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The Jointing of Theory and Practice: Scholars and Practitioners Find Common Ground

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ABSTRACT

The positive outcomes of the collaborative efforts of full-time and adjunct faculty in assessing the content and rigor of the doctoral program in School Leadership reinforce the value of blending scholar and practitioner expertise. Developing the capacity of full-time and adjunct faculty to be co-facilitators of program change resulted in the transformation of a disjointed program into a jointed, well-grounded program based on the co-equal foundation of scholarship and practice.

INTRODUCTION

Scholars and practitioners. Theory and practice. Much has been written about these seemingly opposing concepts and their relation to the development of leaders who influence change – in this case, educational change. When scholars and practitioners work to achieve a common goal, in the spirit of collaboration based on professional trust and respect, the result is transformational change. This process of collaborative change is enhanced by the individual's readiness for change, the organization's readiness for change, and the social aspect of professional learning.

The word theory is derived from the Greek theoria, meaning to view or look at and can be considered as an effort by scholars to explain phenomena. A theory is an abstract, based on speculation or thought and can be considered passive. In contrast, practice is active, meaning 'to do'. A practitioner is one who does. Derived from the Greek praxis, it is concrete, implying an action. The integration of these two concepts can result in the co-creation of new knowledge and insight. The collaboration between the scholar and practitioner is enhanced when each understands the other's perspective and can embrace the process of change.

The doctoral program in School Leadership at East Tennessee State University (ETSU) prepares individuals for school, district, and state level leadership positions. We serve students from east Tennessee, western North Carolina, and southwest Virginia. Most of our graduates hold school leadership positions in the region and maintain a strong connection with the University. Although these students have scholarly, advanced degrees, most view themselves as practitioners. The faculty has the task of bridging the gap between practice and theory, while being cognizant that students will return to practice upon completion of their doctoral degree.

One dilemma for university programs is striking the balance between academic knowledge and practical experience. Murphy (2001) stated that placing academic knowledge at the center of programs is self-defeating because no matter how the knowledge is presented, there is still the dilemma of how to bridge the gap between theory and practice. Daresh (2002) noted the limitations and benefits of both academic knowledge and experience. He argued that academic knowledge provides a common language and conceptual framework for aspiring leaders, but that it is only part of what leaders need to know. He further argues that field-based knowledge has practical value, but it is experience based on existing practice instead of needed reforms. Therefore, it seems to reason, that scholarship should be informed by practical experience, and, in turn, practical ex-

perience must be informed by scholarship. The challenge becomes one of discovering and developing experiences beyond the realm of current practice. This must occur in a climate of safety in risk-taking (Fullan, 2008).

An ongoing criticism from superintendents, practicing principals, and researchers is the gap between theory and practice. Murphy (1992) stated that optimal leadership development occurs in the context of ongoing field work rather than the formal classroom setting. Critics cite the lack of depth of opportunities for students to practice their leadership skills in meaningful situations. Practitioners can assist scholars in developing those opportunities.

The School Leadership program at ETSU has traditionally been regarded as a scholar-practitioner program. However, until recently, the practitioner focus has been secondary resulting in a disjointed program. Several factors have influenced the necessity of a more balanced philosophical and practical foundation to the program. A change in program leadership, increased student enrollment, increased adjunct support, student and district expectations, and higher education accountability standards are but a few of the factors influencing the need for collaborative change.

A primary impetus for the change, however, has been the tension full-time faculty and adjuncts themselves have experienced between their own scholarly and practitioner backgrounds. A recurring question has been that of balancing the two perspectives in the development of school leaders. A participative program evaluation conducted in 2009 revealing a disjointed curriculum emphasized the disconnect between the theory and practice. A foundation of trust and collaboration between full-time faculty and adjuncts was already established through on-going professional development opportunities within the department. As a result, full-time faculty and adjuncts felt mutually responsible for program change.

