

Christian Business Faculty Association Fall 2006 Conference Paper
“It’s Alive – But Is Our Teaching?”

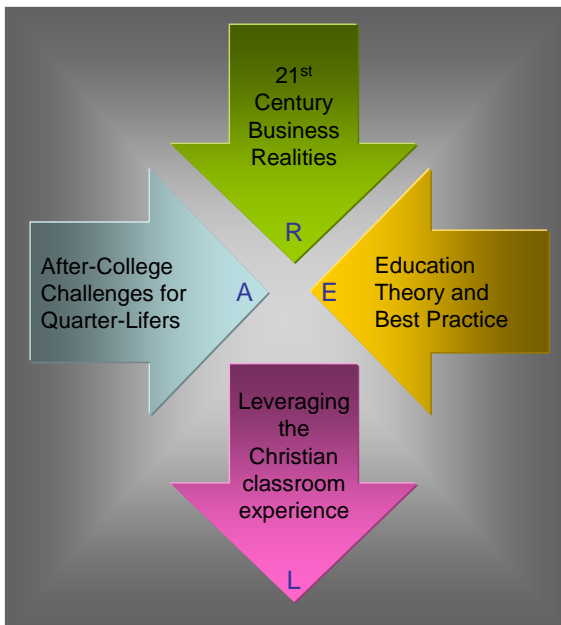
Dr. Sharon G. Johnson
and
Dr. Rick Martinez

Cedarville University

Synopsis: This paper seeks to establish a framework for discussing the relevancy of Christian college education in the 21st Century. Drawing from literature related to futures studies in business, teaching and learning theory and practice, generational characteristics, and Christian philosophy and biblical application, the paper focuses attention on three factors:

- (1) How can we help our students **RESPOND** to the challenges business majors will face in the organizational world of 2006 and beyond?
- (2) What does **EDUCATIONAL** theory and best practice teach us about teaching and learning?
- (3) How might we best **ACTIVELY LEVERAGE** our classrooms and courses to best prepare our students to succeed as Christian professionals?

Introduction



There are four challenges facing Christian educators as we seek to provide students with a substantively value-added educational experience:

- (1) Ensuring that **what** we teach is responsive to the challenges our students will face in the 21st Century business world
- (2) Basing **how** we teach on the most currently available educational theory and best practice
- (3) Designing and implementing classroom experiences **when** we teach that encourage a faith-life wholeness so that students wrestle with personal and professional issues in biblically authentic ways

We use the acronym “REAL” to express this confluence of factors¹ in Christian education in several ways. First, Christian education ought to be relevant to the **real world** of business our students will face. Secondly, the methods we use should reflect

the **real knowledge** we have about how teaching and learning best occur. Finally, we must seek creative ways to imbue our classrooms with opportunities for students to make **real connections** between their faith and their personal and professional lives.

RESPONDING TO 21ST CENTURY BUSINESS REALITIES

We are educating students for a very different world than the one we knew at our graduation.

The Revolutionaries who are Our Neighbors

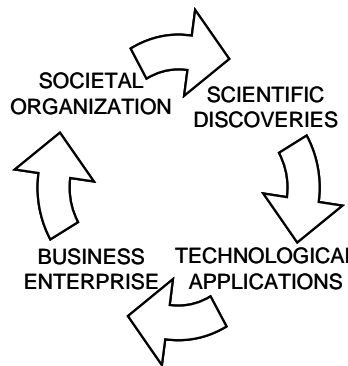
A colleague of ours, who teaches chemistry and physics, recently discussed his dissertation work. He told us he was creating a new compound that would bond with mercury. This compound could be used by water companies seeking to remove this dangerous heavy metal from water. He said that they did not know the specific mechanism by which this occurred because the material is opaque and thus cannot be examined through even a sophisticated electron microscope. What he did know is that he had created a brand new compound, and that the resultant compound, once bonded with mercury, was also brand new. In fact, both compounds were in the process of being patented. His work was being done at the molecular level in order to create an economically valuable substance.

Recently I (Sharon) was attending a high school graduation party of a friend's 18-year old and struck up a conversation with a farmer. This farmer works about 600 acres each of corn, soybeans and wheat in the Midwest. He has been farming for over 40 years. I asked him to talk to me about what had changed over that time. Most of his discussion dealt with genetic engineering of seeds, GPS-guided spraying equipment linked to in-cab computers which kept track of which parts of the field he had sprayed and which had not, and of the economics of futures markets and hedging funds (which he monitored from his dish network and home computer).

Our teaching colleague and my new farming friend are living out professionally the revolution described by Meyer and Davis in their 2003 book *It's Alive: the Coming Convergence of Information, Biology and Business* (Crown Business, New York).

Life Cycles and Economic Enterprise

Meyer and Davis begin with the proposition that “the economy of the future derives from the science of today.”ⁱⁱ They propose a pattern of economic development driven by scientific discoveries that lead to technological applications in production that help create business enterprises that done influence the very way a society organizes itself. This is easily seen in the development of the basic science of electricity being applied to the creation of electric motors then used in automobile generators and alternators that then created the way we as a society choose to live in neighborhoods outside of towns.



Meyer and Davis contend that there have been two major science-technology-business-organization cycles:ⁱⁱⁱ

- The Industrial Economy based on the **sciences** of electricity and chemistry, giving rise to **technological** application in electrical equipment and steel plants, which encouraged such **businesses** as the automobile industry and high-rise construction, which then created such societal **organizing**

phenomenon as large plants, application of scientific management principles and organization hierarchies.

- The Information Economy based on the **sciences** of solid state physics and information theory, giving rise to **technological** application in computing chips, software operating systems and internet protocols, which encouraged **businesses** ranging from Microsoft and Dell to cell phones to wireless applications, which then created such societal **organizing** phenomenon as on-line communities (MySpace, blogs), identity theft concerns, and instant credit transactions through GPS-facilitated information systems.

Meyer and Davis argue that we are already now moving into a new revolution: the Molecular Economy. They cite the often-exotic **sciences** related to biology, nanoscale exploration and materials science (such as my friend chemistry colleague is involved). They note the increased **technological** application of such sciences in arenas such as genomics and materials development that “have already changed how we reproduce, how we heal, how we develop our foods and medicines and fibers.”^{iv} They note that such applications have already greatly affected **businesses** in pharmaceuticals, agriculture, and materials. It is yet to be determined all the ways such businesses may shape the way we organize ourselves as a society, according to the authors.

