. This aspect of learning is given significant consideration by Jarvis, who termed the nonlearning response to experience “anomic” as the learner conceptualizes a nonlearning experience as an anomaly. The meaning to be found here in what Jarvis pointed out is that the learner learns to adapt to her environment by simplifying and selecting what she perceives to be of relevance to learn from experience, thereby choosing what she deems to be worth learning, not necessarily what there is to be learned from an experience. Kolb made no explicit mention of this situation in his theory.

A form of learning Jarvis believed is not adequately addressed in the Kolb Cycle is “preconscious” learning that takes place as a result of experience but which is neither reflected upon, consciously abstractly conceptualized, nor deliberately experimented with in the sense that Kolb noted in his theory. The operative word here is “consciously,” for Kolb did
not seem to account for learning that takes place below the level of conscious awareness. As was noted above, “tacit” forms of knowledge may have no readily identifiable abstract conceptual component and may be embodied in iconic, isomorphic forms.

Jarvis also delineated a form of learning that appears to be non-experience based which he called “contemplation” (Jarvis, 1992). He stated that contemplation exists outside behaviorist notions of learning in that it is not a direct response to experience and that it involves pure thought. However, it should be noted that the subject matter of contemplation, regardless of its degree of remove from concrete experience, seems to stem from some form of experience (Dewey, 1938).

Jarvis pointed out a key deficiency in Kolb’s theory when he noted that Kolb made no mention of what the effect of experiential learning is on the learner’s subsequent experiences (Jarvis, 1987). Although Kolb did quote Dewey in this area, his theoretical framework does not address this issue in a comprehensive way. Also, Kolb did not discuss what Schon (1983) termed “reflection-in-action” in which Jarvis claimed experimentation is followed directly by reflection. Jarvis (1987) made the point that the cyclical nature of Kolb’s model does not accurately reflect non-sequential aspects of human experience and cognition, although in this case his criticism appears to be inaccurate as there can be no active experimentation in Schon’s approach without experiential manifestation—concrete experience upon which the learner then reflects. Jarvis (1987) noted another of Kolb’s omissions when he suggested that it would have been helpful for Kolb to incorporate the differences between learning and cognition, something which is not done in his experiential learning theory. All of this being stated, Jarvis still gave
qualified endorsement to Kolb’s articulation of the theoretical basis of experiential learning (Jarvis, 1987).

Another of Kolb’s critics is Jack Mezirow, whose theory of transformational learning noted above shares some characteristics with experiential learning. Mezirow’s criticism stems from what he perceived as a significant omission on Kolb’s part to present the grounds for his polar distinction between two modalities of experiential learning, reflective observation and active experimentation, which Kolb indicated are opposite to each other in their approaches to the learning situation (Mezirow, 1991). Mezirow observes that Kolb was problematically brief in describing his meaning of the concept of reflection which is central to his theory. Mezirow did not mention, however, that Kolb distinguished the reflective and experimental modalities by noting that reflection is essentially a process of comprehension, while experimentation is, at base, an act of apprehension. Comprehension was characterized by Kolb as a function of cognition and apprehension was described as function of perception.

The criticisms made of Kolb’s theory reveal that it has several areas that are incomplete or insufficiently or unclearly articulated. However, the critics cited above agree that Kolb’s theory is generally accurate in its depiction of the main modalities of experiential learning although it is not, as yet, completely comprehensive.

Summary of Review of Literature Related to ELIs

The scholars mentioned above have been cited because their work contributes conceptual materials that indicate ways to understand the characteristics of ELIs. Their work continues to be referenced in educational
research and publishing and therefore provides de facto conceptual frameworks that inform and structure much of contemporary educational theory.

Of particular note at this point in the study is the notion that experience is an integral component of learning. Many of the scholars mentioned insist that while information can be acquired without experience, real personal knowledge cannot. Whether it is because both hemispheres' cognitive capacities must be employed for knowledge acquisition, or because personal constructs are erected on experiential as well as conceptual bases, or perhaps because explicit and tacit forms of knowing are mutually inter-dependent and sustaining, learning requires experience to be complete.

However, experience itself does not constitute learning. As Feurstein noted, learning is not necessarily at its maximum at the point of experience (Feurstein, Rand & Rynders, 1988). Learning seems to require the presence of some “instrument” that directs the learner’s attention to aspects of the experience so that conceptual and stimulus-response patterns can be productively “connected” with what is already known. This in turn leads to effective learning and human development.

The literature noted above has pointed out that it is a combination of experience, perception, conceptualization, reflection and experimentation that produces the totality of what has been termed experiential learning. It is in the interaction of these components and in their relation to one another that the characteristics of ELIs were examined in the present study.
CHAPTER THREE: CHARACTERISTICS OF EXPERIENTIAL LEARNING

“Learning is the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38). This is the working definition of experiential learning which was used throughout this study.

This chapter describes those elements of experiential learning that will be used to frame and contextualize an understanding of ELIs as they relate to the current formulation of experiential learning theory.

David Kolb (1984), a major contemporary experiential learning theorist and researcher, has formulated the primary characteristics of experiential learning theory. Each will be indentified and elaborated upon, later integrating them with an analysis of the characteristics of ELIs.

Learning is to be thought of as a process not an outcome. Kolb’s first characteristic of experiential learning contends that ideas are not fixed but are in reality formed and re-formed throughout life as the result of interactions with experience and reflection upon these interactions. Learning is an on-going process of adaptation to an environment which is in flux, it is not a “content” or specific outcome unless it is viewed as a frozen moment in time. However, this being said, it is in some circumstances appropriate to view learning as an outcome at particular moments if this aids the learning process. For instance, the effectiveness of a learning method may be assessed by testing learners’ skill or knowledge which is conceptualized as the “outcome” of having employed that method.

It has been an unspoken assumption in most educational systems that knowledge exists in and of itself, that it is outside the learner, and that learning has taken place when the learner has internally taken possession of this “object” (Kelley, 1947).
Knowledge has been seen to be a “pre-existing external” existing in the form of statements that bear an accurate correspondence to reality, not a continuous process of uncovering layer upon layer of meaning in personal perceptions of experience. The question arises as to whether the symbolic representations in the form of these statements are the knowledge which is being referred to, or the personal process of understanding those externalized representations, an internalized process. In experiential learning it is theorized that this epistemological “mis-understanding” has led to emphasis being placed upon testing learners for the acquisition of “units of knowledge” that are in reality memorized, verbally or numerically-encoded bits of information and that knowledge acquisition, in some cases, has been “mis-conceptualized” as an algorithmic process wherein these units of knowledge are “added” to the learner but do not produce further knowledge (i.e., learning and knowledge are not seen heuristically). Facts have not been seen for what they are—symbolically encoded, perspectively colored and limited, personal perceptions of other people’s experiences. Inference based upon information, however reliable, is not knowledge. It remains inference. “Knowledge” is based on and is tested through experience.

Knowledge in experiential learning is the life-long learning process of refining perceptions, symbolic representations and understandings of the meanings of experiences.

Second, learning is a continuous process grounded in experience. This refers to Dewey’s concept:

the principle of continuity of experience means that every experience both takes up something from those which have gone before and
modifies in some way the quality of those which come after. (Dewey, 1938, p. 35)

As was quoted earlier, Dewey noted that it is a characteristic of experiential learning that previous experience becomes an “instrument” for understanding experiences that come after. What comes before allows the learner to “expect” something similar to occur again. The interplay between what is expected and what is experienced is an important component of experiential learning. If learning is grounded in experience, this implies the process of learning is inherently one of continuous re-learning.

If the education process begins by bringing out the learner’s beliefs and theories, examining and testing them, and then integrating the new, more refined ideas into the person’s belief systems, the learning process will be facilitated. (Kolb, 1984, p. 28)

It is this integration of “more refined ideas” that is key to the Kelly-based concept of people as “scientists” (Kelly, 1955), learners who test their current ideas against the experience of their operation in reality. Ideas are not so much thrown out when found to be inaccurate but rather corrected, adjusted and refined so as to work better in daily operation.

Also in this connection, Piaget identified two ways new ideas are learned (Piaget, 1971). Integration happens when the learner adopts a new idea as part of her on-going concept of reality. Substitution happens when the learner adopts a new idea on a trial basis while keeping the option open to return to her old idea. Integration shares similarities with the concept of
*theory-in-use* — being a fully adopted theory used by the learner to frame and guide her thought and action — of Argyris and Schon (1978).

We thought the trouble people have learning new theories may stem not so much from the inherent difficulty of the new theories as from the existing theories people have that already determine practices. We call their operational theories of action "theories-in-use" to distinguish them from the espoused theories that are used to describe and justify behavior. We wondered whether the difficulty in learning new theories of action is related to a disposition to protect the old "theory-in-use."

(Argyris & Schon, 1978, p. viii)

Overcoming psychoemotional attachment to less effective theories-in-use (cognitive inertia) is part of the process of learning.

Third, Kolb supported the notion that **learning requires the resolution of opposing ways of adaptation.** Lewin’s theory of learning (Lewin, 1951) noted the conflict between concrete experience and abstract concepts, between action and observation, and its necessary resolution for adaptive living.

Piaget (1971) noted the same conflict in different terms. Ideas must be made to harmonize with the world and experiences must find a way of integrating with the learner’s present conceptual understandings of the world.

Friere’s concept of “praxis” is defined as “reflection and action upon the world on order to transform it” (Friere, 1974, p. 36) and, as such, represents a resolution of opposing ways of adaptation. At the center of praxis is the activity of “naming the world,” a cognitive as well as a
perceptual *action*. Naming changes the external thing named from a nameless stimulus received by the sensing organism into a conceptually meaningful "something" which is integrated into the perceiver's pre-existing cognitive framework which has evolved as a result of past experiences and namings.

_Human existence cannot be silent, nor can it be nourished by false words, but only by true words, with which men transform the world._

_To exist, humanly, is to name the world, to change it. Once named, the world in its turn reappears to the namers as a problem and requires new naming_. Men are not built in silence, but in word, in work, in action-reflection. (Friere, 1974, p. 76)

For Friere, it is not only nameless stimuli of reality that require naming for personal knowledge, but also a "reclaiming" of a stimulus/experience from the oppressive control exerted by another who has named it in order to retain a coercive conceptual control over other individuals. This reclamation involves the re-naming of the experience in question in order to accord with emancipatory as well as the epistemological intentions of the learner.

Experiments in perception at the Hannover Institute revealed that perception is an activity of naming received stimuli (Kelley, 1947). Reality is only what has been _experienced and named as such_. The process of perceptually experiencing, naming and re-naming is what is commonly referred to as knowledge. Naming is based on what has been experienced and named in the past. Perception is a "directive for action. What we do is on the basis of the perception, not on the basis of the object" (Kelley, 1947, p. 37). There is a correspondence between this view of perception and knowledge which
focuses on epistemological and metaphysical issues and Friere's (1973, 1974) concept of "naming" which focuses on emancipatory issues.

In terms of experiential learning, the twinned processes of perception and naming require on-going refinement. Initial perceptions and namings are invariably superficial and simplistic and, of necessity, cannot embody the sophisticated, "experienced" knowledge of learners who have over time repeatedly experienced, re-perceived and re-named ("refined") their knowledge, the process at work here being a heuristic one rather than an algorithmic one. Harkening back to Feurstein et. al. who noted that response to a stimulus (in this case the response is "naming") is not at its most refined and developed level at the point of the initial response to an experience (Feurstein, Rand & Rynders, 1988). Here, too, it can be noted that what Jarvis refers to as "preconscious" learning (Jarvis, 1992) may later gradually become conscious at which point a name may be given to knowledge forms which were previously nameless. This movement toward conscious knowledge is seen by Piaget as a refinement of preconscious knowing (Piaget, 1971). Another transformation or stage of knowledge may be seen when conscious knowledge becomes automatized and used ""without thinking" (O'Connor & Seymour, 1990).

