EXPERIENTIAL EDUCATION AS A PROCESS OF CHANGING MENTAL FRAMES BY INDUCING INSIGHT LEARNING

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ABSTRACT

Experiential education is viewed as a process of multi-dimensional whole person learning. Meaningful learning outcomes are conceptualized as the product of the shifting or elevation of mental frames. A pedagogical model labeled as insight learning is presented as having four phases and constructs. Illustrations are provided of aspects of the insight learning process, as well as mechanisms that function to induce insight learning. Examples of both instructor and student roles in the process are given. A sample exercise precedes a summary of the insight learning concept.

INTRODUCTION

Some ABSEL scholars have argued that experiential learning involves learning in multiple dimensions. Micklich (2010) describes these dimensional components as consisting of cognitive, affective and psychomotor dimensions. Hoover and Giambatista (2009) adopt a model of whole person learning in evaluating the concept of behavioral immersion in experiential learning. Their whole-person learning model includes the learning dimensions of cognitive, emotional and behavioral. Hoover (2007) takes the whole-person model one-step further, adding a dimension of spirituality to the mix. The common thread in all of these models is that whole-person approaches to experiential learning contain the foundational element of the cognitive dimension. This is true if the learning process begins with the cognitive element (e.g., a classroom experiential exercise being preceded by a lecture highlighting content and learning objectives). It is also true if the impetus for learning is triggered by an emotional, behavioral or spiritual event/experience that induces a cognitive reframing occurring as the result of a sense-making effort to put the experience into perspective.

This point can best be examined by asking the following question --- What would an experiential learning experience be without the cognitive dimension? Without the frame of reference provided by a useful cognitive framework, how could the experiential learner develop relevant affective/emotional and psychomotor/behavioral components? It is obvious; therefore, that experiential education begins with the challenge of establishing useful mental frames, necessarily accomplished by changing preexisting mental

frames to an enhanced and more efficacious state of cognitive awareness and personal insight. Munoz, Mosey and Binks (2011), in a recent paper focusing on entrepreneurial educational challenges, concluded that it is possible for students to change their mental frameworks, something they define as "A change in the way they (students) perceive reality and the inherent opportunities within" (Munoz, et al, 2011:292). Therefore, in entrepreneurship, the area of their specific focus, these authors concluded that a change in reality perception needs to occur in entrepreneurship courses in order to enable students to more effectively identify new business opportunities.

In this paper, we are using the term "insight learning" to describe this process. We feel that insight learning contains four identifiable phases and constructs.

1) Identify the nature of the current mental frame.
2) Design an alternative mental frame that will function as a replacement of the current mental frame.
3) Participate in a simulation or experiential learning exercise that has an impact sufficient to change the preexisting mental frame.
4) Integration of the new/enhanced mental frame into the student's intellectual and behavioral repertoire.

The first step is identification of the nature of the current mental state as a target of educational change. This will be established initially be the instructor, but must ultimately be agreed to by the student. This should occur early in the learning process such that a mutually agreed upon "baseline condition" is established. Without a specific set of baseline criteria as a launching pad, it is impossible to measure progress to an elevated state or condition. There can be no "to" without a "from" as a reference point. The instructor and the student have an equal responsibility for this phase of insight learning. When phase one has been completed, the instructor and the student have embarked on a shared journey of learning and intellectual exploration.

The second step is the design of the alternative mental framework that will function as a replacement for the current mental framework. In order to undertake the tasks required to execute phase one and phase two of insight learning, the instructor needs to have adopted a personal philosophy of education such that he or she is dedicated to altering student mental frameworks. To provide an illustration of such a philosophy, one of the authors of this paper will provide description, written in the first person, of his adopted personal educational philosophy. When the instructor is designing the class, identifying learning objectives, establishing benchmark levels of accomplishment, and measuring learning outcomes, the design of the new/target mental frame will come into focus. That said, the instructor should keep in mind that this target mental frame construction so constructed, was done in isolation --- without student input and without testing the feasibility of the set of outcomes with the students. While phase two of insight learning is primarily the responsibility of the instructor, the student should be put in the loop before the learning exercise is implemented in the class. Not only will this yield more potential student "buy-in", the instructor will also be able (and should be willing) to make alterations before implementation as a consequence of real time student feedback.