The authors voice the idea that we are between two economic waves: the still developing information economy and the newly emerging molecular economy:

“Anyone trying to run a business – or live a life, for that matter – over the next ten years will be dealing with two major forces: first, an environment in which change has doubled its pace and volatility has increased, creating the imperative to adapt. And second, the beginning of a new economic life cycle, in which the makeup of our GDP, which has in the past migrated from agriculture to manufactured goods, from goods to services, from goods and services to information, shifts again, this time to value created by molecular technologies.”^v

The remainder of the book seeks to establish a framework for understanding: (1) the economic enterprise as an evolutionary phenomenon (“We are finding that evolution is, in fact, a concept that describes many different kinds of systems and how they adapt to their environments”^{vi}); and (2) the characteristics of adaptive businesses that will succeed in that evolutionary atmosphere (“Looking at what these ‘early adopters’ have done to accelerate their own responses to change points us to measures that any company can take to make its processes, products, organization, and strategy more adaptive”^{vii}).

Preparing Students to Thrive in the “Adaptive Enterprise”

Meyer and Davis state, “Our purpose is to build a framework for management focused not on engineering and efficiency but on evolution and adaptability.” They go on to argue “our current models of management treasure stability and control, not the kind of change, diverse thinking, and experimentation that we associate with adaptiveness.”^{viii}

They discuss six characteristics or mindsets of the adaptive organization:

- *Self-Organize*. Manage your organization from the bottom up. Influence the rules that affect individual choices rather than the overall behavior of the organization.
- *Recombine*. Proliferating connections make recombination – of software code, product attributes, people and markets – easier. Turn your business into an open system to capture the value and innovation of diversity.
- *Sense and Respond*. Networks make real-time information cheap. Sensors help us filter and act on new information and even abundant forecasting altogether. Equip your business to sense changes and to respond immediately, accurately, and appropriately.

- *Learn and Adapt.* After getting feedback on what happened when you “senses and responded,” learn from the experience and incorporate the new information into your repertoire of responses.
- *Seed, Select and Amplify.* Test many diverse options, and reinforce the winners. Experiment, don’t plan.
- *Destabilize.* The rate of environmental change demands internal instability for survival. Disrupt the static elements in your organization.

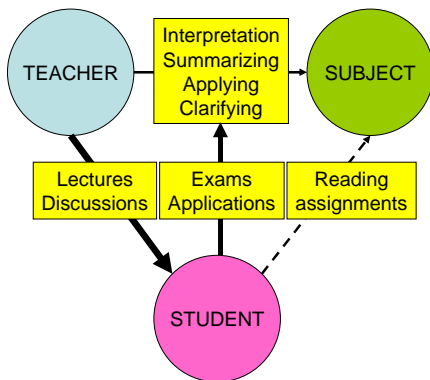
We want to elaborate on the meaning of each, and then suggest some “uneasy” implications from a Christian perspective:^{ix}

CONCEPT	AMPLIFICATION ^x	CHRISTIAN IMPLICATION
Self-organize	Allow maximum freedom for each individual to make decisions flexibly and adaptively, to be innovative and to explore new ways of addressing issues	To what degree do Christian higher education (CHE) institutions encourage independence rather than dependence? To what degree do Christian faculty model flexibility, innovation and exploration before students in their professional and personal lives?
Recombine	Seek to increase the diversity of thought within an organization by aggressively seeking the ideas of others and freely sharing information	To what degree does CHE encourage diversity of any sort – given the rather homogenous nature of students, faculty and staff at Christian colleges, what active steps are being taken to move all members of the community into new and uncomfortable environments?
Sense and respond	Seeking more and freer feedback channels into and across the organization, taking advantage of information collection, processing and response capabilities,	To what degree are CHE institutional run in collegiate versus command models that encourage maximum awareness and fast response to new environmental contingencies?
Learn and adapt	Creating opportunities for interaction among organizational personnel and outside through workshops, degree programs, sabbaticals, encourage continuous improvement projects	To what degree to CHE institutions encourage students to create learning communities where they can learn from each other? To what degree do such institutions create multiple, non-threatening forums for freely sharing ideas and concerns?
Seed, select and amplify	Encourage more tests, more early failures and faster analysis of the basis for success and failure to encourage learning rather than blame placing	To what degree do faculty at CHE institutions encourage students to experiment with new projects, self-directed teams? To what degree do faculty at CHE schools assess program and classroom level performance to help determine what really works educationally, and what does not?
Destabilize	Create an environment where change is common, where the company can thrive in an atmosphere of constructive chaos, seeking to live close to the market “edge” of innovation and service	To what degree do CHE institutions prepare students to thrive in a volatile and continually threatening economic environment? To what degree do CHE faculty and staff exhibit a readiness to embrace change, uncertainty and risk in order to provide students the best education possible?

WHAT 21ST CENTURY EDUCATION IS REQUIRED FOR A 21ST CENTURY BUSINESS WORLD?

The Teacher-Student-Subject Controlling Paradigm^{xi}

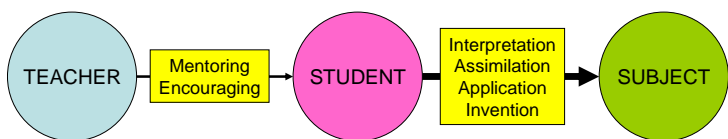
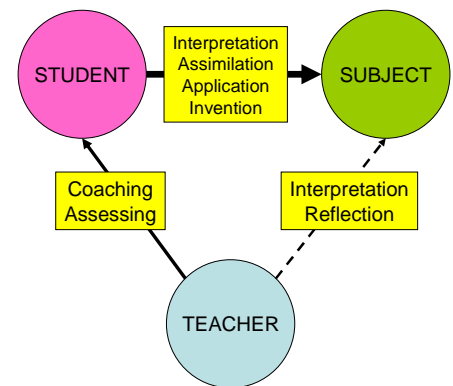
The educational structure is a deceptively simple forum. Let's depict it this way: the student, the teacher and that which is being learned.



The diagram at left depicts the traditional “classroom.”^{xii} The teacher plays the most central role, acting as the intermediary “between” the student and the subject. The student’s primary interaction is with the teacher, even though, most often through text materials (and, perhaps library or other ancillary reading assignments), the student also has a direct (but passive) interaction with the subject. Note, however, that the ACTIVE interaction is either with the teacher (lectures and discussions) or the teacher’s exams/assignments.