Resolving conflict between what has been actually experienced of the external world and its abstract internal conceptualization based on perception, its "name," is characteristic of the process of experiential learning. Models of learning indicate that the process inherently is fraught with tension and conflict.

To assist learners to resolve such conflicts, effective learners have four kinds of abilities (Kolb, 1984): Concrete Experiential (CE); Reflective Observational (RO); Abstract Conceptual (AC); Active Experimentalational
(AE). The simultaneous utilization of all four has been seen to be practically impossible or at least prohibitively difficult; the learner must choose one to concentrate on in any learning situation. This choosing of which ability to use in a learning situation is called “singularity” (Liebman, 1989).

The experiential learning situation has been characterized as bi-dimensional—the activities of concrete experiencing and abstract conceptualizing, acting and observing, actively involving and analytically detaching (Bruner, 1966).

Thus, in experiential learning, the learner must reconcile her two pairs of learning abilities—apprehension, composed of Concrete Experiential and Active Experimentalional, and comprehension, composed of Reflective Observational and Abstract Conceptual.

Learning involves the entire learner in a holistic adaptation to her environment. Theorists such as Dewey (1938), Lewin (1951), Piaget (1971), Kelly (1955) and Kolb (1984) did not see learning as existing in a special area of human activity. Instead, cognition, perception, behavior, emotion, instinct, heredity and consciousness were seen to involve all aspects of human life in the process of learning. Learning did not take place in isolation from other human activities; it happened simultaneously with them.

As adaptation was viewed to be the way organisms survived, learning was seen to be the major process of adaptation for human organisms. That learning has been categorized as a “preparation for life” as seen in the way children are confined to classrooms to be occupied with the acquisition of abstract conceptual skills, separated from one another by grades, subjects and from meaningful activity in the “real world,” demonstrates how contrary to the popular conception of learning these theorists’ view was.
Learning requires real transactions between the learner and her world. Emphasis in the past has placed learning in a person-centered, psychological framework, something that takes place mostly inside the learner’s head, aided by the words of teachers and textbooks (Kolb, 1984). But learners shape their environments as well as being shaped by them; the relationship is transactional.

Learning that does not involve the learner in transactions with her world was seen as “decontextualized” and therefore lacking “ecological validity” (Brunswick, 1943). The result of this type of learning was considered to be incomplete, unrealistic pseudo-knowledge. It may be seen, in the psychological sense, as “dissociated” (Ornstein, 1986) from its experiential basis.

Every genuine experience has an active side which changes in some degree the objective conditions under which experiences are had. (Dewey, 1938, p. 39)

The word “interaction” assigns equal rights to both factors in experience—objective and internal conditions. Any normal experience is an interplay of these two sets of conditions. Taken together…they form what we call a situation. (Dewey, 1938, p. 42)

Lewin’s theoretical formulation of this transactional relationship was $B = f(P,E)$, meaning that Behavior is a function of Person and Environment (Kolb, 1984, p. 36). Psychologist Albert Bandura said that personal characteristics, environmental influences and behavior all operate in “reciprocal determination” of one another in an inextricably interconnected way.
(Bandura, 1978). “The concept of reciprocally determined transactions between person and learning environment is central to the laboratory-training method of experiential learning” (Kolb, 1984, p. 36).

**Learning is the process of creating knowledge.** Psychologists, educators and philosophers have speculated about the nature of knowledge throughout history. They (Bruner, 1966; Polanyi, 1958; Piaget, 1971; Hunt, 1992) have categorized two general forms of knowledge, social and personal.

Things are known prior to the learner’s learning of them; they are known by others who have learned them previously and who have subsequently become knowers in a sense limited to knowing some specific things. It may be called accumulated cultural experience. This is social knowledge.

A learner interacting with knowers may be guided towards knowing by those knowers who choose to guide her. The learner then either agrees in her knowing with the knowers’ knowledge or discovers that the knowers’ knowledge was incomplete or fallacious. There is a *transaction* between social and personal knowledge, one modifying the other continuously.

Personal knowledge is that form of knowing that has involved personal experience about that which is known. It is the accumulated individual subjective experiences of the person doing the knowing. Personal knowledge is often unexpressed, unacknowledged, and is unique to each individual (Hunt, 1992).

Studies of left and right hemisphere cognition have demonstrated that not all knowledge can be communicated by commonly used systems such as language and number (Edwards, 1979; Wonder & Donovan, 1984). Spatial, relational and synthetic modalities of perception and cognition were found to be processed predominantly by the right hemisphere, the non-verbal, non-
sequential half of the brain. These aspects of knowledge are difficult to impossible to communicate because they are associated with non-verbal, enactive/ikonic cognition. Because this kind of knowledge is isomorphic with what is perceived, it is most effectively learned by personal experience. Idries Shah described an example of the necessity for personal experience in learning in a situation where language proves to have been insufficient for "teaching" knowledge about a specific subject.

_Radios_

_I was once in a certain country where the local people had never heard the sounds emitted from a radio receiver. A transistorized set was being brought to me; and while waiting for it to arrive I tried to describe it to them. The general effect was that the description fascinated some and infuriated others. A minority became irrationally hostile about radios._

_When I finally demonstrated the set, the people could not tell the difference between the voice from the loudspeaker and someone nearby. Finally, like us, they managed to develop the necessary discrimination of ear, such as we have._

_And, when I questioned them afterwards, all swore that what they had imagined from descriptions of radios, however painstaking, did not correspond with the reality. (Shah, 1972, p. 116)_

Michael Polanyi's study of personal knowledge has identified the non-verbal area of knowledge as "tacit" (Polanyi, 1958). Tacit knowledge includes what is known even below the level of conscious awareness. Tacit knowledge may be accumulated but it seems that it is not so much taught as picked up
by contact, much the way an apprentice would pick up knowledge by association with masters of her profession and by repeated interaction with the environment.

Another facet of knowledge that has some bearing on the experiential learning process is that in some cases affective judgment of experience occurs before cognitive analysis (Zajonc, 1980). This can produce barriers to the learning process by veiling aspects of experience from the learner. In one theorist’s words, the impact of the experience is “abolished” before the learner can learn anything from it (Shah, 1978b). In Jarvis (1992) this same approach is divided into three forms of “abolishing”—presumption of non-importance, nonconsideration because other things are deemed more pressing, and rejection of impact as invalid.

To summarize the characteristics of experiential learning, the process and structure of experiential learning as has been described by David Kolb has become a widely accepted model for both psychologists and educators (Kolb, 1984). The model is referred to as the Kolb Cycle and it illustrates the dialectical relationship of apprehension and comprehension in experiential learning. Since the focus of this study is on Experiential Learning Instruments, the Kolb Cycle is examined here only insofar as it relates to the discussion of ELIs and their applications to be discussed in the following chapters. Experiential learning is described as a process of adaptation, an activity, rather than a product or an outcome. Knowledge is created during the activity of learning and is transformed and re-created; it is not a static object passed down by authorities. Also, learning changes the learner and her experience. Lastly, learning and knowledge are directly related and are understood by reference to each other.
The following quotation from *Among School Children* by W.B. Yeats gives two succinct images that illustrate the difficulty of separating the knower and the process of knowing from that which is known.

*O chestnut-tree, great-rooted blossomer,*  
*Are you the leaf, the blossom or the bole?*  
*O body swayed to music, O brightening glance,*  
*How can we know the dancer from the dance?*  
(Yeats, 1965, p. 245)

Process and Structure of Experiential Learning –  
Kolb Learning Cycle

As identified by Kolb (1984), there are four adaptive learning modes to the process of experiential learning—Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE).

Pairs of these learning modes form dialectically opposed but complementary diads. Concrete Experience and Abstract Conceptualization form one pair while Active Experimentation and Reflective Observation form the other. Each pair is involved in different aspects of *prehension*, either *apprehension*—Concrete Experience or Active Experimentation—or *comprehension*—Abstract Conceptualization or Reflective Observation. Kolb calls the internal reflective modalities of learning *intention* and the active manipulative modalities *extension*.

*The dynamic relation between apprehension and comprehension lies at the core of knowledge creation…. Apprehensions are the source of*
validation for comprehensions ("thoughts without content are empty"), and comprehensions are the source of guidance in the selection of apprehensions ("intuitions without concepts are blind"). (Kolb, 1984, p. 106)

The cyclical relationship of the four modalities produces, when actively employed, self-correcting, transformational learning. "The process of critical comprehension is capable of selecting and reshaping apprehended experience in ways that are more powerful and profound" (Kolb, 1984, p.107).

Dialectically opposed modalities do not supplant one another. They permit each other to be extended and refined in specificity, efficiency and effectiveness. Each modality provides capacities not present in any of the other three. Albert Einstein noted in this regard:

the business of logical thinking is strictly limited to the achievement of the connection between concepts and propositions among each other according to firmly laid down rules which are the concern of logic. The concepts and propositions get "meaning" viz. "content," only through their connection with sense-experiences. The connection of the latter with the former is purely intuitive, not itself of logical nature. (Schilpp, 1949 as quoted in Kolb, 1984, p. 106)

The cyclical, self-correcting nature of experiential learning has been observed by psychologist William James (1907) and philosopher-educator John Dewey (1938). In quoting James, Dewey differentiated between the knowledge-as-object concept where knowledge was conceived of as having intrinsic qualities and the experiential learning concept of knowledge-as-
process where knowledge has *instrumental qualities* (i.e., knowledge is an instrument for refining subsequent attempts to learn and for clarifying problematic situations). Where Dewey referred to science, it may be useful to read *learning*.

*Genuine science is impossible as long as the object esteemed for its own intrinsic qualities is taken as the object of knowledge. Its completeness, its immanent meaning, defeats its use as indicating and implying....as long as objects are viewed telically, as long as the objects of the truest knowledge, the most real forms of being, are thought of as ends, science does not advance. Objects are possessed and appreciated, but they are not known. To know means that men have become willing to turn away from precious possession; willing to let drop what they own, however precious, on behalf of a grasp of objects which they do not as yet own. Multiplied and secure ends depend upon letting go existent ends, reducing them to indicative and implying means. (Dewey, 1938, p. 130-1)*

By employing all four aspects of the cycle the learner submits her knowledge to continuous revision, thereby escaping the comfortable crystallizations of learning found in dogmatism. The freedom to learn continuously is “paid for” by foregoing the illusory security of an absolute knowledge and final authority.

If all four modalities are present alternately in the learning situation, ossification of the process is avoided. This insuresthat learning will continue to take place instead of being thwarted by the secondary satisfactions of final answers and the “right way“ to do things.
Thus the development of knowledge, our sense of progress in the refinement of ideas about ourselves and the world around us, proceeds by a dynamic that in prospect is filled with surprising, unanticipated experiences and insights, and in retrospect makes our earlier, earnest convictions about the nature of reality seem simplistic and dogmatic.... Because we can still learn from our own experience, because we can subject the abstract symbols of the social-knowledge system to the rigors of our own inquiry about these symbols and our personal experience with them, we are free. (Kolb, 1984, p. 108-9)

The ability to remain free to re-construe her concepts and re-examine her experiences is achieved by adopting a posture of partial skepticism relative to her knowledge (Perry, 1970). This allows for committed action within a framework of epistemological relativism—the learner is always prepared to re-learn her knowledge, knowing that her present knowledge is necessarily “not complete.”
CHAPTER FOUR: AN EXAMINATION OF THE CHARACTERISTICS OF
THREE EXPERIENTIAL LEARNING
INSTRUMENTS

The previous sections of this study have examined educational
thinkers and their theories about experiential learning. Characteristics of
experiential learning modalities were described as were the process and
structure of experiential learning itself.