The third phase of insight learning is for students to participate in a simulation or experiential learning exercise that has an impact sufficient to change the preexisting mental frame. Such phenomena could also be intended to produce significant levels of affective/emotional and psychomotor/behavioral changes as well, as per the criteria for whole-person learning. However, in this paper the focus will be on the changing mental frames through insight learning. Readers interested in whole-person aspects of experiential learning are referred to the ABSEL references listed at the start of this paper.

In support of highlighting aspects of the third phase of insight learning, this paper also includes a brief description of an exercise used in a strategic management course to accomplish insight learning. Successful execution of the simulation or experiential learning exercise in phase three requires a joint effort on the part of the instructor and the student. The student has to be involved in the process because insight learning is not something that the instructor does to the student; it is something that is done with the student. The instructor has to be involved in the process in order to insure that his or her high potential design is implemented in an effective manner. Note: there are so many ABSEL papers that focus on this point that no references will be given here. The reader should select his or her favorite.

The fourth and final phase of insight learning is integration of the new/enhanced mental frame into the student's intellectual and behavioral repertoire. The successful execution of phase four falls to the

student. While some "testing out" of these newly acquired capacities can be done as part of the simulation or experiential exercise, the ultimate test will come when the student has the chance to exercise these capacities at will, and in conditions that are not as sheltered as to outcome and consequence as the college classroom.

APPROACHES TO CHANGING MENTAL FRAMES

Examples of educational approaches that focus on changing mental frames will be given in order to illustrate the nature of this approach. The first example comes from the recent ABSEL paper (Noble, 2011) "Managing Organizations: Experiential MBA Course Teaches Alternatives to the Machine Model". Noble begins with the premise that the nineteenth-century industrial or "machine" model for managing organizations has not only been, but also remains the dominant organizational structure adopted in America today. His philosophy is that America's place in a global economy suffers because of this fact. His approach is then to offer an MBA course that teaches alternatives to the industrial model based on the work of Argyris, Herzberg, McGregor and others. The course is designed to induce insight learning by striving to have students personally experience the course concepts as much as possible.

Noble then describes a series of course components, such as experiential exercises, student reflection assignments, and group projects designed to accomplish course objectives. However, Noble (2011) goes on to state that "The exercise(s) (are) of secondary importance to the primary focus of understanding and experiencing group processes. Desired outcomes for the course include developing awareness and learning the value of a new organizational structure based on course concepts – and learning how meeting the needs of the self and others benefit the individual and the organization." In other words, the focus is on the students developing a mental framework that is an alternative to the familiar and already extant machine model.

Lora Reed (2010) utilizes an experiential learning project management program she labels as Mustard Seed to effect changing mental frames though insight learning. Reed describes Mustard Seed as having latent effects, including ongoing conversations related to development of stakeholder networks, cultivation of systems thinking, examination of ethical decision-making processes, and continuation of learning in the community. The goal is to eliminate mental frames that are generated by constraints in organizational culture and processes of strategic decision-making that stifle creativity and innovation.

ABSEL scholars have also examined characteristics of students as potential barriers to inducing insight learning. A recent example is a paper by Markulis, Murff and Strang (2011) in which they asked the question "Should College Instructors Change Their Teaching Styles to Meet the Millenial Student?" Following the same theme, Hoover (2011) also addressed student characteristics, noting increasing trends towards narcissism in Millennial students, as well as identifying an emerging parallel trend towards complexity avoidance.

Complexity in simulation and experiential learning design has also been addressed by ABSEL scholars. For example, Cannon and Friesen (2010) describe this as "the simplicity paradox". The issue relative to the changing of a mental frame is that if the simulation is too simple, it may not lend sufficient impetus to the learning process to effect mental frame changes. On the other hand, as Teach (2010) points out, too much complexity in a simulation can create a condition of cognitive overload wherein the student cannot fully comprehend or process the learning event.

Finally, Gallos (2007) has some comments on a program designed to teach organizational change management, that serve as a model of inducing insight learning in order to effect mental frame changes.

> "Expanding student understanding of human nature and fostering the savvy needed for effective change management is a first step; however, doing that involves more than imparting theories and models. It requires *stretching how students see and make sense of their world* (our emphasis), exposing them to situations and challenges that cannot be fully explained by the current internal frameworks they use to structure their world and from in which they perceive it (2007: 287).

Gallos goes on to talk about the role of faculty in the process. The conclusion is that the pedagogical challenge shifts from just teaching about the topic of change, to teaching in order to elicit developmental

growth. The objective is "providing opportunities for students through their study of change to discover progressively more complex ways to understand themselves, others, and broad social issues. (2007: 287)".