Imagine a different arrangement of the elements like the one depicted at right.

This structure is one typically found in adult education. Here the student becomes the primary agent, responsible for interpreting the subject material, assimilating it into their experience, applying the material to resolve issues and even inventing new and creative approaches to issues related to the subject. The teacher’s role is that of coach and, in many cases, assessor (determining, for example, areas where subject mastery is inadequate and needs to be focused on by the student). The teacher also interacts with the subject matter, but in ways that relate to their coaching and assessing roles.



One can imagine other structures that could be even “less” traditional. For example, one could imagine a learning situation where the teacher only acts as a mentor (from their own experience) and encouraging, while the student bears exclusive responsibility for engaging and mastering the subject material.

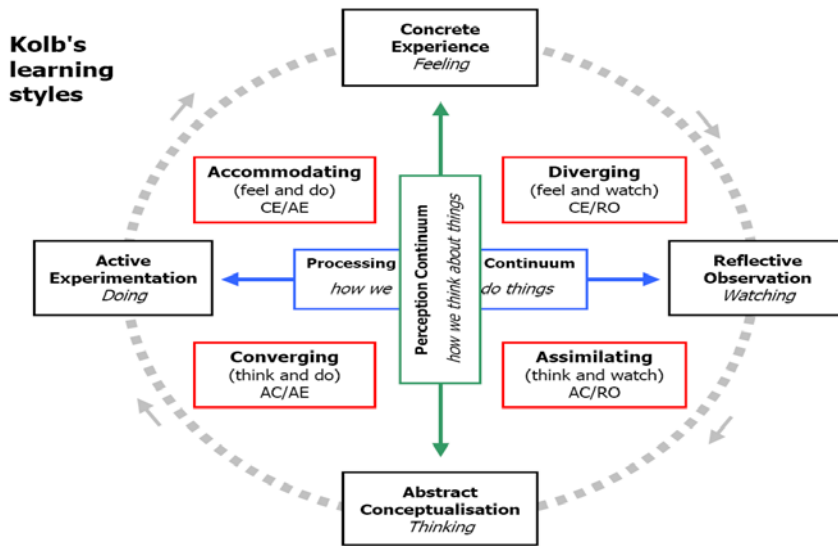
The fact is that these, and many other possible structures, all carry strengths and weaknesses, and all are based on a set of assumptions about how teaching and learning occurs. How is a teacher to “know” how best to build an educational structure that is:

- **Effective** = learning occurs both *strategically* – as planned – and *serendipitously* – unexpected outcomes
- **Efficient** = stated negatively: *minimizes* wasted time and energy; stated positively, *maximizes* the impact of available resources
- **Efficacious** = the learning produces the targeted intellectual, emotional, behavioral and/or spiritual changes in many or most students despite their differences

For many teachers, teaching is an historic-intuitive process. May teach as they were taught, making some changes that they “feel” might be more effective (such as incorporating the use of web-based technology in their courses). The fact is that there is a growing and significant body of research about the conditions and choices that lead to more highly effective, efficient and efficacious learning. While some of this literature may confirm the validity of a teacher’s personal historical educational experience and intuitive hunches, a great deal of it may challenge both our experience and our feelings. While it would be unrealistic in this paper to review

all the literature, we can focus attention on several landmark works that review what we know about collegiate learning and teaching.^{xiii}

One Style Will Not Fit All^{xiv}



^{xv}“The Kolb Learning Style Inventory ... [is] based on ... Experiential learning theory (ELT) draws on the work of prominent twentieth century scholars who gave experience a central role in their theories of human learning and development - notably John Dewey, Kurt Lewin, Jean Piaget, William James, Carl Jung, Paulo Freire, Carl Rogers, and others-to develop a holistic model of the experiential learning process and a multi-linear model of adult development.

“The theory ... is built on six propositions that are shared by these scholars:

1. Learning is best conceived as a process, not in terms of outcomes. To improve learning in higher education, the primary focus should be on engaging students in a process that best enhances their learning—a process that includes feedback on the effectiveness of their learning efforts. ...
2. All learning is relearning. Learning is best facilitated by a process that draws out the students’ beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas.
3. Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. Conflict, differences, and disagreement are what drive the learning process. In the process of learning, one is called upon to move back and forth between opposing modes of reflection and action and feeling and thinking.
4. Learning is a holistic process of adaptation to the world. It is not just the result of cognition but involves the integrated functioning of the total person—thinking, feeling, perceiving, and behaving.
5. Learning results from synergetic transactions between the person and the environment. In Piaget’s terms, learning occurs through equilibration of the dialectic processes of assimilating new experiences into existing concepts and accommodating existing concepts to new experience.
6. Learning is the process of creating knowledge. ELT proposes a constructivist theory of learning whereby social knowledge is created and recreated in the personal knowledge of the learner. This stands in contrast to the “transmission” model on which much current educational practice is based, where pre-existing fixed ideas are transmitted to the learner.

“ELT defines learning as “the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (Kolb 1984: 41). The ELT model portrays two dialectically related modes of grasping experience-Concrete Experience (CE) and Abstract Conceptualization (AC) - and two dialectically related modes of transforming experience-Reflective Observation (RO) and Active Experimentation (AE). Experiential learning is a process of constructing knowledge that involves a creative tension among the four learning modes that is responsive to contextual demands. This process is portrayed as an idealized learning cycle or spiral where the learner “touches all the bases”—experiencing, reflecting, thinking, and acting-in a recursive process that is responsive to the learning situation and what is being learned. Immediate or concrete experiences are the basis for observations and reflections. These reflections are assimilated and distilled into abstract concepts from which new implications

for action can be drawn ... ELT proposes that this idealized learning cycle will vary by individuals' learning style and learning context.

The challenge the model presents us with is how to recognize (diagnose) the learning styles of our students, how to avoid simply teaching focused on one particular style (most likely our preferred learning style), and how to challenge all students (regardless of their dominant or preferred style) to embrace other forms of learning.

In addition, as Christian educators, we face the challenge of how to more effectively encourage biblical integration. In many classes, such integration is advanced through students' reflective observation of the teacher's insights about integration. Moving students to active experimentation and concrete experience with biblical integration will require far more than devotionals and "words of wisdom" from the professor. Moving students from being spectators to participants requires thinking through their roles as students and our roles as instructors.