At this point, the focus will shift to what have been termed here as
Experiential Learning Instruments (ELIs). Experiential Learning Instruments
are instruments which are employed to modify the learner’s apprehension
and/or comprehension in experiential learning situations, thereby improving
the efficiency and effectiveness of those modalities in the learning process.
ELIs will be examined in relationship to the conceptual characteristics and the
effects on the experiential learning process which has already been described.

The following is an analysis of three ELIs. They are drawn from
widely divergent areas of human activity—music, body building and inter-
personal communication—and represent different aspects of experiential
learning.

Overtone Exercise

Saxophonists practice tone exercises in order to learn how to produce
the kind of sound they want to have. Generally these exercises take the form
of holding a note for a long time, trying to keep the sound steady, sonorous
and centered. The term “centered” means that the acoustical components of
the sound produced called harmonics—notes mathematically related to the
fundamental note which combine to produce the note the listener hears as a single tone—are balanced with each other with no harmonic being either overly prominent or inaudible. Over time the learner’s sound is stabilized and strengthened by repeating these demanding physical exercises.

The learner’s goal is the production and control of her saxophone tone, the quality of the individual’s personal sound which in musical circles represents an important aspect of artistic individuality and capacity for aesthetically-pleasing creative realization. This goal is accomplished by developing the muscular strength, mental concentration, and control of minute aspects of breathing, lip placement, jaw pressure and laryngeal control necessary to produce the sound the learner mentally conceives as desirable.

The overtone exercise is an ELI because it gives the learner a way of learning how to produce her desired tone through the experience of tone production itself. Unlike learning a piece of music which can be conceived of as being intrinsically valuable, the overtone exercise is never learned for its intrinsic value but for its ability to help the learner to acquire something else—in this case, her desired sound. The exercise’s value is instrumental because it functions as an instrument that is used to help the learner acquire specific knowledge.

The overtone exercise is an ELI designed to affect the Concrete Experience (CE), Reflective Observation (RO) and Active Experimentation (AE) modalities of experiential learning (Liebman, 1989; Weinstein, 1988).

The learner plays the low B flat note on the saxophone at full volume. Then the learner plays the middle B flat note using the appropriate fingering which is different from the low B flat. The learner then sings the higher pitch
concentrating on the constricted feeling the larynx needed to produce that note.

Returning the fingers to the low B flat position but keeping the larynx constricted for the higher B flat, the learner then blows. The higher B flat is produced; it is an overtone of the lower note. All musical instruments produce composite sounds that are perceived as single tones. These tones are actually made up of a series simultaneously sounding tones mathematically related to the frequency of vibration of the single lowest tone the listener hears, the fundamental. The other tones, the overtones or harmonics, are not noticed consciously by the listener as they are not emitted at the same volume as the fundamental. These overtones can be made more audible or singled out by various performance techniques. The learner uses the overtone exercise to learn how to control the relative balance of the overtones.

Next the learner produces the middle B flat using the appropriate fingering with the larynx still constricted as if "singing the tone" quickly followed by the overtone middle B flat using the low B flat fingering. There is a noticeable difference in the two sounds. The one using the overtone and the low B flat fingering is more resonant, fuller, more "concentrated" sounding than the middle B flat fingered its traditional way. The learner then alternates between the two tones trying to match the sound of the normally fingered note to the sound of the overtone.

The combination of lip and jaw pressure, mouth placement on the saxophone mouthpiece, diaphragm pressure used for blowing and amount of larynx constriction that produces a matching of these tones is too complex to be articulated in words. It can only be experienced and then memorized by repeated re-experiencings. In trying to match the sound of the overtone note,
the learner experiments with various combinations of the activities mentioned above, searching for that combination that will produce the best result. Once achieved, the learner memorizes how she got that sound.

Only after repeated attempts, listenings, reflection upon the effects of changes in the sound-producing components, experimentation and development of endurance in both muscles and attention/concentration does the learner finally learn how to achieve her personal tone. The ELI is generally used over several years to develop this tone and subsequently to "warm up" as a way of focusing the mind-body connection prior to practice and performance.

The ELI, the overtone exercise, does not explain how the matching is to be learned. It does not describe the kind of sound to be achieved. It does not address the theoretical basis that accounts for the necessity of the exercise's components. It simply provides the learner with a way of attending to the gestalt of procedures that will eventually allow the learner to learn how to produce the kind of sound she desires.

This ELI gives the learner concrete experience (CE) which she then uses as a model for sound production. Playing the middle B flat as an overtone causes the entire saxophone to vibrate, producing a resonant, full sound. The experience of hearing this sound gives the learner an idea of what she is aiming at when playing. She can apprehend the experiential reality of the difference in the two tones and can attend to them using both hemispheres of the brain which process the perception according to their cognitive proclivities.

Because notes are held out, the learner has sufficient time to reflect upon what she has heard, to reflectively observe (RO) the realities of the tones and the minute physical movements that produce alterations in the tones.
This provides the learner with the opportunity to comprehend the meanings inherent in what has been heard and done.

Using the overtone exercise as a learning instrument, the learner can actively experiment with lip and jaw pressure, mouth placement on the saxophone mouthpiece, diaphragm pressure used for blowing and amount of larynx constriction, all of which contribute in different but inter-related ways to tone production. The ELI allows the learner to isolate the effects of each component singly on the tone. This helps the learner actively experiment (AE) with and subsequently assess the effects of the various components thereby learning what to do and what not to do in order to produce what she considers to be a desirable sound.

The overtone ELI conducts the learner’s awareness in the experiential situation of playing the saxophone. It helps the learner to attend to the totality of the experience while allowing her to attend to separate components of the experience. The ELI provides the learner with ways to apprehend and comprehend her experience so that she can learn from it.

**Muscle Confusion**

The goal of body building is the symmetrical hypertrophy of the body’s musculature. Body builders must learn which exercises develop which muscles. There exist many programs of exercises that will gradually produce muscle development. Maximizing this development is the goal of the muscle confusion ELI (Weider, 1981; Everson, 1985; Wolff, 1993).

For muscle hypertrophy to be achieved the muscle must be placed under repeated stress. Moving the muscle through its range of motion relative to the bone(s) to which it is attached requires adherence to what is
called “correct form.” Correct form is the specific type of contraction and release of the muscle that places the greatest degree of stress on the entire muscle throughout its range of movement. Observing the correct form of an exercise will produce the greatest muscle growth in the most effective and efficient manner.

Once the learner has learned the correct forms of the exercises and the sets of exercises needed to produce the appropriate muscle development for her physique, the next step is to repeat the sets many times and over time to increase the weights being lifted to increase the stress on the muscles. Not only do the stresses of specific exercises produce muscle growth, but groupings of exercises that stress body areas in complimentary ways called “super sets” cause the affected muscles to be catabolized more effectively thereby enhancing development and anabolic growth.

There comes a point in the body builder’s development when she cannot lift heavier weights without violating the correct form of the exercises. By this time the learner has had considerable experience in monitoring her awareness of the muscles being exercised and the effects of stress upon those muscles. The ability to control and direct physical exercises based upon experiential “feedback” (Robb, 1972) is, in body building, crucial to producing the greatest possible muscular hypertrophy. The learner has learned and now “knows” through internal feedback whether the muscles are working to their maximum capacity or not. When the learner determines that the muscles are working to their maximum capacity, the ELI of muscle confusion can then usefully be employed.

Muscle confusion is the learner’s way of learning how to increase stress on the muscles without having to increase the weights being lifted. As
an ELI it operates in the CE, RO, AC and AE areas of the experiential learning cycle.

Muscle confusion is a body-building principle researched and developed by Joe Weider (1981). It states that muscles being developed become habituated to the stress placed upon them by repeating sets of particular exercises. While those exercises are necessary at different stages of the body-building process--some exercises are fundamental and carried out at the beginning of the process and others are "advanced" in that they build upon what has been achieved by the fundamental ones--muscles become adapted/habituated to the stresses placed upon them by the overall groupings of these exercises. The muscles have learned to predict and cope with the stresses imposed by the groupings of exercises.

At the CE level, the learner monitors her muscles during groups of exercises. Her awareness of the movements and contractions of her muscles has been developed (i.e., learned) through previous experience. When the point comes at which the learner experiences that no further weight can be added, she decides to *confuse* the muscles by changing the aspects of the exercises or their groupings. This is deliberate, conscious *dishabituation* of the adaptive attempts of the muscles. (The concept behind this is that muscles should never be allowed to adapt but be put under continuous stress to achieve maximum growth.)

Much humor is made regarding body builders' intelligence. However, it should be noted that the kind and amount of concentration needed to employ the Weider training principles effectively and the intelligence needed to direct them in an truly developmental training program stimulates and substantially develops all four modalities of the experiential learning cycle. The RO modality is activated as the learner observes how the variations are
affecting her awareness of stress on the muscles being exercised. It is the learner’s reflective observation of the effects of the muscle confusion that permits her to direct her efforts. Without this reflective awareness of the interaction between the selected exercise variation and the actual stress experienced during the exercise the learner will not be able to consciously control the dishabituating process.

In the AC modality, the learner can approach muscle confusion’s effects from the perspective of “causality.” A specific effect—increased stress on a muscle by use of non-habitual exercise or sequence of exercises—is conceptualized as resulting from an expectation of a different type of stress. The conceptual pairing of expected and non-expected stresses is part of what the learner is learning. Over time and with experiential feedback, she learns to refer to a learned inventory of these pairs during exercise to thereby control the type and amount of stress appropriate to her intentions relating to muscle development at given periods of her training.

In the AE modality of experiential learning the learner uses her awareness of the muscles from the RO to try out variations on the exercises and groupings in order to learn which new approaches and patterns produce the greatest stress on the muscles. The learner experiments with types of exercises, the number of sets done (a movement is repeated a number of times in a group called a “set”), the order in which the sets are done relative to one another, the number of repetitions of a particular exercise, and the angle at which a weight is lifted (Everson, 1985; Wolff, 1993).

The AE stage of learning produces further experiential data that can be attended to and whose meanings can be learned. Meanings are comprehended in the AC phase of the learning cycle where predictive and directive concepts are formulated and assessed. The learner can abstractly
conceptualize the relationships between the strategies of the muscle confusion and their effects. These in turn can be used to plan future training sessions, compare the effectiveness of different strategies, and consciously experiment with a variety of confusion approaches.

Serve the Task

This ELI helps the learner focus on the real nature of a task, not an imagined one however attractive it might be. It requires the learner to continually ask herself whether what she is doing is serving the predetermined task or some other end (Deikman, 1982). In operation, it prompts the learner both to attend to specific bandwidths of experiential data and to comprehend what those data mean and how they need to be responded to given the nature and goals of the task at hand.

It should be noted that ‘Serve the Task’ (StT) does not inform the learner of what should be done or how to do it. Instead, the learner’s attention and thinking are pointed in a particular direction and the experience itself provides the feedback which all four learning modalities can process in their own ways.

StT can be used in a wide variety of experiential learning situations. It is particularly useful in situations where the learner’s ego and self-esteem are integrally involved in an experiential interaction such as in interpersonal communications where the learner is called upon to apply her communication skills to accomplish a specified task.

In order to protect her ego concept, the learner may be willing to allow the job that she is doing to suffer. Perhaps the learner may think of the task as
an opportunity to "score points" in a social situation where her self-esteem may demand different or opposite behavior than does the task at hand.

The function of this ELI is to focus the learner's attention on the relationship between her self-concept and the needs of the task in which she is engaged. Serve the Task requires the CE, RO, AC and AE modalities of experiential learning.

First, StT requires that the learner attend to the actual experience of the task itself. Serve the Task also involves how the learner feels about herself. The learner's mind may have imaginatively created any number of realistic and illusory relationships between the learner and the task she is doing.

In the case of interpersonal communications, the learner may think that the purpose of the communication is being served when in reality some other subsidiary or irrelevant task is being dealt with. Most commonly, these other tasks involve, among other things, ego gratification, emotional catharsis, exchange of mutual obligations/favors, or revenge for some perceived wrong.