COLLABORATION

Collaboration is a democratic and inclusive endeavor based on pre-established interests. Generally, it goes beyond a level of cooperation: There is a sense of intellectual commitment and belonging. Dufour, Dufour, Eaker and Many (2006) define collaboration as a systematic process of working together interdependently to impact professional practice and improve collective results. This working together in a synergistic manner requires that individuals bring diverse skills and knowledge to the effort. The collaborative effort was enhanced by (a) the readiness of each individual stakeholder for change, (b) the readiness of the organization for change, and (c) the social aspect of change.

Facilitating the collaborative effort between full-time and adjunct faculty were the trusting relationships and sense of belonging that had already been established. All adjunct faculty are graduates of the ETSU doctoral program in Leadership and are in leadership positions as principals, teachers, supervisors, directors of programs, or superintendents of districts. Familiar with the scholarly aspects of the doctoral program, they also had the practical experiences necessary to be successful in leadership positions. Full-time faculty also have background experiences as school leaders in a variety of leadership positions. These common experiences established credibility and trust in the process of change that needed to occur. Odden and Wolstetter (1995) found that a shared knowledge base is essential for the development of a professional learning community. The continued development of the community of learners is critical to the success of the changes. The faculty must continue to learn to learn in order to solve problems.

CHANGE

The genesis of the dialogue between full-time and adjunct faculty was the analysis of the results of the 2009 participative program evaluation. This dialogue centered around four basic questions. (1) Does the doctoral program have sufficient rigor? (2) Does the doctoral program have curricula that is aligned, delivered, and assessed? (3) Are there standards of quality inherent in the doctoral program? (4) How are the needs of the scholar and the practitioner balanced?

This dialogue resulted in the identification of three cornerstones of the doctoral program. The first is the emphasis on the development of the skills of leadership. These skills are the underlying component of all scholarly work and practical experiences. The second is the emphasis on increasing knowledge and understanding of the process of change. Because change is ongoing and inevitable, students must be able to understand, adapt, and lead positive change. The third emphasis of the doctoral program is the idea of global thinking – the ability to see and understand the big picture of schooling, change, and the world.

After these three cornerstones were identified, the hard work of collaboration began. An analysis of syllabi determined whether the cornerstones were the basis of all scholarly and practical experiences. There is on-going analysis of the objectives and topics for each course, textbooks, supplemental materials, learning strategies, benchmark writing, relevant field experiences, and desired outcomes for student learning.

The lack of opportunities in the university classroom to experience the real world of school leadership created a challenge for the faculty to explore opportunities for students to practice newly acquired leadership skills. Therefore, the linkages between the scholarly research requirements of each course in the program were aligned with the practical experiences students would participate in through their internship and residency requirements. Each experience was analyzed for its relevance in relation to the connection with course and program objectives and goals. Moreover, the same standards applied to scholarly assignments. Every effort was made to ensure that each assignment had practical relevance for the development of leadership capabilities of students. Because adjuncts possessed the practitioner's insight, experiences were highly relevant to scholarly requirements and the aspects of the real world of school leadership. Under these conditions, aspiring school leaders are provided the opportunities to develop their individualistic capacity for transferring the knowledge learned in the classroom to the practical experiences of the leadership environment.

TRANSFORMATIONAL CHANGE

The balance between the interests of a scholarly focus and a practical focus in the School Leadership program occurred during the process of transformational program change. This change was facilitated by the collaboration of full-time and adjunct faculty who recognized the importance of both experiences. Anderson and Ackeman-Anderson (2001) explain that transformation is a thinking approach to change, not a process. Three core concepts assist in understanding this approach. First, change itself is external and may be a temporary state. It is the result of an event or intervention. Second, transition refers to the mental state of stakeholders. It refers to the ability of stakeholders to put aside former ways of doing things and embracing and adapt to the new (Verwey & Du Plooy-Cilliers, 2003). Third, transformational change requires a paradigm shift within the individual stakeholder and the group itself (Cummings & Worley, 2001). Transformational change is only possible through transition of behavior based on internalization of changes by stakeholders (Gouillart & Kelly, 1995). Jick and Peiperl (2003) refer to transformation as organizational reorientation. The complexity of the change process, coupled with the social intricacy of a collaborative group, leads to the conclusion that the process of change into transformational change is a culture building and culture changing process. This transformational change occurs when the group utilizes all the human resources and aligns the structural processes with the cultural processes.