ASPECTS OF INDUCING INSIGHT LEARNING

At the beginning of an exercise, before experiencing the learning challenge directly or vicariously, students have nothing but their previous experiences to generate their set of assumptions going into the experiment. Insight learning, as a problem solving process involving repeating sequences of exploration-insight-execution (Knoblich et al, 1999), sheds light on how alternative approaches are identified and adopted. Experiential learning then involves rejecting or modifying initial assumptions and then accepting those more appropriate to the task (Newell et al, 1979). As a proximal example, the resulting perceptual shift is analogous to the processes involved in certain optical illusions, such as the classic old lady/young lady optical illusion. After the viewer has recognized both patterns, the viewer retains the initial perception plus the newly acquired perception. Although it is not clear exactly how this insight process works, the result is that the problem solver is able to quickly re-represent the problem by replacing their previous approach with the newly acquired insight (Boden, 1994).

Researchers have investigated training approaches that focus on the need for problem solvers to rethink their assumptions (Ansburg & Dominowski, 2000). The challenge is to overcome impasses that result from the presence of self-imposed conceptual constraints that prevent the problem solver from seeing other options (Isaak & Just, 1996). One approach is to disrupt prior assumptions in a non-threatening manner while, at the same time, providing a new, alternative system. Watson (1968) provides an example of how such insight can occur in the story of a breakthrough in the discovery of the DNA double helix concept while viewing a person's unrelated medical X-ray.

What to do is one aspect of problem solving, but what to avoid is also a factor. In an experiential learning situation, a sort of "trial and error" approach emerges, with immediate and personally impactful consequences, as various behaviors are tested in the waters of the simulation or exercise. Thus, a route may be available to test what should be avoided as well as what should be adopted. As stated before, past experiences with tasks or problems that have some similarities may activate coping strategies (Knoblich et al., 1999), but perceptions relating to past experiences may also work to limit problem interpretations or even the range of possible solutions. Furthermore, we suspect that relying on past experiences to draw upon to face current problems is a poor process for adaptive learning. For one thing, memories fade and cue utilization is limited to current recall.

For example, Easterbrook (1959) in his "cue utilization theory" illustrated that intense focus can draw attention away from relevant performance cues, especially if the focus falls into patterns of relative obsession with dysfunctional outcomes or potential threats to successful performance. Locke and Latham (2002), focusing on goal setting and task motivation, concluded that problem solvers, when focusing on goals identified as relevant, have less of a tendency to be distracted and are also more likely to draw on a variety of approaches while making appropriate adjustments in solving problems.

Resistance to change, including changes in a person's mental frame, is obviously a potential hindrance to insight learning. We invest a lot of energy into attaining our current state of being, and we are usually protective of that investment. This may also escalate as a learning person ages. When a person is young, discoveries can have an impact simply because of their inherent newness; the freshness of a concept or perspective may give it additional impetus in changing a mental frame. However, by the time we become adults, this protective mechanism can evolve into an individual having collected a set of embedded mental frames. Since ABSEL educators deal with adult learners, this is a factor to consider. Marris (1975), in fact, posits a form of inherent conservatism in adult learning:

> "It is slow, painful and difficult for an adult to construct a radically different way of seeing life, however needlessly miserable his preconceptions make him. In this sense, we are all profoundly conservative, and feel immediately threatened if our basic assumptions and emotional attachments are challenged. The threat is real, for those attachments are the principles of regularity on which to predict our behavior and the behavior of others depends…As we grow up, [our belief systems] become more and more difficult to revise, by virtue of their very success. Since new experiences can only be interpreted in terms of what we already know, we are bound to assimilate them to our

> present understanding if we can. The longer we live, the less likely we are to encounter events that cannot somehow be interpreted within it." (1975: 12-13)

Pursuant to illustrating the totality of insight learning, we will now present a personalized representation of the teaching philosophy of one of the authors of this paper, written in the first person. This serves as an example of the instructor's role in the insight learning paradigm.

AN INSTRUCTOR'S PERSONAL PHILOSOPHY OF EDUCATION

When I think about teaching, I place a high value on instructor/student interactions, students working in teams and in cycles of presentation and application. Instructor/student interactions allow me opportunities to provide clarification and perspective, thus helping students in correctly grasping the content of my class. Interactions also help me assess the comprehension of students. Students' working in teams facilitates active learning, can train students on how to learn from and communicate with others, and how to solve problems in a group. Presentations can help students understand the content of my class more deeply. In addition, presentations can evoke more reactions among the class. Application can connect abstract concepts with complex reality. Knowledge is useful only when it is tested and applied.