One Level Of Learning Is Not Enough^{xvi}

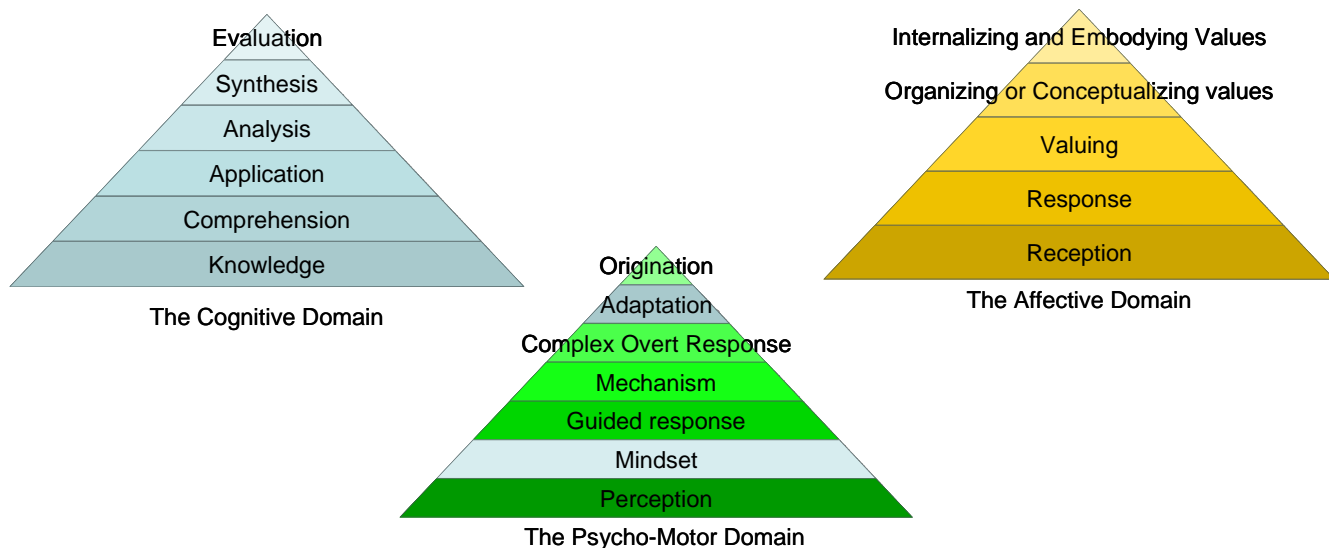
Students learn not only in different ways, but at different levels. The best developer of the concept of levels or domains" of learning is Dr. Benjamin S. Bloom.

Bloom's Taxonomy of Learning Domains, was initially published in 1956. The creation of the body of work that developed the taxonomy commenced in 1948, when Benjamin Bloom chaired a committee of educational psychologists, based in American education, whose aim was to develop a system of categories of learning behavior to assist in the design and assessment of educational learning. Bloom's Taxonomy has since been expanded over many years by Bloom and other contributors (notably Anderson and Krathwhol as recently as 2001).

The taxonomy provides insights which can move educators beyond their one-dimensional fixation on "transferring information" to students. The taxonomy achieves this by

1. Identifying and defining a variety of levels on which learning can (and should) occur
2. Providing a list of key learning verbs which describe the kinds of ways each level of learning activities might be manifested
3. Offering descriptions of learning activities by which such learning would be developed

Visually, the taxonomy can be represented by hierarchical triangles, with each higher level representing a more challenging and deeper level of learning:



In detail, we can identify a definition, example behaviors and key words that can be used by teachers for developing and framing various learning objectives.

<p>COGNITIVE DOMAIN. The cognitive domain involves knowledge and the development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. There are six major categories, which can be thought of as degrees of inter-dependent masteries of increasing difficulty. That is, the first one must be mastered before the next one can take place.</p>		
<p>Knowledge: Recall data or information.</p>	<p>Examples: Recite a policy. Quote prices from memory to a customer. Know the safety rules.</p>	<p>Key Words: defines, describes, identifies, knows, labels, lists, matches, names, outlines, recalls, recognizes, reproduces, selects, states.</p>
<p>Comprehension: Understand the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one's own words.</p>	<p>Examples: Rewrites the principles of test writing. Explain in one's own words the steps for performing a complex task. Translates an equation into a computer spreadsheet.</p>	<p>Key Words: comprehends, converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, interprets, paraphrases, predicts, rewrites, summarizes, translates.</p>
<p>Application: Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom into novel situations in the work place.</p>	<p>Examples: Use a manual to calculate an employee's vacation time. Apply laws of statistics to evaluate the reliability of a written test.</p>	<p>Key Words: applies, changes, computes, constructs, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses</p>
<p>Analysis: Separates material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences.</p>	<p>Examples: Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training.</p>	<p>Key Words: analyzes, breaks down, compares, contrasts, diagrams, deconstructs, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, relates, selects, separates</p>
<p>Synthesis: Builds a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure.</p>	<p>Examples: Write a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and process to improve the outcome.</p>	<p>Key Words: categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes.</p>
<p>Evaluation: Make judgments about the value of ideas or materials.</p>	<p>Examples: Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget.</p>	<p>Key Words: appraises, compares, concludes, contrasts, criticizes, critiques, defends, describes, discriminates, evaluates, explains, interprets, justifies, relates, summarizes, supports</p>
<p>AFFECTIVE DOMAIN. This domain includes the manner in which we deal with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The five major categories listed the simplest behavior to the most complex:</p>		
<p>Receiving phenomena: Awareness, willingness to hear, selected attention.</p>	<p>Examples: Listen to others with respect. Listen for and remember the name of newly introduced people.</p>	<p>Key Words: asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies, uses</p>
<p>Responding to phenomena: Active participation on the part of the learners. Attends and reacts to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).</p>	<p>Examples: Participates in class discussions. Gives a presentation. Questions new ideals, concepts, models, etc. in order to fully understand them. Know the safety rules and practices them.</p>	<p>Key Words: answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes</p>
<p>Valuing: The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable.</p>	<p>Examples: Demonstrates belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to social improvement and follows through with commitment. Informs management on matters that one feels strongly about.</p>	<p>Key Words: completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works</p>