High-involvement Management

The conditions necessary for creating an organization that has the capability to transform itself into a new organizational culture are identified in the high-involvement management framework (Wohlstetter & Mohrman, 1994). The foundation of the high-involvement management framework is that the empowerment of stakeholders is enhanced when there is an emphasis on increasing (a) power, (b) knowledge and skills, (c) information, and (d) rewards (Lawler, 1986).

High-involvement management is appropriate for organizations that engage in knowledge production, exist in a changing environment, have complex job tasks requiring constant decision-making, and are characterized by interdependence among tasks within organizations (Wohlstetter & Odden, 1992). All these tasks apply to the doctoral program in School Leadership. The

factors identified in the framework are facilitators of change and can be identified in this collaborative process.

Power

Lawler (1986) indicated that an organization's performance improves when power shifts to stakeholders in the organization. Power was shared among the full-time faculty and the adjunct faculty through the mechanism of collaboration. This is not a simple transfer of power to stakeholders: It is a change in the structure of the organization. As more knowledge was acquired through dialogue, program evaluation, and analysis of syllabi individuals were able to contribute to the change process. The faculty were provided the opportunity to inform, influence, and facilitate change based on their professional knowledge and collaborative decision-making.

Knowledge and Skills

Knowledge and skills are essential for the enhancement of stakeholder collaboration. Three areas of skill became apparent in the collaborative process: (1) the skills necessary to work together effectively in a team setting, (2) the technical skills necessary to foster change, and (3) the skill which enables stakeholders to engage in multiple tasks. The decentralization of knowledge facilitates patterns of involvement oriented toward improved performance (Lawler, 1986). One form of knowledge and skills is technical. Ongoing professional development opportunities for full-time and adjunct faculty that focus on research based best practices in teaching, learning styles, integration of technology, and assessments are examples of technical knowledge. Professional development occurred in face-to-face meetings with an on-line support component facilitated by individuals with relevant expertise practice. Informal methods such as sharing articles, research, and anecdotal experiences added to the knowledge base. In addition, knowledge relevant to management procedures within the organization and the interpersonal skills required for collaboration were important. Knowledge and skills were enhanced by interaction among faculty and reflective practice.

Information

Information about program goals, objectives, performance, and decision-making parameters are basic in order for stakeholders to make quality decisions that foster transformational change. Individuals shared information using a variety of communication mechanisms, i.e. e-mail, memos, telephone, and twitter. In addition to the use of formal documents, there was primary reliance on human interaction. Full-time faculty and adjunct faculty receive the same information relevant to program improvement. The sharing of information enhanced the collaborative nature of the on-going work.

Rewards

Intrinsic rewards were present during this process. Stakeholders felt a sense of belonging and professionalism as evidenced by participation in the time-consuming process. This strengthened the sense of purpose.

CONCLUSION

The collaboration between full-time and adjunct faculty in the effort provide a balance between the scholar and practitioner continues. Change is not an event: It is a process (Fullan, 2008). Research has shown that is takes three to five years to implement meaningful change (Gersten, Carnine, Zoref, & Cronin, 1986; George, Hall, & Uchiyama, 2000). Grundy (1998) and Jick and Pieperl (2003) define organizational change as a complex process because the collective reaction to change is unpredictable. As change is not always observable the benefits cannot be assessed quickly. The factors of power, knowledge and skills, information, and rewards facilitate the process of organizational change (Lawler, 1986) and will continue to be used to evaluate the process of program change. The interrelationship of the factors inherent in the high-involvement management model and the organization of the collaborative team are dynamic and continually changing; however, the mechanisms reflected in the high-involvement management framework allow stakeholders to deal with the technical, social, and political forces which impact change. The transformational changes in the program occurred because of (a) individuals' readiness for change, (b) organizational readiness for change, and (c) the social aspect of professional learning.