Serve the Task prompts the learner to focus on the actual experience rather than the imaginary construct of the situation; CE provides experiential data that are concrete rather than imaginary. For instance, if the purpose of the interpersonal communication is to analyze a body of data during a staff meeting, the learner may take it as an opportunity to "shine in company" or to display her rhetorical skills thereby concentrating her efforts on obtaining those satisfactions rather than serving the intended task.

The concrete experience permits the learner to observe the entire "ecology" of the situation to monitor those factors which seem to elicit these nonessential approaches to the real task. The concrete experience becomes the raw experiential data—as opposed to the learner's imagined scenario—
that later can be reflected upon to examine these data for clues as to why the
original behavior manifested itself, what factors seem to be related to the
nonessential behavior itself, and other possible ways of obtaining the desired
satisfactions without impeding the original task in the future in similar
circumstances.

Reflecting upon the reality of the task (RO), the learner can question
whether or not her focus is on the elements of the task that are operative. Her
attention may be on parts of the experience which may serve to gratify her
need for self-affirmation but which simultaneously serve to undermine the
goal of the task. The CE data permit the learner to reflectively observe the
information-rich experience so as to gain a new perspective on how, in the
example being cited, she conducts herself when called upon to analyze data
during interpersonal communications. The learner consequently can reflect
upon something she has really experienced. This is in contradistinction to a
te textbook scenario which the learner may say “does not apply to me because
I’m not like that and would never do those kind of things.” The learner here
can reflect upon concrete experience rather than upon her opinion or a
hypothetical example. This reflection upon how one actually does something
has been referred to by two different names, metacognition (Resnick, 1985;
Brown and Campione, 1981) and self-observation (Deikman, 1982).

The AC modality of experiential learning guided by StT produces
concepts of task orientation which are significantly different from those
related to the fulfillment of self-esteem needs. The learner becomes aware
that her behavior needs to be aligned with the intention and goal of the task
rather than those of her ego’s legitimate but refractive purposes.

The abstract conceptualization (AC) is a difficult re-orientation process
requiring that the learner in fact sincerely be interested in serving the task. If
she is not interested in serving the task, this itself is a practical and useful lesson to have learned, self-knowledge being no less a valuable product of learning than technical knowledge. Serve the Task employed during the AC phase of experiential learning can bring to light a painful awareness of hypocrisy, thereby stimulating feelings of self-doubt, unworthiness or other facets of cognitive dissonance (Festinger, 1954) relative to the learner’s stated ideals and her actual behavior. The learner must then learn to cope with these feelings if she wants to adapt to her new level of knowledge about the task. Lack of the honest desire to refine and apply her skill in the knowledge application situation will hamper the learner’s ability to learn from the experiences this ELI brings to her attention.

The AE modality requires the learner now to experiment with what is already known about the task but has not yet been adequately employed to serve it. Underused capacities and knowledge can then be brought to bear upon the task which, until this point, has been approached automatistically or matter-of-factly. At this point the experiential feedback helps the learner determine whether or not her application of other knowledge and skills is actually serving the task or serving some other purpose. In the case of the learner called upon to analyze information in an interpersonal communication setting such as a staff meeting, the learner would, at this point, be able consciously to ask herself during the next actual interchange of this type whether what is being thought, said or done is really serving the task at hand. The ability to use the question, “Is what I’m thinking/saying/doing serving the task?”, while engaged in the experiential situation returns the learner to the concrete experience once again, this time equipped with a meta-cognitive perspective. The CE mode has been modified, in Dewey’s terminology, by the learner’s passing through the previous four stages of the
learning cycle and been transformed by them as they have been transformed by the use of the ELI.

Case Study—Overtone Exercise

A case study of an individual who has used an ELI is provided here to give some specific information about how ELI use is experienced by a learner and how that experience seems to fall within the purview of experiential learning theory and the Kolb Cycle.

Since ELIs can be used with the mediation of a teacher (Feurstein, Rand, & Rynders, 1988) or by a learner in a self-directed way, a subject for this case study was selected using several criteria. First, the subject was selected because he was given the ELI by its chief proponent, Joe Allard (Liebman, 1989), and was supervised in its use for a period of approximately one year. Second, the learner has employed the ELI over a sufficiently long period of time (23 years) for its effects on learning to have taken root and for the learner to have had ample opportunity for reflection, conceptualization, and experimentation relating to those effects. Third, the learner has become in turn a teacher who gives this ELI to his own saxophone students and mediates its use in his teaching situations.

The subject of this case study is Pat Labarbara, an internationally recognized saxophonist and teacher. He was asked to relate his experiences with using the overtone exercise, the process of its mediation by his teacher, his reflections upon his use of the ELI, any concepts he has formulated about its use and effects, and any experimentation he has done employing this ELI.

The methodology used in the case study involved three interviews. The subject was first contacted and asked if he wished to participate in the
case study. He was told that his interview’s purpose was to supply information about the overtone exercise from a source who had considerable personal experience with its use and that the interview was to be analyzed using experiential learning theory. The subject claimed no knowledge of Kolb’s theory and made no references to it during any of his interviews. The first interview’s purpose was to establish his willingness to participate and to obtain historical information about his personal experience using the ELI. At the time of the first interview, a second, lengthy interview was set up to coincide with available time in his work schedule. The subject said he would use the intervening time to collect his thoughts about the overtone exercise and his learning and teaching experiences using the ELI.

The second interview began by asking the subject to relate whatever he felt was important about the overtone exercise from his own point of view. A long explanation ensued with many highly technical areas being described in musical and saxophonic jargon. The relevant issues for this case study have been herein rendered in less technical terminology while, as much as possible, retaining their overall meaning. At various points in the subject’s explanation, the interviewer would ask for clarifications of abstruse points. Also, questions were asked that would prompt the subject to reflect upon the meaning of his experiences from another perspective, again with the purpose being clarification of the points raised. The interviewer made both point-form notes and, where it seemed indicated, verbatim transcriptions of the subject’s descriptions and observations.

A third interview took place wherein the interviewer’s case study was presented to the subject for comment, correction and clarification. The subject expressed satisfaction that his descriptions and commentary were accurately reflected in the written case study. He expanded upon some of his previous
statements, not in substantive ways but in ways that seemed intended to clarify his own understanding of the overtone exercise. Being a teacher who uses this ELI himself, he appeared to the interviewer to be refining his own formulation and explanation of the ELI for his personal teaching purposes. His comments did not alter the substance of the present case study but did serve to help the interviewer refine this study.

The case study herein represents a synthesis of all three interviews in a way which was selected to enhance the comprehensibility of the wide-ranging, non-sequential interviews' structures and to eliminate unnecessary technical jargon that would inhibit a more general understanding of the subject matter.

He began by saying that since his first encounter with the overtone exercise in 1971 he has continued to use it in most of his practicing of the saxophone. He expressed deep satisfaction with its ability to produce beneficial results relating to tone production and noted that his conversations with other saxophonists revealed similar experiences on their parts. When asked to articulate his experiences of those results, the subject stated that his tone at first "cleared," "solidified," and then began to acquire a "brilliance" and a "lustre," particularly in the high register of the saxophone, a difficult area of the instrument to control. He claimed that his present tone was largely attributable to his continued use of the overtone exercise. Other effects were that it "set the embouchure"--the way the jaw, lips, and facial musculature are positioned around the mouthpiece and reed--so that it became a solid and consistent component in his playing. It also helped him develop the altissimo register of the saxophone—high notes not within the normal range of the instrument and which are produced by using overtones based on alternate finger positions.
At first, his encounter with the exercise was "mysterious" because he had no rationale to explain the effects he was experiencing. He became focused on his growing awareness of the role of the throat (more specifically, the larynx) in tone production and control. He said that through using the ELI, he gradually became more consciously aware of the throat's ability to produce the overtone series while fingerimg the fundamental note. Of particular interest to him early in his study was how practicing using the throat caused him to relax more and more, instead of forcing the tone to fit his image of it. The higher the overtone, the more relaxed his throat had to become in order to produce the required pitch. The effect of this was to cause an overall relaxation of the body which he now believes is beneficial for musical performance.

His teacher, Joe Allard, used to have him practice larynx control with the mouthpiece only while he was driving his car, concentrating on gaining conscious control over the voicebox. The subject observed that another noted teacher who employed the overtone exercise, Sigurd Rascher, mentioned the concentration aspect of the ELI in his overtone exercise book--"And because our power to concentrate is sadly neglected, it will be a long time before we master this seemingly simple exercise" (Rascher, 1962, p. 8). Bringing under-attended aspects of experience to conscious awareness is a function of ELIs.

Exercises based on the overtone ELI were not used with all of Joe Allard’s students uniformly. The subject has spoken with many of the teacher’s pupils who all report different utilizations of the exercise which seemed to have been prescribed on a case-by-case basis; the teacher did not seem to generalize his use of the ELI into a principle to be used by everyone. Other students reported to the subject entirely different approaches to overtones and throat control being taken but with the production of the same
result--a better tone. Many students, including the subject, were curious about why Allard did not explain much about the exercise, refused to write about it, and how much of their experience with the overtones seems to be "something you can’t really talk about." Allard’s avoidance of attempting to verbalize some aspects of the ELI’s results was felt by the subject to be based on a practical consideration which he stated this way: "When you know how to do it, you don’t need to talk about it." This aspect of learning with ELIs has been described above and is a significant advantage they have over verbally-based forms of learning in some situations. Perhaps for some forms of learning verbalization is unnecessary and contra-indicated. Its avoidance seems to have been modeled by the subject’s teacher in this case.

One point was mentioned in some detail. The drop-by-drop effect of gradually learning to control the larynx and to use it to control the tone and pitch of the saxophone had an entirely unexpected side-effect on this particular learner. The subject noted that after using the ELI for some time he began to develop relative pitch—the ability to recognize consciously the exact distance between successive pitches and reproduce them at will on one’s musical instrument. He says that now he can hear a musical phrase, "feel it in my throat and play without thinking about it." Ear training is a part of the overtone exercise which may or may not be emphasized by the teacher or the learner. Its effects, according to the subject, are cumulative and often unnoticed until they begin to "pop up unexpectedly" in the learner’s playing. Spin-off effects of ELIs are common as their products are often transferable.

On the conceptual level, the subject thought of the overtone exercise in behaviorist terms. He shared this view with fellow Allard student, Dave Liebman, and recommended Liebman’s book which contains the following description of the learning process stimulated and directed by the ELI:
Auditory stimulus or visual stimulus (seeing the note) → pre-hearing → anticipations of motor act → motor act resulting in actual physical activity and production of sound → auditory perception and evaluation of actual sound. (Liebman, 1989, p. 19)

The subject asserted that, with sufficient use of the overtone exercise, either an external stimulus such as reading a musical note or hearing one played, or an internal stimulus such as conceiving of a particular pitch and intending to play it immediately would cause the larynx to instantly adopt the needed position to execute the note without his having to “think about it at all.” In other words, laryngeal control had eventually become entirely automatized. He believed this to be the result of repeated pairings of the concentrated aural visualization of specific pitches and the adopting of the necessary position of the throat to produce the pitches—a form of self-directed conditioning based on the use of the exercise as the “instrument” of that auto-conditioning process. The learning that took place happened as a result of finding out what the necessary throat positions were and how to produce and control them at will.

The subject expressed a profound conviction that the overtone exercise provides the learner with a way of learning to play the saxophone from “inside himself instead of dealing with a strictly external machine.” Because control of the sound comes from the player’s throat and not strictly from the position of the fingers on the instrument, playing becomes “organic” and “something inside is working the instrument.” He felt that this ELI was the most effective way he has encountered for the development of the necessary physical skills and mental attunement to the process of sound production.
One experiment with the overtone exercise has been incorporated into the subject’s teaching practice. Given a saxophone with no keys—essentially a brass tube shaped like a saxophone—the subject put his mouthpiece and reed on the instrument and proceeded to do the overtone exercise. Since there were no keys to think about, he stated that he could completely focus his attention on the effect of the throat on overtone production. Since by this time in his use of the ELI he was quite expert in its use, he thought that this instrument would be useful for his own students to “get the hang of the exercise without getting hung up on the mechanics of the horn.” He now loans the keyless saxophone to a student until sufficient basic command of the throat has been achieved to begin more complex variations on the basic exercise.