<p>Organization: Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating a unique value system. The emphasis is on comparing, relating, and synthesizing values.</p>	<p>Examples: Recognizes the need for balance between freedom and responsible behavior. Accepts responsibility for one's behavior. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Creates a life plan in harmony with abilities, interests, and beliefs. Prioritizes time effectively to meet the needs of the organization, family, and self.</p>	<p>Key Words: adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes</p>
<p>Internalizing values (characterization): Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).</p>	<p>Examples: Shows self-reliance when working independently. Cooperates in group activities (displays teamwork). Uses an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Revises judgments and changes behavior in light of new evidence. Values people for what they are, not how they look.</p>	<p>Key Words: acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, verifies</p>
<p>Psychomotor DOMAIN. The psychomotor domain includes physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. The seven major categories listed the simplest behavior to the most complex:</p>		
<p>Perception: The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation.</p>	<p>Examples: Detects non-verbal communication cues. Estimate where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjusts heat of stove to correct temperature by smell and taste of food. Adjusts the height of the forks on a forklift by comparing where the forks are in relation to the pallet.</p>	<p>Key Words: chooses, describes, detects, differentiates, distinguishes, identifies, isolates, relates, selects</p>
<p>Set: Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets).</p>	<p>Examples: Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations. Shows desire to learn a new process (motivation). NOTE: This subdivision of Psychomotor is closely related with the "Responding to phenomena" subdivision of the Affective domain.</p>	<p>Key Words: begins, displays, explains, moves, proceeds, reacts, shows, states, volunteers</p>
<p>Guided Response: The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing.</p>	<p>Examples: Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds hand-signals of instructor while learning to operate a forklift.</p>	<p>Key Words: copies, traces, follows, react, reproduce, responds</p>
<p>Mechanism: This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.</p>	<p>Examples: Use a personal computer. Repair a leaking faucet. Drive a car.</p>	<p>Key Words: assembles, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches</p>
<p>Complex Overt Response: The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance. For example, players are often utter sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of</p>	<p>Examples: Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano.</p>	<p>Key Words: assembles, builds, calibrates, constructs, dismantles, displays, fastens, fixes, grinds, heats, manipulates, measures, mends, mixes, organizes, sketches. NOTE: The Key Words are the same as Mechanism, but will have adverbs or adjectives that indicate that the performance is quicker, better, more accurate, etc</p>

the act what the result will produce.		
Adaptation: Skills are well developed and the individual can modify movement patterns to fit special requirements.	Examples: Responds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners. Perform a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task).	Key Words: adapts, alters, changes, rearranges, reorganizes, revises, varies
Origination: Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills.	Examples: Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine.	Key Words: arranges, builds, combines, composes, constructs, creates, designs, initiate, makes, originates

While Bloom’s Taxonomy has been widely used for some time in K-12 arenas, its use in higher education has less extensive and spottier. It has become more prominent in higher education circles as the emphasis has moved to assessing student learning outcomes.

Those who work in Christian Higher education should find that they especially resonate with Bloom’s taxonomy. We read in Mat 22:35-38: “One of them, a lawyer, asked Him a question, testing Him, Mat 22:36 ‘Teacher, which is the great commandment in the Law?’ And He said to him, ‘You shall love the Lord your God with all your heart, and with all your soul, and with all your mind.’ This is the great and foremost commandment.” Understanding education as an act of love that embraces our heads, hearts and hands provides us great opportunity for developing enriched classes.

Following Our Teaching Instincts Is Not Enough – We Need To Adopt Best Practices

There is a growing body of evidence related to best practices in higher education. These studies examine effective teachers in a variety of situations and seek to identify the basic classroom approaches that characterize these teachers. We will examine three such works.

Seven principles

The most well known of early attempts to identify best teaching practices was the landmark work, “Seven Principles for Good Practice in Undergraduate Education,” by Arthur W. Chickering and Zelda F. Gamson, first published in the March 1987 *AAHE Bulletin*. In Chickering and Gamson’s words:

“These seven principles are ... intended as guidelines for faculty members, students, and administrators -- with support from state agencies and trustees -- to improve teaching and learning. These principles seem like good common sense, and they are -- because many teachers and students have experienced them and because research supports them. They rest on 50 years of research on the way teachers teach and students learn, how students work and play with one another, and how students and faculty talk to each other. While each practice can stand alone on its own, when all are present their effects multiply. Together they employ six powerful forces in education: activity, expectations, cooperation, interaction, diversity, and responsibility. As faculty members, academic administrators, and student personnel staff, we have spent most of our working lives trying to understand our students, our colleagues, our institutions and ourselves. We have conducted research on higher education with dedicated colleagues in a wide range of schools in this country. We draw the implications of this research for practice, hoping to help us all do better.”

The seven principles are

1. **Encourages contact between students and faculty.** Frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and future plans.
2. **Develops reciprocity and cooperation among students.** Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions sharpens thinking and deepens understanding.
3. **Encourages active learning.** Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teachers, memorizing pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives. They must make what they learn part of themselves.
4. **Gives prompt feedback.** Knowing what you know and don't know focuses learning. Students need appropriate feedback on performance to benefit from courses. When getting started, students need help in assessing existing knowledge and competence. In classes, students need frequent opportunities to perform and receive suggestions for improvement. At various points during college, and at the end, students need chances to reflect on what they have learned, what they still need to know, and how to assess themselves.
5. **Emphasizes time on task.** Time plus energy equals learning. There is no substitute for time on task. Learning to use one's time well is critical for students and professionals alike. Students need help in learning effective time management. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty. How an institution defines time expectations for students, faculty, administrators, and other professional staff can establish the basis of high performance for all.
6. **Communicates high expectations.** Expect more and you will get more. High expectations are important for everyone -- for the poorly prepared, for those unwilling to exert themselves, and for the bright and well motivated. Expecting students to perform well becomes a self-fulfilling prophecy when teachers and institutions hold high expectations for themselves and make extra efforts.
7. **Respects diverse talents and ways of learning.** There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio. Students rich in hands-on experience may not do so well with theory. Students need the opportunity to show their talents and learn in ways that work for them. Then they can be pushed to learn in new ways that do not come so easily.