The full-time and adjunct faculty were receptive to the idea of change when they determined that the balance between theory and practice would benefit students. Their sense of professionalism, enhanced by their own knowledge and skills, led to a confidence that facilitated the transformational change process. The School Leadership program itself was ready for change. The self-governance of the collaborative group was instrumental in the change process. The participants in the program were able to balance the needs of the School Leadership program with their own belief systems. Empowerment was based on the consensual framework of values, goals, and priorities of the participants and developed as the collaborative team emerged. The full-time and adjunct faculty had a shared mission and were action oriented with the goal of continuous program improvement. The commitment to the balance between theory and practice was the foundation of each decision. The sharing of power and the atmosphere of safety in risk-taking has contributed to dialogue and collaboration.

There have been three distinct phases of development in the transformational change process. The first phase was the commitment stage. Stakeholders made a personal and group commitment to changing the School Leadership program. During this stage stakeholders set personal goals and began developing relationships. The second phase was the implementation stage consisting of forming the collaborative team, setting goals, and building trust. The last stage is the current stage – the refinement stage. This is the stage wherein the changes become truly sustainable as the organization operationalizes the structural and cultural aspects of the transformational change. The new culture is characterized by transparency and continual learning.

This process demonstrates the positive effects of collaboration between the scholar and practitioner in program improvement. Fullan (1996) stated that the organic, inherent nature of change is that it is non-linear. Technical, social, and political forces influence the change process. However, the full-time faculty and adjunct faculty had established a strong professional relationship prior to the change process and this provided the autonomy to deal with the forces that were barriers to change. To continue with positive change, the faculty will continue to strengthen collaborative efforts. It is expected that individual readiness for change, organization readiness for change, and the development of the collaborative team will facilitate the refinement of program improvement and influence change. The bridge between theory and practice, in this case, is the collaborative team consisting of full-time and adjunct faculty who worked together for change in the School Leadership program. The efforts of this team reveal the potential for bridging the gap between theory and practice – of transforming a disjointed doctoral program into a jointed doctoral program.

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An Investigation into Student Personality and Their Attitudes Toward Laptop Use in the Business School Classroom

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ABSTRACT

Universities are bringing mobile computing (MC) into the classroom in an effort to increase student engagement, enhance student learning outcomes, and allow courses to be more accessible. While there has been some research investigating the efficacy of such efforts, that research is still in the initial stages. This paper adds to the existing knowledge of MC through two studies. The first study uses factor analysis to define three dominant student attitudes toward MC. These three attitudes are: (1) the acceptance of MC, (2) the comfort or satisfaction of using MC, and (3) the attitude toward classroom policy issues relating to MC. The second study in this paper uses the 3M Model of Motivation and Personality (Mowen 2000) to compare the personality traits of the sample student population and the three dominant MC attitudes. This phase of the research reveals that personality traits partially describe differences in opinions regarding MC. The results of this research are valuable to pedagogical policy makers, educators, and MC developers.

INTRODUCTION

A familiar sight in today's university classroom is a student with a mobile computing device, whether it is a laptop or notebook computer, a smart phone, or a tablet computer. The appearance of these devices represents a tremendous opportunity for educators. Experts agree that computers and technology, especially mobile technology, can play an important role in teaching and learning (Cossey, 2005; Koeber, 2005). The goal of this paper is to add to the discussion about mobile computing (MC).