THE ROLE OF THE INSTRUCTOR

Teaching is like sharing what I have learned with students. Learning is like participating in a discussion to find out what I do not know and how I can learn. The processes of teaching and learning are like natural dialogue. Both the instructor and the students can learn from this dialogue. I was educated in a hierarchical environment where teachers are held to be in a very high position, and where they look down on their students. Having experienced this model of education, I know how harmful the mental frame that is projected from such a relationship can be. It kills creativity, critical thinking and independence.

As a result of this insight, when I am standing in front of my class, I regard myself as a part of the total classroom environment. From this mental frame, the only difference between instructor and students is that I am taking a differentiated position. The relationship between instructor and students from this perspective is not hierarchical, but equal. I encourage my students to call me by my first name instead of Professor. In this manner, it is my intent to appear to act in the role of a friendly learning facilitator as we engage in the mutual task of pursuing knowledge. I do not feel that I am a controlling coach or even a watchful guardian.

I believe students are all different. They have different backgrounds, different personalities, and different learning styles. In order to accommodate different students, and to take advantage of student diversity, I often have students work in teams; I regard these teams as units of the class. In my experience 5 to 9 students is a suitable size for a team. The team format allows different students to play different roles in the team. I build enough freedom into the process such that students can find the most suitable roles for themselves. Some can collect data, some can compile information, some can arrange materials, some can act as devil's advocates, and some can present the results in class.

Although I have an institutional duty to organize the classroom and to "teach" students knowledge, my mental frame is that I would like to "invite" students to learn instead of "require" students to learn. Students are the ultimate drivers of learning, because they have the freedom to accomplish learning outcomes that can range from most all of the knowledge in the classroom to very little of the knowledge in the classroom. How much they want from a class depends on how much interest they have in the class. Forcing them to learn puts students into too much of a passive role, reactive to the power of the instructor, making it difficult to achieve positive results for themselves. My attitude is that I will invite students to participant in the learning process, but I will not punish them if they do not want to. Everyone should be responsible for his or her own life – we are in a college classroom, not a primary school.

The best classroom is a classroom in which students and instructor respect each other, feel free to exchange ideas, understand each other, and have an empathetic vision of each other's point of view. For example, I understand students may feel that it is very hard to wake up on Monday mornings to attend an 8 o'clock class. I accept that they may need a little flexible time to organize their group projects. I understand that senior students will have job interviews that are more important to them than lectures or presentations. As a result of these understandings, I have an attendance policy that allows some room for a limited

number of absences, with no excuse needed and no question asked (However, exceeding three absences can result in an F grade for the class). By this policy, and many others as well, I try to build a trusting environment such that I am not perceived as the enemy of students. I hope students come to my classroom because they like it and want to, not because they have to.

THE ROLE OF THE STUDENT: *iCAPT*

While it is undeniably true that students seek out extrinsic rewards such as course credit and grades, I feel that their learning potential is maximized if I can also find ways to motivate them intrinsically. Daniel Pink's popular book *Drive* (2009) describes three primary factors that need to be in place to bring intrinsic motivations into play --- autonomy, purpose and mastery. I attempt to tap into all three of these factors by introducing to my students a concept I have labeled *iCapt*.

I start by telling students that they need to be prepared for class before they come into the classroom. My challenge to them, as stated in *iCapt*, is that they adopt the belief that "I am the Captain of my own future". Brief descriptions of some of the factors of *iCapt*, as adopted for a strategic management class, are included below.

- i – Independence: Have your own sense of autonomy. Honor your own mind, your own views and your own ideas. Respect others, but do not lose yourself. Know that you are unique. Believe that you are smart. Remember that your ideas are important in class.
- C – Competition: Get used to a competitive environment. You need to compete first with yourself, compete with your team members, compete with other teams, and eventually compete in the future work market.
- a – Application: The purpose of learning is application, especially in this class. Remember, understand, and master the knowledge you discover here through effective application.
- p – Play the role: Act as if you are the CEO of a firm, thinking in the way a CEO will think. Deduce the intended purposes of executive actions and managerial decisions. You might have such a position one day. So prepare for it.
- t – Teamwork: It is important for you to learn how to work in a team. You need to be able to convince others with your ideas. You need to know and appreciate the diversity and the specialties/expertise of your teammates as you coordinate teammates in the pursuit of excellent work outcomes. You need to be willing to share the credit for group accomplishments, as well as taking your share of the responsibility for failures.