What the best teachers do

According to Ken Bain, Director of the Center for Teaching Excellence at New York University (in his 2004 book , What the Best College Teachers Do , Harvard University Press) teaching is both an intellectual creation and a performing art (p.174). It is best done by those eager to seek real answers to such questions as:

- (1) What do I need to know and understand to engage my students in the great questions of my discipline?
- (2) How do I need to prepare myself and my students to attain significant learning objectives?
- (3) What should I expect of myself and my students?
- (4) What approaches should I take in the classroom to foster excitement about and engagement with the ideas, issues and controversies of my discipline?
- (5) How might I assess my real impact on student learning so that I can continue to challenge myself to grow as an individual?

The best teachers do not simply plow through a textbook, grind out the same multiple-choice exams, nor recite from last terms course lecture notes. The best teachers when compared to ordinary teachers are different:

Excellent teachers ...

- Know that knowledge is discovered
- Focus on how students think
- Major on provoking questions
- Motivate students through passion and persuasion
- Are committed to being active participants in and contributors to the developmental dialogue of their discipline

Ordinary teachers ...

- Believe that knowledge is delivered
- Focus on what students know
- Major on providing answers
- Motivate students through procedures and punishment
- Are merely observers of others in their disciplines and reporters what others are saying

Bain discusses a variety of perspectives about student learning that were shared (though perhaps articulated in their own ways) by the best teachers:

- (1) **Knowledge is constructed, not received.** Learning occurs at the end of a process whereby sensory input is received and moved through some mental model that classifies and connects that input to what we already know. Learning is an active process of engagement, not a passive process of reception.
- (2) **Knowledge is active, not passive.** We do not learn because we have been told something. We learn because what we have been told is connected to problems, issues and questions that matter to us.
- (3) **Knowledge is motivated by promise, not command.** We learn because we want to, not because someone else wants us to. Students learn by having as much control over their own education as possible (p. 35). Students learn through collaboration and cooperation, not competing to outdo others or to seize a prize grade. Real student learning is encouraged because it is embraced by both student and teacher.
- (4) **Knowledge is encouraged by big issues, not small facts.** Students learn not as they listen, but as they explore the puzzles, contradictions and paradoxes of a discipline. Students learn because they encounter the novel, the incongruous and the unsettling (pp. 39-40).
- (5) **Knowledge is developed, not delivered.** A student learns a concept by piecing its parts together, handling it, looking at it from different angles, taking it apart again and rearranging it in an individually unique shape. The best teachers stimulate students to engage in the often messy process of self-instruction.

Robert Bain argues that two powerful notions – teaching is fostering learning and that it requires serious intellectual work – give rise to significant course/class planning questions (pp. 49-61):

- (1) What are the big questions my course will help students learn to develop answers for?
- (2) What reasoning abilities must my students have to answer the questions my course raises?
- (3) What mental models are students likely to bring to the course that will help/hinder their learning development?
- (4) (4)What information will students need to understand to answer the important questions of the course and how can they best obtain this information?
- (5) How will I help students who struggle understanding the key course questions and/or using evidence and reason to answer them?
- (6) How will I encourage students to grapple with the conflicts, contradictions and competing theories in my discipline?
- (7) How will I determine what my students are learning and how do I provide them this feedback?

Dr. Bain argues that seven fairly common principles emerge in the practice of effective teachers:

- (1) They create a natural critical learning environment – students are equipped and encouraged to think about issues naturally arising from the questions and tasks of the course.
- (2) They grab and keep student attention with some provocative act, question or statement.
- (3) They start where the students are – initially focus on what students care about and know (or think they know) about.
- (4) They expect and ask students to make commitments to the course, each other and the professor.
- (5) They help students learn outside of class.
- (6) They engage students in disciplinary thinking (teaching students to understand, apply, analyze, synthesize and evaluate evidence and conclusions as those active in the discipline do).
- (7) They create diverse learning experiences.

A better IDEA

The IDEA Student Ratings System originated at Kansas State University during the 1968-69 school year. Its emphasis was unique, as it provided constructive feedback aimed at improving the quality of instruction and student learning. During the next seven years, the system was perfected and refined to assist in the improvement of instruction at Kansas State University. With help from the W. K. Kellogg Foundation, The IDEA Center was established in 1975 and the IDEA student ratings instrument was made available to other colleges and universities. Since that time, other instruments have been added to assist institutions in the assessment and improvement of administrator performance. IDEA Feedback for Department Chairs, IDEA Feedback for Deans, and IDEA Feedback for Administrators serve to provide information to assist higher education leaders to become more effective.^{xvii}

The 20 teaching constructs now identified by IDEA as most influential in effective teaching are:^{xviii}

- Displays a personal interest in students and their learning
- Finds ways to help students answer their own questions
- Schedules course work (class activities, tests, projects) in ways which encouraged students to stay up-to-date in their work
- Demonstrates the importance and significance of the subject matter
- Forms teams or discussion groups to facilitate learning
- Makes it clear how each topic fit into the course
- Explains the reasons for criticisms of students' academic performance
- Stimulates students to intellectual effort beyond that required by most courses
- Encourages students to use multiple resources to improve understanding
- Explains course material clearly and concisely
- Relates course material to real life situations
- Gives tests and projects that cover the most important points of the course
- Introduces stimulating ideas about the subject
- Involves students in 'hands-on' projects such as research, case studies, or 'real life' activities
- Inspires students to set and achieve goals which really challenged them
- Asks students to share ideas and experiences with others whose backgrounds and viewpoints differ from their own
- Provides timely and frequent feedback on tests, reports, projects, etc., to help students improve
- Asks students to help each other understand ideas or concepts
- Gives projects, tests, or assignments that required original or creative thinking
- Encourages student-faculty interaction outside of class"

ACTIVELY LEVERAGING CLASSROOMS FOR MAXIMUM CHRISTIAN IMPACT

In this paper, we have taken aim at specifying the three major challenges of Christian business education:

Teaching well

- Best Practices
- Models and Theories of Education
- Pedagogical networking/exploration

Teaching Relevantly

- The New Economy
 - It's Alive
 - Drives content and focus
- Strategic Foresight
 - Anticipating change/trends
 - Knowledge Management and Megatrends
- Abilities
 - What has been (theories, practice)
 - What is/How to (practitioners/experience)
 - What will be (insightful analysis)
 - What could be (vision)

TEACHING UNIQUELY

While it is clear that most faculty in Christian business programs recognize that there must be something uniquely Christian about their programs, it is not always clear what that uniqueness might look like. Further, as we consider the vast and glorious task of preparing students for ministry, service, and leadership in the marketplace, we must pause to re-iterate a point critical to this paper: whatever it means to teach in a uniquely Christian way, the journey will be in vain unless we understand what it means to teach well, and to teach what is relevant for aspiring businesspeople.