The research on MC is still young (Venkatesh et al., 2003). Some research suggests that some faculty and administrators are not ready to integrate MC devices into their curriculum (Corbeil and Valdes-Corbeil, 2007; Rubinkam, 2010), while other research suggests that students expect their campuses and their classes to be MC compatible (Cossey, 2005). It is for this reason that many universities are attempting to capitalize on the trend and integrate MC in their classrooms (Ambur and Tiahrt, 2002). This research investigates the attitudes of business students at a large state-

sponsored liberal arts university in the upper Midwest. First, three dominant student attitudes toward MC are defined using factor analysis. These attitudes include their acceptance of MC, their satisfaction with MC, and finally, their attitude toward MC policies and rules. Next, this research reveals that the differences between the MC attitudes can be described by demographic and personality trait differences. It is the hope of the authors that this research helps educators and administrators effectively implement MC into the classroom, rather than surrendering and seeing those devices used as high-tech tools for doodling and passing notes in class (Rubinkam, 2010).

Using Mowen's (2000) 3M Model of Motivation and Personality as a theoretical framework, this paper investigates student attitudes and opinions about the use of mobile computing technology (MC) in the business school classroom. The 3M model provides a unique perspective to this research, for it provides an explanation of how personality and situations interact to influence feelings, thoughts, and behaviors. The second phase evaluates those attitudes and opinions based upon the personality traits of the students.

LITERATURE REVIEW

Student attitudes play an important role in the successful implementation of MC into the classroom (Friedrich and Hron, 2010), and evidence suggests that students want to use mobile computing in the classroom (Barak et al., 2006). An informal survey of the authors' classes reveals that virtually all of the students have cellphones, with many owning smart phones such as a Blackberry or iPhone. Many students bring their laptops to class, and there is usually competition to secure seats in the classroom near electric outlets. In fact, it is common for new lecture halls to have electric outlets available for each seat. Therefore, since MC technology is often voluntarily brought into the classroom, it seems to be a question of how educators can integrate this technology into the curriculum, rather than ignore its presence.

Furthermore, while many instructors and administrators are not actively including MC in their classroom, students see MC as important to their lives and likewise, important to their educational experience (Corbeil and Valdes-Corbeil, 2007). In fact many students and faculty already use MC in our lives outside the classroom. The reasons we have not integrated MC into the classroom are varied. For example, it could be the awkwardness of lugging around heavy (and usually older) laptop computers (Efaw et al., 2004). Student perceptions of mobile computing include mobility and convenience, as in lightweight machines, long battery life, and ease of storage. Those students with older computers that do not have those features are often hostage to a classroom seat near the wall and electric outlet. In other cases, it may be the ergonomics of the room. The small desks available in many classrooms make it difficult to hold a laptop, which then becomes a distraction as the student attempts to pay attention to the instructor and steady the computer on the small desk at the same time. In addition, students may not integrate MC into their classroom habits because MC does not match their learning styles (Efaw et al., 2004). These students may prefer a pencil and paper style to learning, and save their computing efforts for another venue, be it the library, coffee shop, or residence.

Nonetheless, for those students who have integrated MC into their classroom lives, they profess several benefits. First, students like the larger "tool box" that is available to them. That is, they are more likely to use productivity tools such as graphics, electronic presentations, and internet research in the classroom (Grant et al., 2005). This technology tool box has permitted instructors to change classroom instruction from the normal lecture-based delivery of information into an interactive, student-involved learning environment (Moallem et al. 2006; Wingfield and Black, 2005). In effect, the use of technology permits lower level learning to occur outside of class, creating time for higher level learning and critical thinking activities in the classroom (Salter et al., 2009). Second, students indicate that they like the ease of note taking and organizing notes via MC (Efaw et al., 2004). Students often substitute hand-written notes for electronic notes placed directly into the instructor-provided notes or outline. These notes are more legible and simple to organize and share with classmates and study partners. This characteristic leads to the third benefit, which is that students are more likely to work together inside and outside the classroom, creating an environment for collaborative learning (Cossey 2005; Grant et al., 2005). In effect, the combination of collaboration and the ability to promote critical thinking skills means that students are more engaged in the learning process and become co-creators of their own learning (Fink, 2007). As such, students indicate that they learn more in a MC classroom, and rate their instructors who use MC to be more effective (Koeber, 2005).