Conclusions

The subject stated that he was convinced of the efficacy of the ELI to aid him and his students in learning laryngeal control, embouchure placement, ear training as they relate to tone production on the saxophone. He indicated that it has allowed him and his students, once the initial understanding and technical demands were in place—he put it, “once we are on the path…”--the ELI provides sufficient and essential experiential feedback for the learner to learn without further mediation of a teacher. In this way, the ELI functions as a heuristic, not an algorithm which would require on-going input.

The subject--who claimed not to be familiar with Kolb four-stage cycle or with experiential learning principles--exhibited elements of all four of the cycle’s stages in his own learning. His initial use of the exercise was
mysterious because he had only his concrete experience of it to contend with, having no theoretical rationale for the phenomena he was encountering. As he reflected upon his attempts to produce the overtones, he began to observe the role of the larynx in tone control. This eventually led him to conceptualize the relationship between the throat and playing as "a way to tie the body in with the playing of the saxophone." His subsequent experimentation with the results of his learning have allowed him to use overtones "to match sounds with trombones on recording sessions so that our sounds blend" and to use laryngeal control to "override fingerings of notes to get outside effects"--"outside" being a jazz musician's term for non-traditional sonorities.

The overtone ELI, according to the subject in this case study, is an effective learning instrument for individuals who wish to learn how to develop their saxophone tone. As an experienced professional saxophonist and teacher, the subject claimed that this ELI helps the learner monitor the learning process, itself.

Summary

The three ELIs examined above share several characteristics. First, each ELI in its own way assists the learner's apprehension and comprehension in experiential circumstances. All three ELIs cause the learner to observe and perceive her experience in ways that would not occur naturally to learners who do not possess such instruments. Second, each ELI helps the learner to conceptualize the meaning of what is experienced in a productive way and then to return to similar experiences modified by that new concept and to act in effectively and efficiently enhanced ways. Third, none of the ELIs actually
teach anything in a traditional sense of that term. They supply no
information but instead provide a way for the learner to form the experiential
feedback of reality personally experienced.
This section of the study will use the six primary characteristics of experiential learning noted in chapter two to provide a conceptual framework for the ELIs described in the previous chapter.

Learning is a Process Not Just an Outcome

**Overtone Exercise**

The overtone ELI produces no quantifiable outcome for the learner. Instead, the ELI gives the learner a way to monitor her process of adapting the variables involved in the production of the saxophone’s tone.

Learning tone production and how to refine it is a life-long process. Each small adjustment of embouchure, jaw pressure, lip placement, air stream speed and focus, laryngeal tension, and mouthpiece placement affects the sound (the complexity of possible combinations makes learning slow and difficult to intellectually conceptualize). In turn, the learner learns what each of these means for the achievement of her desired sound by employing the overtone ELI.

The learner cannot say when she has “arrived” at the end of the process and achieved the outcome. Instead, the process of using this ELI continues to produce learning experiences as long as the learner is trying to learn from the experiential feedback it provides. Even when a desired tone is solidified, the overtone exercise continues to be used as a “touchstone,” a
warm-up exercise to establish a firm sound prior to performances or at the beginning of a practice session.

**Muscle Confusion**

Like the overtone exercise, muscle confusion has no "outcome" that can be identified clearly. Over repeated attempts to exercise the muscles in non-habitual ways so as to maximize the stress put on those muscles, the learner gradually comes to know how to lift weights in ways that will more effectively produce the intended hypertrophy.

A body builder cannot be given a test at the end of using muscle confusion to see whether or not the ELI has been mastered. No such outcome is readily definable. It is in being engaged in the process of using muscle confusion that knowledge is acquired, conceptualized and refined. The process of using this ELI together with the alternating modalities of the learning cycle that come into play during that process produce, through personal experience, the learning that takes place.

**Serve the Task**

It is by being engaged in the process of serving a particular task that the learner can ask and, over time and repeated experiences, re-ask, "Is what I am doing, thinking and/or saying serving this intended task?" The consciousness during the task of the experiential feedback provides the learner with a way of monitoring or "attending to" whether or not the task is being served. This assists the learner in learning from her experience.
While conclusions can be reached about particular actions, thoughts and words in particular circumstances, this ELI’s main function is its ability to give the learner a way of monitoring or attending to the service of any task in any circumstance. Its connection is with the focusing of awareness—a process itself—which has no defined outcome.

Learning is a Continuous Process Grounded in Experience

Overtone Exercise

The overtone exercise provides the learner with the experience of hearing the saxophone as it produces an enhanced tone via the use of alternate fingerings of notes. As the learner uses the ELI and experiences the enhanced sound of the overtone she hears a model of the tone that is possible for the learner to produce by means of adapting embouchure, air flow, jaw pressure and mouthpiece placement to the production of a similitude of that model.

It is the mental model based on the experience of the sound of the saxophone in the overtone exercise that forms the basis for the continuous part of the process of learning using this ELI. That mental model is matched against the learner’s subsequent attempts at producing tones on the saxophone. Every experience modifies the learner’s awareness of every subsequent experience. Each attempt, regardless of the context (the learner might be playing a piece of music or simply a technical exercise or scale) is compared with the model. Each experience provides another opportunity for the learner to make the necessary adjustments to her sound so as to match the
model and to reproduce the experience that forms the basis of that model. Learning to produce the desired tone quality thereby becomes continuous.

**Muscle Confusion**

The ELI of muscle confusion provides the learner with the an approach that permits experiencing the effects of dishabituation in the employment of various exercises. This knowledge of "what it feels like" when a muscle or group of muscles are stressed in a non-automized way, thereby inducing an increased catabolic effect, gives the learner a way to seek out similar experiences. In turn, this helps the learner to learn new ways to "confuse" the muscles. Again, each experience invoked by using this ELI modifies each subsequent experience thereby producing one form of on-going learning.

Experiencing the effect of muscle confusion facilitates the continuous learning of *new ways to produce that effect*. This ELI gives the learner a way to learn how to learn.

**Serve the Task**

Employing StT gives the learner an on-going way of monitoring her thought, speech and behavior as they pertain to the service of a specific task during experiential situations. This ELI enables the user to adapt the application of her knowledge in increasingly more refined ways. If an application is seen not to serve the task it can be aligned to do so in subsequent experiences. Once more, each experience modifies subsequent experiences by helping the learner to sharpen her perceptions of the inter-relationships between personal thought, word and action and the task at
hand. It also permits refinement of those perceptions regarding how other people’s thoughts, speech and action accord with the goal of their tasks. Serve the Task reveals nuances within experience over time. The learner cannot take in all the ELI can help to reveal in one experience.

Learning Requires the Resolution of Opposing Ways of Adaptation

Overtone Exercise

Kolb noted that each of the four parts of the learning cycle—Concrete Experience, Reflective Observation, Abstract Conceptualization and Active Experimentation—requires the learner to approach learning in different adaptational ways (Kolb, 1984). The opposing modalities of CE and AC and RO and AE must be resolved through experience and thought during the exercise and afterwards.

During the exercise the learner is immersed in concrete experience. But she is capable of simultaneously conceptualizing in abstract form the results of any active experimentation that is being done and subsequently reflecting upon those results. This is an experiential-cognitive “feedback loop” established by using this ELI. It permits the continual up-dating of description and conceptualization of experience in a form that is readily available to the reflective observation of the learner. In short, all four modalities of learning can interact with each other and prompt further, more refined learnings.

Because of the complexity of interactions involved in this ELI, one educator has coined the term singularity (Liebman, 1988, p. 42) to refer to the necessity of the learner concentrating on one aspect of this exercise at a time.
A single aspect is focused on and modified at one time. Its effects on the totality of the sound are observed, conceptualized and experimented with "on-line" to use Schon's concept of experiential, moment-by-moment learning (Schon, 1987).

Muscle Confusion

As with the overtone exercise, all four modalities of the learning cycle are involved in the employment of this ELI. The concrete experience of muscle confusion must be abstractly conceptualized in order for the learner to use the new stress technique again. However, unlike the overtone exercise, a form of meta-conceptualization is required for this ELI to have its full effect. Subsequently, the learner has to conceptualize a way to employ the new technique in a non-habitual manner that will not allow the muscles to adapt to this new form of stress.

Reflective observation of the effects of new muscle stressing techniques allows the learner to become aware of the effects of her active experimentation. The learner can carefully observe the relationship between an experimental technique and her perception of its effects on the muscles undergoing the stress. While the two modalities are seemingly opposed, the feedback loop between them is mutually informative; it helps to produce and guide the process of experiential learning.

Serve the Task

With this ELI the learner approaches a situation in which she has to apply knowledge and skills already possessed. An abstract concept of the
way in which the knowledge/skills are to be employed is also pre-existent to
the experiential circumstances as is a body of related concrete experiential
data.

In applying existing knowledge in serving a task, further concrete
experience is produced which is, in turn, reflectively observed “on-line.” It is
the function of the ELI here to prompt the learner to distance herself from the
concrete experience somewhat so that the effects of her application of
knowledge or skill can be viewed more objectively than would be possible if
she were immersed in the task itself.

The results of this reflective observation then are fed on-line into the
learning modality of abstract conceptualization. It is at this point in the
experiential learning process that the learner’s self-awareness of intent,
motivation, and unstated psycho-emotional and social needs are analyzed as
they pertain to their “modification” of the learner’s service to the task. It is at
this point that the learner “sees herself” in an objective way as her thoughts,
speech and behavior are related to the process of service and its needs and
purposes. The learner can conceptualize whether she is doing something for
her own purposes or the purposes of the task. In short, the learner learns
whether or not specific behaviors indeed serve the task.

Once this conceptualization has been grasped the learner becomes
newly equipped to actively experiment with her modified knowledge or skill
in experience. The feedback from the subsequent experience produced by the
active experimentation once again can be reflectively observed.

The resolution between what the learner experiences in serving a task
and how she conceptualizes it and between the nature of the learner’s
experimentation in service and what is reflectively and “objectively,” in this
case, observed produces a modified knowledge or “learning” as it pertains to
the nature of service in a specific set of circumstances. The balancing of the opposing modalities of experiential learning in StT revolves around the tension between being immersed in the welter of experiential data (CE and AE) and being able to stand outside the exigencies of the situation to observe and conceptualize meaningfully, effectively, and, above all, objectively given the psycho-emotional aspects attending this ELI.

Learning Involves the Entire Learner in a Holistic Adaptation to her Environment

Overtone Exercise

This area of experiential learning in its connection with the overtone ELI is difficult to articulate simply and clearly. It involves areas of psychology and philosophy that may seem at first glance to be abstruse when dealing with education and particularly when dealing with playing the saxophone.

In employing this ELI, the learner must focus her attention in particular ways for specific purposes. For instance, she may choose to attend to jaw pressure for a time, something internal. This activity causes the learner’s mind to develop, strengthen and refine a special kind of bodily awareness and capacity to focus attention. At another time the learner may choose to attend to listening to the effects of a modification of one of the components of producing sound on the saxophone. Here the learner directs and focuses her attention on something external, the sonic environment.

The ability to direct and focus attention on different aspects of the environment, both internal and external, becomes a learned skill that can be
transferred to other areas of the learner’s experience. The totality of the learner is thereby transformed. Such a skill is not isolated from the rest of the learner’s functioning but rather enhances that larger area. Consequently, the learner can approach the totality of her environment in a transformed way being equipped with a learned and refined ability to attend to a variety of experiential stimuli. This is a key psychological component of the holistic adaptation to the learner’s environment.