If we can assume (for the sake of moving forward) that we have built Christian business programs that are focusing on the right questions/issues and mastering the right methods, then our great challenge becomes the development of faith integration that goes beyond surface Scripture applications. We examine next...

Christian business scholars have, of course, considered the question of integration for quite some time and in a number of contexts (cites). Examples... We contend, however, that a new consideration is necessary in light of developments and trends in the modern economy, and in light of an increasing call for excellence in our teaching pedagogies (work in some CBAR stuff here). This new consideration of Christian distinctiveness in business education begins with a discussion of Christian worldview, and then proceeds sequentially through discussions of Faith Integration, Christian Critiques, and Christian Engagement. Finally, we examine the ways in which successfully Teaching Uniquely achieves synergies with our efforts to teach relevantly and to teach well.

Christian Worldview

Much work has been done recently in establishing a coherent Christian worldview through which to engage the secular culture. Christian business education, like all other disciplines, must begin with an understanding of the Christian worldview. Students in Christian colleges and universities must learn a common language of integration that allows for cultural impact in all arenas. The business arena is a critical element in this process, although much work remains to be done in articulating a Christian worldview of business...

Perhaps the most well-known worldview clash occurs at the point where the secular-humanist perspective universally reflects a Darwinian framework in all disciplines, while Christians work to understand creation and intelligent design (ID) implications across the curriculum. Darwinian models are emerging as more popular in many business discussions (cites...), while business scholars have yet to counter with well-thought-out creationist or ID analyses.

Faith Integration

Beyond the worldview language that should be common to all Christian students, each discipline is charged in Christian higher education with exploring how our faith makes a difference in our understanding and application of disciplinary principles. This exploration must occur in each course, even if the challenge is greater in some courses than in others. We often hear questions such as, “how can there be a ‘Christian’ Accounting, or a ‘Christian’ Statistics course”? Without getting into the details of those courses, we would maintain that even mathematical and numbers-based courses (such as those mentioned) can indeed be understood in a uniquely Christian sense, even beyond serving God and acting ethical in our vocations.

As we consider what faith integration means in the 21st Century classroom, we are guided by the ideas of several writers (cites – e.g. Smith Mist article). FI occurs at many different levels and in different forms...There is no distinctively Christian higher education without conscious and credible FI. FI in this context is understood as an academic construct with pedagogical manifestations. Table xx below compares some rudimentary ideas about what FI is and, what it is not:

What Faith Integration IS	What Faith Integration is NOT
<ul style="list-style-type: none"> ✓ Appropriate, topical exegesis ✓ Interdisciplinary (incl. theology) applications ✓ Worldview explorations ✓ Faith-based model development ✓ Student interactions with integrating alumni 	<ul style="list-style-type: none"> ? Devotionals ? Prayer in class ? Loving, Godly faculty ? Scripture references

Christian critique

A major outcome of successful faith integration is the ability of students to critique business ideas from a Christian worldview. Students should be able to understand the promise and the pitfalls of business or disciplinary models/ideas as they are encountered in coursework, exams, and application-oriented exercises. Of course, we would also expect that students will be able to apply critical analysis in their jobs/careers throughout their lives, with an eye especially to being the light of Christ in a dark world, and a dark marketplace. Having taught them well, and taught them relevantly, our students will be capable and competent in their vocational pursuits. Having taught them in a uniquely Christian manner, through worldview and faith integration, our graduates will be discerning, and able to critique career options, business decisions, organizational actions, and market trends in general.

Christian engagement (academic discipline, life, and culture)

Beyond the consideration of a general Christian worldview, meaningful faith integration, and a Biblically-oriented critique of the business disciplines, students in Christian higher education programs must also be given opportunities to explore what it means to engage actively in a life of vocation. In Teaching Uniquely, we are tasked with creating an understanding of what it means to **BE** a Christian in the marketplace, and how we should then live. As we prepare students for a lifetime of ministry in the market arena, our unique programs will provide examples of ministry tools and mechanisms, such as market-oriented evangelism, discipleship programs for Christian businesspeople, and processes through which our graduates can have a meaningful impact on their

communities and culture in their business activities. Further, our programs will be most unique to the extent that students gain an understanding of how their business activities are both an offering and a sacred calling. Business faculty must be prepared to consider what this means in action. Table xx provides some examples of Christian engagement processes and activities that faculty may use in and out of the classroom.

Table xx: Christian Engagement Processes

Links Between Teaching Uniquely, Relevantly, and Well

Ultimately, as we have noted, teaching relevantly and well are closely related to our ability to be successful in achieving the distinctiveness that is critical to Christian business programs. At the same time, as we achieve Christian uniqueness, it is our contention that we will be better able to achieve our other pedagogical goals.

Businesses Practices and models. Successful distinctiveness in our Christian business programs should have the effect of creating and fostering both passion and ownership in students for their chosen disciplines. To the extent that students are motivated by the Holy Spirit to pursue business as a calling, and are inspired by the uniqueness of our Christian perspective, they are more likely to engage themselves in the educational process, thus enhancing the effectiveness of our methods and students’ academic outcomes. Further, as students are exposed to deep Christian thinking and integration in the models we present, their developed critical thinking and engagement skills will interact well with our efforts to train them in business decision-making and analysis. We will want consider in further research how best to make our distinctively relevant programs and courses more experiential, consistent with the best pedagogical practices.

The New Economy. As we succeed in creating uniquely Christian business content and pedagogy, we will better prepare our students for engagement in the emerging new economy. As we have discussed in detail above, the Molecular Economy will require business thinkers and actors who have skills and knowledge significantly different from those required in the industrial economy of the last century. Christian business programs should be at the forefront of critiquing and responding to the unfolding of the Molecular Economy. As a result, these Christian businesspeople will be valuable assets in organizations that compete in the new economy.

Foresight. The uniqueness developed in Christian business programs will also prepare our graduates to see economic and cultural trends to which others may be relatively blind.