However, these benefits should not overshadow some of the challenges of MC. For example, technical support is critical for instructor acceptance of MC (Moallem et al., 2006). Researchers find that the fear of computers going down and technology not working as intended are big discouragers. These things take more time away from the class and distract and annoy everyone. Waiting for IT to come and help is also a punisher. Second, students need to feel that mobile computing is useful (Friedrich and Hron, 2010). A poorly organized lesson plan with MC is not necessarily better than a well-organized and effective lesson plan without MC. Students can tell the difference, for what they want is not technology, but effective teaching. MC does not guarantee effective teaching. The third challenge is the students' perception of learning using MC. Research shows that student grades are not necessarily higher with MC instruction (Koeber, 2005, Hawkes Claver, 2009).

This reveals one of the dilemmas of MC research: there is little consensus regarding the success factors for integrating MC into the classroom (Friedrich and Hron, 2010; Ong and Lai, 2006; Parker et al., 2008; Vermunt, 2005). Various factors have shown influence over the effectiveness of MC, and these factors have been neatly incorporated into the UTAUT theory proposed by Venkatesh et al., (2003). The primary factors identified in this theory are performance expectancy, effort expectancy, social influence, and facilitating conditions. Performance expectancy is how much one believes that using MC will help them in their classroom performance. Effort expectancy is how easy it is to use the MC technology. Social influence is how much pressure others put on the individual to use MC. Facilitating conditions are the organizational and technical infrastructure surrounding the system to help the users. The moderators include gender, age, experience, and voluntariness. Experience is user knowledge, familiarity and understanding of the MC system. Voluntariness is whether the choice to use MC was up to the individual or not. Results suggest that the higher the four main constructs, the more likely the success of MC. The moderators were all shown to be valid, such that sometimes men are more adept than women, sometimes the other way around. Sometimes younger subjects did better, sometimes wisdom and age was better. Sometimes experience was important, and sometimes it was better to be forced to use the technology, sometimes not. Again, it all depends on the situation.

RESEARCH QUESTIONS

There are two questions for this research. The first: what are the students' perceptions regarding MC? The second: how do those perceptions relate to personality traits of the students? Study One addresses the first question, while Study Two addresses the second.

Study One

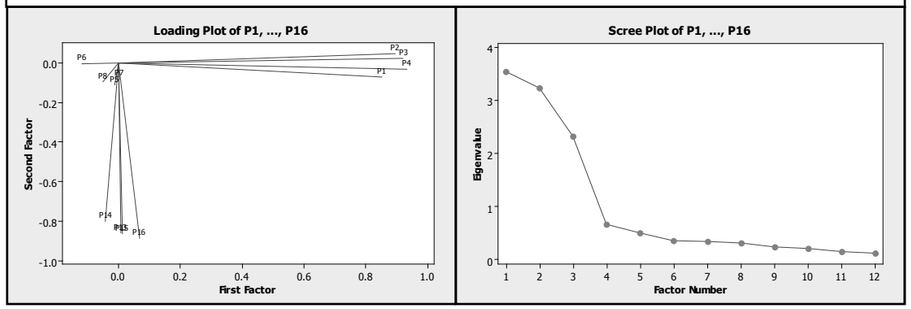
Measures

In order to answer these two research questions, 14 items were tested using a pencil and paper survey with undergraduate students from the School of Business at mid-sized doctoral granting Midwestern liberal arts residential university. The items addressed issues related to the use of laptops in the classroom, and whether laptop use ought to be required in the classroom. Attitudinal data were derived from questions about course design, general laptop satisfaction, and potential benefits of laptop use. In addition, demographic data was collected.