There are, of course, many other topics and approaches that I take in my class to maximize the opportunities for my students to attain autonomy, purpose and mastery. All of this is done with pedagogical intent. I begin by honoring them and the mental frame that they bring to the class. I then set about a conducting a series of exercises, lectures, discussions, and team challenges designed to induce insight learning. My goal is to help them clarify the mental frame they brought to the class, and to supplement that mental frame with a new and enhanced mental frame. An example of an exercise utilized in my strategic management class is described below.

SAMPLE EXERCISE

A Team Competition exercise is conducted in a Strategic Management class as a means to process course materials and to have the students take an active role in processing course content. Each team competition section has three teams competing. Since the course contains 12 team competition sessions, each team has four opportunities to compete with other teams from the class. In order to do well in the team competition sessions, each team has to prepare a team presentation and a discussion of the topic of the day. Based on assigned cases or questions, teams need to perform their best in order to gain votes from their colleagues.

Each team competition session has 50 points available for distribution to the three teams. The instructor assigns 25 points as a mechanism of instructor grading. The other 25 points is based on votes from class colleagues. The team that gets the most votes from classmates will get the 25 points. The remaining two teams may get 20, 15, or 10 points based on the distribution of the votes they get. Each team

has 10 minutes to present their work and 5 minutes to answer questions. At the end of each competition, the remaining class members vote for the team that they consider to have performed the best.

Building skills in teamwork is emphasized in this class and is exemplified in this exercise. Emphasis is placed on team dynamics such as cooperation and active discussion. As mentioned previously, this team preparation and then team competition format allows different students to play different roles in the team. Behavioral discretion and freedom of action are built into the process such that students can find the most suitable roles for themselves. In addition, students are encouraged to try different roles at different times in the class. In each round, some students collect data, some compile information, some arrange materials, and some prepare the presentation. Once the exercise begins, team members can assume differentiated roles such as moderator, master of ceremonies, data presenter or even devil's advocate.

Students like the format of the team competition sessions in the class. They place these sessions as being the most interesting and unique part of the class. They like the intellectual stimulation of preparing the topic or case for presentation. They describe the processes that allow them to apply abstract concepts into real examples, an important element in a strategic management class. Finally, students describe their participation in the voting process as being the best part. Voting makes them feel like they are a major part of this class, and it augments the leaning aspects of the exercise with feelings of significant participation. This reinforces the instructor's stated philosophy that the instructor and the student play different, but equal roles, in the learning process. It should be noted that this feeling of participation in class outcomes is a different mental frame than most college students have in most of their coursework. Following are some illustrative quotes from students:

> *I enjoyed your class this semester. I liked the group competitions. Doing them helped me know that material the best because I had to present it to the class.*
>
> *I thoroughly enjoyed this class. I had fun presenting in front of my peers and think that was a great way for us to interact with each other as well as with the rest of the class. I suggest you keep teaching the way that you do because for me it stimulates learning.*
>
> *I believe this class was a valuable learning experience. I have felt as though I have developed greater sense of team interaction and skills. I also feel as though my preparation for presentations has improved.*
>
> *I liked the way the strategic management class was structured. One thing that I stood out is that you explained that being placed in random groups will be a part of our life after college. You made a good point when you told us that there might be some group members like will slack, but being able to motivate them will be a skill that will be essential for us to develop as we go into the real world.*

SUMMARY AND CONCLUSIONS

Experiential educational processes involve cognitive, emotional and behavioral dimensions. Despite the irony of the fact that some aspects of the experiential learning movement came about as a negative reaction to overly cognitive lectures and classrooms as information dissemination machines, it can be argued that the cognitive dimension is the most important element in the process of an experiential learning event. This is because without a requisite level set of cognitive referents, what we are describing here as a mental frame, experiential learning can lose not only its context, but also its purpose. Therefore, it is possible to think of experiential education as a process of taking a "lower-level" mental frame and transforming it into a "higher-level" frame. Note that the higher-level frame includes the lower- level frame, just as the earlier example of the young lady/old lady optical illusion illustrated.