Abilities. Christian business programs should also enhance pedagogy and relevance through development of distinctive abilities for both students and faculty in the classroom. A uniquely designed Christian business program will make students keenly aware of the importance of the gifts they have been given. In most business programs, we speak and teach about human resources management (HRM) concepts as “knowledge, skills, and abilities.” Typically, these KSAs are understood to be the skills by which graduates will enrich themselves, and as assets to be exploited by organizational managers in pursuit of organizational objectives. Christians understand these KSAs in a larger sense to be gifts from God intended to be used for larger Kingdom purposes, even if in the business context. Students’ gifts are parts of the larger whole by which God intends for us to pursue His will. This unique perspective, if developed, may focus students’ efforts in the classroom, in teamwork, and in external activities such as internships.

Students in Christian business programs will also benefit greatly from a uniquely Christian concept of discipleship. Most business and academic programs recognize the importance of “mentoring” efforts. However, the distinctively Christian business program will focus on expanding mentoring relationships – which typically will not have a spiritual element – into discipleship efforts that place all parties under the headship of Christ and that seek outcomes and development that may be defined significantly differently from those in typical mentoring relationships.

Finally, the uniquely Christian aspect of our business programs should result in the ability of our graduates to engage in unique visioning. The different worldview and lens through which our students will view the world should allow them to envision their education in a deeper way and envision their careers and organizational activities in ways that separate them from other business actors.

ⁱ Here is a good question: Is this confluence a “perfect storm” or a “perfect opportunity?” While we appreciate the dangers and risks, we are ultimately educational optimists. We believe that through experimentation we can be a part of what God uses to transform ourselves, our students and, ultimately, our world of business.

ⁱⁱ Meyer, p. 7.

ⁱⁱⁱ Meyer, Figure 1-6, p. 21.

^{iv} Meyer, p. 23.

^v Meyer, p. 23.

^{vi} See our book review in the Fall, 2006 **Journal of Biblical Integration in Business**, Meyer, p. 27.

^{vii} Meyer, p. 95.

^{viii} Meyer, p. 97.

^{ix} See our book review in the Fall, 2006 **Journal of Biblical Integration in Business**.

^x The “amplifications” are not simply “lifted” from the text – they represent our “take” on these issues. The Christian implications are, of course, my own ideas.

^{xi} Based in part on on “Learner, Subject and Teacher” found at http://www.doceo.co.uk/tools/subtle_1.htm downloaded 6/22/2006, by James Atherton (based on a paper given at the "Learning in Higher Education" conference, University of Sheffield, 25-26 March 1999).

^{xii} By “classroom” we mean any setting in which formal education occurs – this could be a physical or a virtual “place.”

^{xiii} Among the books we have found to provide the best, current sources about teaching and learning are: Blueprint for Learning: Constructing College Courses to Facilitate, Assess and Document Learning by Laurie Richlin (Stylus Publishing, LLC, 2006, ISBN: 1-57922-143-2); Student Success in College: Creating Conditions That Matter by George D. Kuh, et. al. (Jossey-Bass, 2005, ISBN: 0-7879-7914-7); Our Underachieving Colleges: A Candid Look at How Much Students Learn And Why They Should Be Learning More by Derek Bok (Princeton University Press, 2006, ISBN: 0-691-12596-1);

^{xiv} The material related to The Kolb Learning Styles is wide and varied. Among the works available to review this material are: *Assessing individuality in learning: The learning skills profile* by Boyatzis, R. E. & Kolb, D. A., 1991, **Educational Psychology** 11(3,4), 279-295; *From learning styles to learning skills: the executive skills profile* by Boyatzis, R. & Kolb, D. A., 1995, **Journal of Managerial Psychology**, 10(5), 3-17; *Learning styles and disciplinary differences: Diverse pathways* by Kolb, D. A., 1981, In A. Chickering (Ed.), *The Modern American College* (San Francisco: Jossey-Bass); *Management and learning process* by Kolb, D. A., 1976, **California Management Review**, 15(3): 20-31; *Problem Management: Learning from experience* by Kolb, D. A., 1983, Chapter 5 in *The Executive Mind*, Srivastva, Suresh (San Francisco: Jossey Bass) ; and *The process of experiential learning* by Kolb, D. A., 1984, Chapter 2, in D. Kolb, *The Experiential Learning: Experience as the Source of Learning and Development* (NJ: Prentice-Hall. Many of these sources (including a 150+ page bibliography of 2100+ articles on experiential learning from 1971 – 2005 are available at the author’s website <http://www.learningfromexperience.com/research-library> (accessed on July 17, 2006).

^{xv} This material is taken from *The Kolb Learning Style Inventory—Version 3.1 - 2005 Technical Specifications Manual*, by Alice Y. Kolb (Experience Based Learning Systems, Inc.) and David A. Kolb (Case Western Reserve University), published by the HayGroup © Copyright 2005: Experience Based Learning Systems, Inc.), May 15, 2005, and is available at <http://www.learningfromexperience.com/research-library>.

^{xvi} The material in this section was drawn from a variety of sources:

- <http://www.learningandteaching.info/learning/bloomtax.htm>, downloaded 6/22/2006
- <http://www.nwlink.com/~donclark/hrd/bloom.html>, downloaded 7/20/2006
- <http://www.teachers.ash.org.au/researchskills/dalton.htm>, downloaded 7/20/2006
- <http://www.mehs.educ.state.ak.us/blooms.html>, downloaded 7/20/2006
- <http://www.stedwards.edu/cte/resources/bwheel.htm>, downloaded 7/20/2006
- http://www.odu.edu/educ/lischo/blooms_taxonomy.htm, downloaded 7/20/2006
- [http://eprint.sdsu.edu/J03OJ/miles/Bloomtaxonomy\(revised\)1.htm](http://eprint.sdsu.edu/J03OJ/miles/Bloomtaxonomy(revised)1.htm), downloaded 7/20/2006
- <http://nerds.unl.edu/pages/preser/sec/articles/blooms.html>, downloaded 7/20/2006
- <http://www.businessballs.com/bloomstaxonomyoflearningdomains.htm>, downloaded 7/20/2006
- http://www.cap.nsw.edu.au/teachers/tech_based_resources/MI_pages/MIBT_UNITS/html/Living_with_salt.htm, downloaded 7/20/2006

^{xvii} Taken from <http://www.idea.ksu.edu/resources/index.html> ,downloaded 9/5/2006.

^{xviii} These are taken from the paper series written in collaboration with the Professional and Organizational Development Network in Higher Education (POD), part of the IDEA network – a listing of the papers offering details about each construct can be found at <http://www.idea.ksu.edu/resources/index.html>.