The philosophical element involves an aspect of ontology, the philosophy of being. Since the goal of the learner is to learn how to produce a pleasing and personal sound, a sound that bears the stamp of the player’s individuality, when this goal is achieved the learner can be said to have manifested in a physical form an idealized model that initially had only a psychic form. This manifested sound is imbued in the learner’s mind with aesthetic, ontological and, in some cases, spiritual attributes.

When this sound is made real, that is, when the learner plays the instrument, the sound interacts with the environment, an audience and the learner herself. Responses to the sound form a feedback loop which in turn affects the learner at the attributional level. In other words, the learner experiences the externalization of her “ideal” sound and the environmental reaction as an image and echo of her innermost being—“This is me.” In turn, the learner is now in a position to learn who she is in her environment in a holistic sense by experiencing, observing, conceptualizing and experimenting with this externalized, ontological self-image as it interacts with the environment. The learner can now learn about herself by examining her sound. Self-image as it has been affected by the learned sound subtly affects all adaptational thought and behavior in a holistic way.
Muscle Confusion

The ELI of muscle confusion puts the learner in touch with a way to be aware of her body. Since the body is the instrument with which the learner “probes” her reality and learns from it, this development and refinement of bodily awareness enhances the learner’s capacity to sense her body’s interactions with the internal and external sensory reality.

Knowledge of this modality of awareness can modify other forms of learning and knowing based on this modality. As the learner interacts with the environment, this modality of awareness allows her to adapt to her circumstances in ways that are informed by this awareness. The learner’s bodily self-awareness informs and modifies her adaptational thought and behavior in a holistic sense.

Serve the Task

As with the two ELIs above, StT allows the learner to see herself in new ways. The learning process utilized here can be transferred to any other task-oriented behavior. Since each different task offers opportunities for self-study, the learner can return to the process embedded in StT time and again learning more and different things in the varied circumstances experienced in the course of adapting to the exigencies of life as a whole. The totality of the learner’s task-oriented interactions in life become the adaptational field of operation and learning. This ELI can be employed in virtually any aspect of the learner’s experience.
Overtone Exercise

What this ELI enables the learner to learn cannot be learned theoretically or abstractly. This does not mean that concepts pertaining to sound production cannot be articulated, but the skill involved in producing the sound has components whose verbalization have little or no bearing on the learner’s ability to do what is necessary to achieve her goal.

With this exercise there is no substitute for the actual practice of sound production. The learner must deal with the real world of sound, physical exertion and control, mental imaging and auditory cognition. No textbook or lecture can have any meaningful effect on the learner’s sound in absence of on-going, experiential encounters with making sounds with the saxophone.

Muscle Confusion

As with the overtone exercise, muscle confusion cannot be learned by non-experiential, second-hand means. The learner first must have habituated herself to a variety of exercises in their strict and proper forms. This accustoms her to feeling the stress on muscles as well as developing strength and endurance in the pursuit of symmetrical muscular hypertrophy. Such accustomization itself can only be produced by actually lifting real weights.

When the ELI of muscle confusion is employed, it, too, gives its effects only by the conscious involvement of the learner in the process of using non-habitual patterns of movement to increase the stress on the muscles being exercised and also to permit the learner to learn how to control and modify
the induction of new stresses. In this, there is no substitute for real interaction with the world which in this case is represented by the weights.

Serve the Task

As StT involves the interaction of intellectual, behavioral and psycho-emotional aspects of the learner's personality, it is in the real transactions with the environment that the nature of their interaction becomes manifest and observable. While the learner may claim that she would "never do that" while performing a task, she may well do it when called upon to actually serve that task. This ELI derives its potency and effectiveness from its ability to deliver the learner into experiences where she must confront and deal with her own reality as it pertains to serving a task in real transactions between the learner and her world.

Learning is the Process of Creating Knowledge

Overtone Exercise

Prior to using this ELI the learner may have some concept of sound production on the saxophone. Her concepts may or may not be valid, but they are unlikely to be wholly accurate. In practicing the overtone exercise, the learner gradually gets to know what her actions do to affect the sound. This knowledge is refined and made more specific over time; it is "created."

Since there can be no practical verbal articulation of many of the various physical components of saxophone sound production, the usual types of descriptive information that are passed on in educational situations cannot
exist in any meaningful form. Rather, while the functions of the components can be described, their actual interaction with one another can only be experienced. They exist at the level of what is termed tacit knowledge (Polanyi, 1958). Tacit knowledge is created by the learner’s direct personal experience with that which is being learned.

Muscle Confusion

As with the overtone ELI, that which can be known about muscle confusion past the point of the statement of the principle itself and the physiological reasons for its employment can only be known through the learner’s direct personal experience when involved in experiencing, observing, conceptualizing and experimenting with this ELI. The learner creates the knowledge obtained through the employment of this ELI by employing it.

Again, as with the overtone ELI, much of what is known is tacit, that is, not subject to adequate and meaningful articulation in words. The knowledge is created by attending to the experience of employing this ELI when lifting weights in a specific way. The knowledge is not pre-existent, it is created through the experience of using the ELI.

Serve the Task

The StT prompts the learner to reflect upon the relationship between what she thinks, says and does and the needs of the task which she is purportedly serving. It is in the observing and reflecting upon what is observed in the above-mentioned relationship that the knowledge of how to
serve the task more efficiently and effectively is created. With the StT ELI, it is the process of realization and self-realization that creates knowledge of how to serve a particular task. The moment-by-moment, on-line monitoring of the experience of serving a task prompted by this ELI allows the learner to “reorganize old meanings with the help of new meanings to make a new pattern of relation” (Gowin, 1981, p. 28), in other words, to learn.

In the case of StT, the knowledge created is highly personalized in that it relates to how the learner herself operates when serving a specific task. It may bear little or no relation to how someone else might operate under similar circumstances. The knowledge created by these experiences is personal knowledge, not readily transformable into general knowledge that can be transmitted to others or acquired by them without direct personal experiential involvement on their parts.

Some General Characteristics of ELIs

Experiential Learning Instruments can take any form. Their value in learning comes from their instrumental function, their ability to conduct the learner’s apprehension/comprehension toward learning in experiential situations. Because ELIs are not the subject of study—they do not contain the “facts” under study although in some cases they may embody those facts as in story-form ELIs—they are multivalent in that what can be learned by employing them may be applicable in a number of seemingly unrelated areas of knowing about experience. As was noted above, the processes and capacities developed after their use can be applied in non-related circumstances, as well.

Experiential Learning Instruments involve the learner in reciprocally interactive and determining transactions with her environment. In acting, the
learner modifies her environment which in turn modifies the learner and/or her circumstances.

Experiential Learning Instruments facilitate an approach to learning in a way that allows it to remain perennially flexible and non-habitual. This is instead of approaching learning with the hope of eventually crystallizing it. In other words, ELIs are used to *keep experiential learning a process rather than an object.*

Experiential Learning Instruments aim at the *continual refinement of the learner’s knowledge and skill,* not the entrenching of dogmatically held principles, styles or approaches in the learner’s thinking or behavior. This refinement comes as the result of continuing efforts at transcendence of the previous states of the learner in order to proceed from knowledge to meta-knowledge, from skill to meta-skill.

Learning happens as the learner’s awareness, directed by the use of ELIs, comes to experience, *monitor and then use experiential feedback from living situations in a way that facilitates self-correction and refinement.*

All four modalities of the experiential learning cycle delineated by David Kolb can be involved by using ELIs, unlike traditional "institutional" learning strategies which tend to focus on the abstract conceptual modality. Because using ELIs requires the learner to be immersed in real personal experience, *both conscious and subconscious cognitive processing are engaged.* Experience, it would appear, is processed by both hemispheres of the brain producing explicit and tacit forms of knowledge.

Once an ELI has served its function it can be discarded. An ELI is used only as long as it serves its purpose. Once the goal has been achieved, the ELI is dispensed with or a new one is used to further refine the learner’s knowledge. Unlike traditional intrinsically-valued objects of study, ELIs are
supposed to be superseded. They are not the ends of learning, they are among its means.

Intrinsic and Instrumental Value in the Learning Process

The difference between intrinsic and instrumental value has been mentioned previously in this study. To describe the concept of ELIs in general requires a clear differentiation between these two values as they relate to the process of learning.

If a learner is presented with an “object” of knowledge (e.g., knowledge of how to diagnose a specific illness in a patient), she may approach the learning process with the view of acquisition of an intrinsically valuable object. The process of learning is instrumentally valuable while the object of it, “the knowledge,” is intrinsically valuable in this model.

But if the learner is presented with a way of learning her knowledge, the way of learning would be experienced and perceived as an instrument for learning, so characterized because of its function of conducting the learner’s mind towards the learning of knowledge.

The function of ELIs is to conduct the learner’s mind towards the learning of knowledge through direct personal experience in her environment.

Therefore, an ELI is an instrument for the adaptation of a learner to her environment.

Experiential Learning Instruments are not the subject being learned. They are used to render more effective the learner’s attempts to learn by her experience. A learner would not so much “study” ELIs but “employ” them to study and thereby learn something else more effectively. A person may pick
up a stick to knock a peach down from a tree; she is not trying to learn about the stick, but about how to dislodge the peach. This does not mean that ELIs (the stick in this case) could not also be studied for its characteristics, but this would be a secondary aspect of learning, a by-product, as it were.

Unlike traditional concepts of learning where subject matter has already been abstracted from experiential situations and is then transmitted to learner by verbal and numerical symbols, ELIs assist the learner to perceive the experiential learning situation in a more refined way while both consciously and subconsciously/preconsciously being exposed to the totality of experiential input of the living environment.

Each learning modality of the Kolb's experiential learning cycle can be assisted by ELIs. The modality of concrete experience is instrumentally enriched by embodying ways to refine the learner's perception of what she is experiencing.

Reflective observation is provided with perspectively alternative ways for the learner to approach reflection upon her experience. These alternatives serve to broaden and make flexible this modality of learning for the learner.

Abstract conceptualization is assisted by ELIs which can help the learner refine and correct abstractions derived from experience and connect or disconnect abstract concepts and their representative symbols that were previously not connected or connected in a manner that does not accurately represent the reality the abstraction purports to represent.

The active experimentation modality is developed by ELIs which enable the learner to monitor experiential feedback which serves to direct and refine the actions of the learner reconstruing her knowledge where specific knowledge or a skill is being applied in living situations/environments.
The Kolb Cycle and ELIs

Each of the learning modalities in the Kolb Cycle will now be examined as it relates to the conception and function of ELIs.

Concrete experience (CE) is the learner's direct interaction with her environment. Proceeding from her current knowledge, cognitive framework, expectations and assumptions, the learner perceives and attends to her experience of the moment. This has been referred to in this discussion as *apprehension*.

The same stimulus is perceived and therefore experienced in different and more or less effective ways by different learners depending upon:

1. what the learner already knows;
2. the degree of accuracy of her cognitive map of the type of stimulus now being perceived;
3. the associated expectations which are operative prognoses for the effects of the experience;
4. the accuracy of her assumptions about what is being experienced.

Experiential Learning Instruments work with each of these elements to refine the learner's perception of what she is experiencing. An ELI can provide the learner with a fragment of information that, combined with what she already knows, can permit the learner to attend to hitherto ignored aspects of similar experiences, aspects which may be of greater affective significance than those things normally concentrated upon.

The structure of the active elements of an experiential situation may need to be more clearly understood for the inherent relationships to be effectively dealt with. For instance, a learner may want to know how to
change someone’s behavior and already know that *how* something is said can be as important as *what* is said; she attends to the *how* and the *what* of the experience. However, the *tone* with which something is said or the *volume* at which it is said may have no assigned conceptual significance in the learner’s existing cognitive map. In such a case, an ELI may take the form of a demonstrative gesture pointing to an area of experience to be attended to during the experience such as the tone or volume of the learner’s voice.