The process by which this transformational outcome of shifting/elevating mental frames is attained is described in this paper as insight learning. We have identified four phases/elements as being part of the totality of the insight learning process. These include identifying the extant mental frame, designing an alternative mental frame, participating in experiential learning outcomes sufficient to shift the mental frame, and then having the capacity to exercise the newly acquired capacity(s) at will.

The accomplishment of insight learning outcomes requires a cooperative and joint effort on the part of the instructor and the student. Instructors, as illustrated in this paper, need to have a personal philosophy of education that allows them to take on the role of an insight learning enabler and facilitator. Students need to adopt learning strategies, such as the *iCapt* model presented here, in order to take personal responsibility for their own insight learning outcomes. Finally, all of the parties who are willing to tackle

transformational learning challenges such as insight learning need to keep in mind that the entire process rests on a bedrock of respect --- respect for self, respect for the instructor, respect for fellow students, and respect for the insight learning processes that bind them all together as fellow travelers.

REFERENCES

Ansburg, P.I., & Dominowski, R.L. (2000). Promoting insightful problem solving. ***Journal of Creative Behavior***, *34,* 30-60

Boden, M.A. (1994). ***The dimensions of creativity***. Cambridge, MA: The MIT Press

Cannon, H. M. & Friesen, D. P. (2010) The simplicity paradox: Another look at complexity in design of simulations and experiential learning. ***Developments in Simulation and Experiential Learning***, Vol. 37, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Easterbrook, J.A. (1959) The effect of emotion on cue utilization and the organization of behavior, ***Psychological Review***, 66: 183-201.

Gallos, J.V. (2007) Book review of ***The year of magical thinking*** by Joan Didion. ***Academy of Management Learning and Education,*** 6 (2): 286-291.

Hoover, J.D. & Giambatista, R.G. (2009). Why have we neglected vicarious experiential learning? ***Developments in Simulation and Experiential Learning***, Vol. 36, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Hoover, J. D. (2007) "How "whole" is whole person learning? An examination of spirituality in experiential learning," ***Developments in Simulation and Experiential Learning***, Vol. 34, 324-330, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Hoover, J.D. (2011) Complexity avoidance, narcissism and experiential learning. ***Developments in Simulation and Experiential Learning***, Vol. 38, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Isaak, M.I., & Just, M.A. (1996). Constraints on thinking in insight and invention. In R.J. Sternberg & J.E. Davidson (Eds.), ***The nature of insigh****t*. Cambridge, MA: MIT Press

Knoblich, G., Ohlsson, S., Haider, H., & Rhenius, D. (1999). Constraint relaxation and chunk decomposition in insight problem solving. ***Journal of Experimental Psychology: Learning, Memory & Cognition***, *25*, 1534-1555

Locke, E.A., & Latham, G.P. (2002). Building a practically useful theory of goal setting and task motivation: A 35 year odyssey. ***American Psychologist***, 57. 705-717.

Markulis, P.M., Murff, E. & Strang, D.R. (2011) Should college instructors change their teaching styles to meet the Millenial student? ***Developments in Simulation and Experiential Learning,*** Vol. 38, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Marris, P.H. (1975). ***Loss and change***. New York: Doubleday.

Micklich, D.L. (2011) Examining the cognitive, affective, and psychomotor dimensions in management skill development: Developing a framework. ***Developments in Simulation and Experiential Learning,*** Vol. 38, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Munoz, C.A., Mosey, C.S. & Binks, M. (2011) Developing opportunity-identification capabilities in the classroom: Evidence for changing mental frames. ***Academy of Management Learning and Education,*** 10 (2), 277-295.

Newell, A. & Simon, H.A. (1972). ***Human problem solving***. Englewood Cliffss, NJ: Prentice Hall

Noble, S.A. (2011) Managing organizations: Experiential MBA course teaches alternatives to the machine model. ***Developments in Simulation and Experiential Learning***, Vol. 38, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Pink, D.H. (2009) **Drive: The surprising truth about what motivates us.** New York: Penguin Books.

Reed, L. (2010) Mustard Seeds as means for creative problem-solving, ethical decision-making, stakeholder alliance and leader development through experiential learning in management education. ***Developments in Simulation and Experiential Learning***, Vol. 37, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Teach, R. (2010) Learning inhibitors in business simulations and games. ***Developments in Simulation and Experiential Learning,*** Vol. 37, Reprinted in the Bernie Keys Library [Available from http://ABSEL.org]

Watson, J.D. (1968). ***The double helix.*** New York: Signet Books.