An ELI can take the form of a challenge to the expectations of the learner in a given experiential situation. Expectations exist in order to predict the outcome of actions and thereby guide behavior to achieve desired outcomes. If the prognostic ability of an expectation is inaccurate, there exists a perceptual and interpretive gap that will prevent more effective, realistic interaction with the environment.

It may be that an expectation is unconsciously directing the learner to attend to details of her experience that are then interpreted in unproductive or unrealistic ways. If the learner expects an experience to be boring, for example, she will tend to perceive and subsequently interpret the experience in such a way as to accord with her predictive expectation. Zajonc’s study pointed out that affective judgment can precede cognitive analysis (Zajonc, 1980).

Experiential Learning Instruments can help the learner to uncover assumptions that prevent personal experiences from aiding and enriching the experiential learning process. Assumptions about the affective significance of elements of a specific experience may inhibit the learner’s ability to experience their effects on the totality of the experience.

For instance, if the learner assumes that her attitude towards a situation has no bearing on what she can learn from it, she may not notice
how she downplays certain aspects of the experience while exaggerating the importance of other aspects, thereby effectively not attending to some experiential data while concentrating on other data.

Since ELIs are used in conjunction with actual personal experience, elements of experiential data that cannot be abstractly symbolized are nevertheless encountered concretely and, it appears, cognitively processed by both hemispheres of the brain in those modalities of consciousness appropriate to them. Both the explicit and tacit ways of knowing have direct access to action and experience, the objects of knowing (Polanyi, 1958).

*Experiential Learning Instruments function by refining the learner's apprehension of elements of experience that are perceptually under-attended.*

The learner learns in order to be able to act and think and thereby adapt to her environment more effectively. In reflecting about what is being or has been observed, the learner is able to scrutinize the interactive elements of her experience and their relationships to herself and to each other.

Patterns of thought guide the learner's reflections and observations. The learner can think about an experience only in ways that she has thought about similar experiences in the past unless something new is brought to bear upon the process of thought. Reflective observation (RO) can become habitual and channelized so as to inhibit flexible responsiveness to learning opportunities provided by the environment.

The RO modality of experiential learning is focused on comprehension of experience. By altering her perspective on the experience the learner can reflect upon it differently and in so doing comprehend it differently. An hitherto unnoticed aspect of an experience may be pointed out by means of an ELI with the challenge to the learner to fit it into her existing cognitive framework—"How would you explain this?"
The learner's perspective for RO could be broadened by such a request to incorporate cognitively some element of experience or by prompting the learner to adopt an entirely different perspective from which to reflectively observe the entire experience—"What would you think about this if you were the employer not the employee?"

Experiential Learning Instruments function by causing the learner to attend to perspectives from which to reflectively observe her experience other than her habitual, automatized ones.

Since abstract conceptualization takes place by means of symbolic representations of experience, ELIs are used to refine or correct abstract concepts derived from experience either in the concepts' symbolic "language" or in their connective relationships with other concepts. As with the RO modality of learning, AC's focus is comprehension of experience. Symbolic representation of experience allows the learner to manipulate the external world internally by using those symbols which conceptualize what is known about that world.

However, what is known may be incomplete or inaccurate. Symbols are usually based on generalizations about experience and are reductive, tending to simplify the welter of experiential detail. This means that symbols are often inaccurate representations of experience.

An example should clarify this point. Causality is an abstract concept about experience. It is a statement about mechanisms that enable events to be controlled—things happened because they are caused to happen and the mechanism of that cause is said to be known and understood. Happenings are concretely experienced while causes are the result of conceptual interpretation of experience and are not experienced.
Localizing or ascribing causation, saying, "This caused that to happen," is the operative use of the concept. The individual thinks one thing caused another to happen and directs her actions accordingly.

But causation is not simple. On the contrary, it can be incomprehensibly complex and to ascribe causation to a single cause, while it may be convenient and simple, can be as inaccurate as it is accurate, as false as it is true. Here is an ELI which helps the learner to conceptualize other possibilities to account for causation:

**Moment in Time**

"What is Fate?" Nasrudin was asked by a scholar.

"An endless succession of intertwined events, each influencing the other."

"That is hardly a satisfactory answer. I believe in cause and effect."

"Very well," said the Mulla, "look at that." He pointed to a procession passing in the street.

"That man is being taken to be hanged. Is that because someone gave him a silver piece and enabled him to buy the knife with which he committed the murder; or because someone saw him do it; or because nobody stopped him?" (Shah, 1976 p. 112)

Experiential Learning Instruments help the learner to abstract further data from her experience and then to conceptualize them in a more refined way than she had previously. The above story-form ELI aids the learner in re-construing her over-simplified concept of localized causation. It provides her with an instrument which stimulates her to generate or to find alternative
conceptual models which either enrich the original concept or perhaps replace it with one that more accurately represents the experience in question.

**Experiential Learning Instruments function by helping the learner to re-construe her abstracted concepts and to refine the meanings of their representational symbols.**

Experiential Learning Instruments help the learner to refine her *comprehension* in the RO and AC modalities of experiential learning. In the CE mode, the learner is helped to *apprehend* environmental and internal stimuli in more refined ways.

In the active experimentation modality, ELIs help the learner to focus on and perceive finer gradations of experiential feedback available in situations where her knowledge or skill is being applied in a practical way. Being enabled to monitor experiential feedback allows the learner to direct her experimentation more consciously because the learner's attention has been directed to the operative components in the application situation, components she may have failed to attend to or whose operative significance she may have discounted or which were not understood.

When the learner is involved in the active experimentation phase of learning, she has already reflected upon and conceptualized her previous experience and has either consciously or unconsciously formulated a prognosis for her actions relating to her knowledge. Acting upon her knowledge and prognosis, an interaction between the learner and her environment ensues. The response of the environment to the learner and the learner's response to the environment is here called *feedback*, data resulting from the experience of the learner during her active experimentation. Her apprehension of this feedback, her *perception* of it, is modified by her use of an ELI. This results in a refinement of the learner's perception which can then
help the learner direct her actions in accordance with what she has learned from the new perception. *The application of knowledge or skill is refined by refining the perceptions that guide it.*

An example of this process of refining perceptions as they relate to experimental activity can be seen in a novice woodworker learning how to feel the grain of the wood. As the learner moves her implement along the piece of wood, the tool responds both to the hand’s pressure and the direction and resistance of the wood’s grain. In attending to the interaction between her hand, the tool and the wood, the learner perceives the resulting experiential stimuli as containing information that will help her direct her actions. By attending to the experience differently, the learner can construe meaning differently and thereby guide her actions in a more refined way. The learner can use the refined perceptions to actively experiment with her knowledge or skill in new rather than her habitual, automized way.

*Experiential Learning Instruments function to refine the perceptions of what is being experienced in order that those perceptions can then guide the learner’s application of her knowledge or skill in more effective and efficient ways.*

Experiential Learning Instruments can help the learner to continue to learn and to deepen her specialized as well as her general knowledge. They can be used in any or all of the four stages of experiential learning, concrete experience, reflective observation, abstract conceptualization and active experimentation. They help the learner to focus her attention for the purpose of refining either her apprehension or comprehension of what she is experiencing or has experienced.

Traditional educational approaches give the learner either information or descriptions relating to the subject being studied. Experiential Learning
Instruments do neither. They are conductors of the learner's awareness in experiential situations and during reflection upon those situations. Knowledge results from the learner's own cognitive efforts which have been directed and focused by an ELI. Experiential Learning Instruments may help the learner form a frame within which her knowledge takes shape. But they tend to provide neither theoretical, informational nor descriptive data to fill out that frame. An ELI provides a lens for the learner's apprehension or comprehension, not the object being learned about.

Experiential Learning Instruments do not supply names, descriptions or concepts, which are at a second remove from experience although in their formulation they may embody these things. Experiential Learning Instruments, however, may offer the learner the opportunity to name or re-name aspects of experience as noted in Friere's concept of learning (Friere, 1973). Experiential Learning Instruments supply a channel for the primary aspect of learning—the direct personal knowing of the structure of reality as it manifests itself in the learner's own experience.

Criteria for Assessing ELIs

Educators and learners may conclude that the instumental approach to experiential learning appears to be useful to them for some learning situations. Whether she decides to create them or use pre-existing ones, the potential ELI user may want some criteria upon which to base her assessment of ELIs. What follows are five general characteristics to contemplate prior to the selection and employment of any ELI and, afterwards, information describing ineffective instruments and usage. Specific disciplines may require subject-specific formulations of ELIs which are beyond the scope of
this study to discuss. The five criteria may be listed according to their functions as follows:

- Focusing Awareness
- Self-Monitoring
- Long-term Refining of Cognition/Skill
- Short-term Stimulus for Integrating Data/Perspectives
- Learning By Contact

Focusing Awareness—An ELI should have the affective result of bringing to the learner’s consciousness one or more functionally important aspects of the experience being learned about. The learner using an ELI should notice heretofore under-attended elements of her experience. The result of this will be the engagement of either /both the processes of comprehension--attaching meaning to the now attended aspect of experience --or apprehension--a refining of perceptual accuity. All three of the ELIs in this study exhibit this characteristic.

Self-Monitoring—An ELI should serve as an instrument for prompting, directing, and focusing self-observation and monitoring of the learner’s attitudes, assumptions, biases, non-responses and affective judgments that inhibit the learning process. Since some responses to experience are non-learning strategies, an effective ELI will give the learner a way of attending to her own responses to certain experiences in a way or ways that will allow her to realize whether she is using those non-learning strategies. Because not all experiences are necessarily learning ones, the ELI may need to contain an element or elements that facilitate assessment of an experience’s learning potential within a specific bandwidth of experiential
intake. Self-realization in the sense of the learner learning about and knowing herself in more comprehensive, objective, and refined ways is direction in which this type of ELI will help the learner to take herself.

**Long-term Refining of Cognition/Skill—Some ELIs should be able to be used repeatedly over time to refine and deepen experiential learning, aiding the learner in revealing layer upon layer of meaning in the area of cognition and increasing effectiveness, efficiency, and reducing effort in the area of skill acquisition and employment.** Initial use of some ELIs should produce a new awareness of or perspective on a particular kind of experience. This should stimulate learning, but as was noted by Feurstein et. al., the intial response will not necessarily be “at its maximum possible development immediately and that the response (may) need to be ‘connected’ with other stimulus-response patterns or responses to bring about other intergrated developments” (Feurstein, Rand & Rynders, 1988, p. 53). It may take repeated experiencings, repeated reflecting upon those stimuli, repeated construings and re-construings, and repeated experimenting to produce the totality of the ELI’s effects on learning. In this context, ELIs can be assessed by their ability to generate this on-going effect on the process of learning. The three examples of ELIs in this study constitute examples of this type of ELI.

**Short-term Stimulus for Integrating Data/Perspectives—Some ELIs should be able to be used to provide an intial impetus to heightening awareness, focusing attention, or stimulating cognitive effort for a short time and, after they have had their effect wherein the learner integrates new data or perspectives, either cognitively or behaviorally, the ELIs should not need to be employed again, thereby avoiding unnecessary automization in the experiential learning process.** The function of this type of short-lived ELI is twofold. First, the ELI will produce an impact that
permits a momentary shift in the learner’s way of experiencing a particular stimulus. The shift may affect how the stimulus is experienced, the processes of reflection and conceptualization, and subsequent experimentation with the stimulus. These may be functionally affected individually, in various combinations, or holistically. The focus of this type of ELI is that what the learner learns is quickly internalized and that what has been learned continues to modify, in Dewey’s words (Dewey, 1938), subsequent experiencings in an on-going way without the need for re-learning. Second, these ELIs help the learner to learn that some learning strategies may be employed long after their ability to produce their effect (learning) has be exhausted. The use of these strategies becomes automized, ritualized, or a matter of “dogma.” Realization of this will have an effect that should produce a long-term conceptual and perspectival shift for the learner.

Learning By Contact—ELIs should have the effect of putting the learner in direct, personal contact with elements of experience from which subconscious, preconscious and/or tacit forms of learning can be derived. Since it appears that there are forms of learning of which the learner, herself, may not be consciously aware, effective ELIs will have the characteristic of stimulating the learner to involve herself in learning situations--experiences that are educative, not miseducative (Dewey, 1938)--within which these forms of knowledge can be imbibed and learned. All three of the examples of ELIs in this study strongly exhibit this characteristic.

Ineffective ELIs have one central characteristic. Such ELIs do not prompt the learner to attend to affectively useful, cognitively relevant aspects of her experience in potential learning situations or they prompt the learner to attend to experiential data which are below or beyond her present cognitive or perceptual levels of functioning related to the subject
**being studied.** If by attending to an aspect of her experience, the learner cannot effectively interact with her environment in such a way as to monitor the feedback resulting from the interaction, the data gained from the experience will not have been processed completely given the four-stage experiential learning cycle which requires active experimentation as well as concrete experience, reflective observation, and abstract conceptualization. Experiential Learning Instruments which do not engage the learner in the monitoring of her active experimentation results are affectively not useful for experiential learning.

Prompting the learner to attend to aspects of experience that do not have affective significance to what is being learned compromises not only the ELI approach but any act of learning. For instance, an ELI that required the learner to observe meteorological information such as the temperature and barometric pressure when learning about public speaking would produce little cognitively relevant, affectively useful learning. What is attended to must have an affective component for the learner in order that the resulting knowledge can be processed through all four stages of the experiential learning cycle.

If an ELI prompts the learner to attend to experiential data that have been adequately processed previously, no new learning will take place. Such an ELI may be suited to one learner (a less experienced one) but not another. Any ELI's function must be matched with the specific cognitive and perceptual levels of the learner using it. However, if an ELI prompts the learner to attend to experiential data for which she is cognitively under-prepared, the learner will have no adequate means to deal with what is being experienced and therefore will be unable to learn. A cognitive language sufficient to represent essential components of what can be learned from an experience must be pre-existing when an ELI is employed. Whether the
cognitive representational system is abstract or isomorphic symbolism or a combination of the two, the learner’s representational system must be capable of allowing the learner to abstractly conceptualize what is being experienced and learned. Neither must the ELI exceed the learner’s observational acuity, thereby compromising her ability to reflectively observe her experience.

It should be noted that while an ELI may be effective in some situations and for some learners, its use must not be guided by the “panacea principle.” In short, this means that educators and learners alike should be aware that general application of an ELI intended for specific circumstances or individuals’ learning needs should be avoided. Experiential Learning Instruments are not an entire educational system. They are most effective when employed in cooperation with traditional educational approaches involving the acquisition of information and the practice of skills. A dogmatic approach to ELI use that insists that all learners must use a particular ELI for a given period of time is, by its very inflexibility, bound to be ineffective. Experiential Learning Instruments use is determined by the matching of the ELI function with the circumstances, abilities, and needs of the learner. A learner cut off, for whatever reason, from the experience from which an ELI is designed to help her learn is not a candidate for using that particular ELI. An ELI’s effectiveness as an instrument that aids the learning process is to be measured by its affectively efficient use, not by its misuse in contraindicated circumstances and with unprepared learners.
CHAPTER SIX: SUMMARY, CONCLUSIONS AND IMPLICATIONS

Summary

The purpose of this study was to examine the characteristics of three examples of Experiential Learning Instruments (ELIs) and relate them to current Experiential Learning Theory. Since the term ELI was coined for this particular study, it was necessary to describe in some detail both the experiential and instrument parts of the term so as form a frame of reference for the study itself.

To that end, the essential characteristics of experiential learning as it is generally accepted in the educational community and as it has been formulated by David Kolb were indentified and discussed. They are:

- Learning is thought of as a process not only as an outcome.
- Learning is a continuous process grounded in experience.
- Learning requires the resolution of opposing ways of adaptation.
- Learning involves the entire learner in a holistic adaptation to her environment.
- Learning requires real transactions between the learner and her world.
- Learning is the process of creating knowledge.

These characteristics were then used to analyze the three ELIs selected for this study, the Overtone Exercise, Muscle Confusion and Serve the Task. Each of these ELIs were shown to be instrumental in nature in that the learner did not acquire them as end products (as objects of learning) but as means to learning something else. It is their instrumental function that differentiates
them from the traditional object of the educational process, so-called "knowledge."

This, too, was discussed for so-called "knowledge" was differentiated from experiential knowledge. Non-experiential knowledge was seen to be "decontextualized" and lacking "ecological validity" because it was a form of cognition separated from a holistic interaction with reality. Without such an interactive, holistic and experiential base, any formulation of knowledge may prove to be perceptually, cognitively, and conceptually disengaged, out of touch with the reality it was intended to represent.

Explicit, verbal formulations of knowledge may also represent only a portion of the brain’s knowledge of a specific reality. While the left hemisphere of the brain may conceptualize its knowledge in words and numbers, the right hemisphere does not "know" in this way. Its forms of knowing are not easily communicable in words and numbers. The right hemisphere processes experience differently than does the left hemisphere. Experiential Learning Instruments achieve part of their holistic learning effect by permitting both hemispheres to process experience using their own specialized modalities of cognition. While the left hemisphere works by using its explicit modalities, the right hemisphere employs tacit modalities in a holistic, complementary learning process (Bruner, 1966; Bogen, 1969; Edwards, 1979; Corballis, 1980).

Experiential Learning Instruments were described as instruments which enable the learner to develop her ability to concretely experience, reflectively observe, abstractly conceptualize and actively experiment with her reality in increasingly more objective and refined ways.

These ELIs were described and analyzed in such a way as to display the difference in approach to learning that attends their employment as
distinct from traditional educational approaches. The instrumental approach contends that knowledge is created by the learner in the specific processes of experiencing her environment and in adapting to it in new ways as the result of this experience. This is in contradistinction to the intrinsic approach which appears to contend that knowledge is external to the learner and can be given to her in various forms without any direct personal experience with the basis of this knowledge in actual life circumstances.

Conclusions

It is a conclusion of this study that ELIs represent a distinct approach to learning that has not been a focus of current educational literature.

Their characteristics mark ELIs as consonant with the theoretical framework called Experiential Learning delineated by David Kolb and other theorists. These ELIs appear to fit that framework in all its six essential characteristics as well as in the four-stage learning cycle.

Experiential Learning Instruments provide the learner with ways of attending to her experience in ways that enhance and telescope the learning process.

Experiential Learning Instruments provide the learner with ways of construing or re-construing her ideas/concepts in increasingly effective, meaningful and objective forms of personal knowledge.

Experiential Learning Instruments represent a useful but understudied approach to the learning process. Their utility is wholly dependent on the intention of the learner to actually learn and the necessary efforts being made. Experiential Learning Instruments cannot operate in unmediated experiential learning situations without the conscious efforts of the learner to employ
them and to deliberately learn from the resulting experiences. In short, they cannot be effective without the cooperation of the learner.

Implications

This study indicates that ELIs could be profitably studied both by educational professionals in a general way and by teachers in specialized subject areas in specific ways.

Educational theorists could examine the distinction between intrinsic and instrumental functions in regard to current teaching practices and curriculum strategies. Experiential learning theorists might well study how these two functions in the learning situation are addressed by what they refer to as the different “learning styles” employed by learners or different types “intelligences” (Gardiner, 1993) possessed by learners. For instance, one style of learning may prefer an intrinsic approach to education while another style may thrive on the instrumental approach. Studies could look at which elements of the four-stage learning cycle emphasize each of the two functions and why they tend to have these effects. This, in turn, could lead to implications for classroom teaching techniques and curriculum inclusions or exclusions.

For educators in specialized fields, the study, creation and use of subject-specific ELIs could prove to be a learning experience for the teachers, themselves, as well as an opportunity to employ experience-based strategies in formal education settings. Moreover, educators might well begin to think of their teaching as having long-range implications for their students. Instead of simply covering a pre-determined curriculum, teachers could begin to think of supplying their students with ELIs that would equip them to
continue learning long after their formal education had ended and to also learn from their own experiences outside the confines of the classroom.

For educators teaching in colleges and universities where many students are either currently working or are returning to up-grade their professional skills, the opportunities to experiment with ELIs are numerous. Because ELIs depend upon real personal experience, the students could well be equipped with ELIs that could be immediately employed in work situations. The reality of the contemporary workplace is that people will need to up-grade their skills repeatedly during the course of their work lives. Experiential Learning Instruments could conceivably reduce the burden on the teachers of these up-grading courses to supply them with “everything at once” by giving the learners tools that they could use to help themselves learn on the job instead of being dependent on teachers and location- and time-specific courses. In other words, ELIs could be used to help students teach themselves through their own personal experience.

The implications of ELIs for independent learners are wide-ranging. As information is constantly changing, the dependence on intrinsic forms of learning causes the learner to be constantly in a state of “being behind the times.” However, if learning is conceived of as adaptation, ELIs can be used by learners to help them adapt to their changing circumstances.

Instead of trying at all times to be in possession of correct and timely information, learners could learn to use ELIs in such a way that would enable them to be perennially flexible and responsive to the needs of the situations in which their professions place them; they would be attuned to the experiential reality of their situation rather than to the cognitive formulations of it. While information is superseded, ELIs could provide adaptive strategies that would themselves continually evolve to meet the needs of the learners’ situations.
Learning with ELIs therefore would not produce a learner in a particular crystallized state of knowledge but would enable a learner to be in an ever-evolving process of learning.

Implications for Practice

There is one central implication of this study of ELIs for educational practice. Instead of primarily teaching facts, educators could also equip their students with ways of learning from their own experience. Learning would no longer end at the end of the course or the semester; it would be carried out into the students’ lives.

Moreover, ELIs are a way of the teacher relating the essence of what she has learned in the course of her experiences to the students in a way that would permit them to learn from their experiences in analogous ways. Instead of only transmitting facts, the teacher can give students an approach to perceiving and understanding these facts through their own experiences thereby simultaneously making the learning more vital and “real” while concurrently making the teacher/student relationship less authoritarian and more inviting.

Implications for Theory

This study points to an interesting area for research in experiential learning theory. If, as has been observed in the literature relating to this branch of educational theory (Kolb, 1984; Hunt, 1974), learners do have particular styles of learning that correspond to their perceptual and cognitive strengths in the four modalities of the learning cycle, the effect of ELIs on
modifying or enhancing learners' perceptual or cognitive acuity in their weaker areas of their learning styles could usefully be studied.

Since each specialization of learning as it relates to a discipline, profession, craft or skill requires different perceptual and cognitive strengths, the effects of ELIs on refining or enhancing those functions could be examined both in classroom simulations and in workplace circumstances to assess the effectiveness of ELIs in modifying learners' abilities to learn from their experiences.

With further study and testing, it is recommended ELIs will prove to be an effective and useful adjunct to traditional modes of teaching and learning for educators and learners. An adjustment in the theoretical assumptions of educators and learners will be needed, however, for ELIs to become that adjunct. For it is only through the determined and intended personal efforts of intelligence--the acts of looking for knowledge in experience and of reflectively registering and internalizing what is found--that Experiential Learning Instruments can work to assist the learning process to take place on a personal level. If educators and learners wish to avoid conceptualizing knowledge acquisition (learning) as a commodity exchange, and if they wish to have their own learning supercede unproductive crystalized, mechanical and dogmatic "abstracted" forms of education, they may, having critically examined the contents of this study of ELIs and having begun to formulate their own theory of an instrumental approach to learning, move toward a renewed relationship with learning as their own living process of self-development and as their personal contribution to the evolution of consciousness, itself.
REFERENCES