Data Collection and Sample Characteristics

Attitudinal and demographic survey data was collected using a paper and pencil questionnaire. Surveys were administered in every core class at the business school. This technique maximizes the probability of sampling every student in the school, regardless of year/class. It is possible that

Exhibit 1
Factor Analysis: Scree and Loading Plot
(76% Variance Explained)



some subjects could be approached twice. Therefore, the instructions clearly indicated that students were not to take the survey twice.

Results

A total of 465 surveys were collected, 401 were used in this research, representing 57% of residential student body. Surveys from that were not complete (33) and those subjects with non-business majors (31) were not included in the analysis. The analysis shows that this sample population was 59.4% male, and 90.5% were less than 24 years old. In addition, 10.7% were in their freshman year, 30.4% were sophomore, 27.4% were juniors, and 31.4% were seniors.

The survey included four questions inquiring about laptop ownership and technology expertise. Most students (95.8%) indicated that they own their own laptop, while only 19.7% of those surveyed regularly bring their laptops to class. Those surveyed also profess that they know a lot about technology, maybe more than their instructors. Over three-quarters of those surveyed (76.3%) indicate that they are better digital citizen than their instructors, while 67.6% say that they will know more about technology in their field than the instructors.

The primary purpose of this stage of the research is to refine constructs pertaining to laptop use in the classroom. Principle component factor analysis with varimax rotation was sued to investigate the 14 items related to laptop use in the classroom. The results revealed three factors, explaining 76% of the variance; scree and loading plot are presented in Exhibit One. The items for the three factors can be found in Exhibit Two. The first factor is labeled general acceptance of MC, and includes four items with a robust coefficient alpha of .92. The second is labeled comfort/satisfaction with MC, and is also four items and has a coefficient alpha of .87. Finally, the third factor is labeled policy attitude toward MC, and like the other two, includes four items, and has a coefficient alpha of .88.

Exhibit 2
Scales developed

MC1:
General acceptance of MC Alpha = .92

1. Laptop use in class can be directly linked to the course learning objectives.
2. Laptop use in class will enhance the classroom experience.
3. Laptop use in class will allow me to learn more effectively or more efficiently.
4. Laptop use can be well integrated into a course.

MC2:
Comfort or Satisfaction with MC Alpha = .87

1. I will enjoy using a laptop in class.
2. Generally (outside of class), I enjoy using computers to help me learn.
3. How often do you use laptops in your current classes (during class)?
4. Should laptops be used more in class, less in class, or about the same as now?

MC3:
Policy attitude toward MC Alpha = .88

1. Requiring a laptop in class will help me prepare for my future career.
2. Requiring a laptop in class will help my creativity/creative thinking.
3. Requiring a laptop in class will improve my grade in class.
4. Requiring a laptop in class would be a distraction

Discussion

The results of Study One provide an interesting picture of a collegiate business school student. First, the survey shows that most students own laptops. One of the concerns with implementing a MC initiative is the availability of MC devices for the students. This survey suggests that this is not a major issue. What this survey shows is that getting students to bring their laptops to class may be a major issue. This survey does not reveal why only one-fifth of the students choose to bring laptops to class, nor does it reveal why four-fifths do not bring them. Some of the students' comments outside of the survey suggest that their laptops may too heavy or inconvenient to carry. Other comments suggest that their laptops are too old to adequately use the wireless network in the school building, or that the classroom is not set up to use a laptop due to the small desks in some rooms, or the inaccessibility to outlets in other rooms. Whatever the case, the research does show that the students have laptops, but are not bringing them to class.

Second, the research shows that the sample students are confident about their technology skills. Moreover, the data suggests that they feel they are more adept than their faculty instructors and professors. This may be a bit of youthful hubris on their part, but it does suggest that bringing mobile computing into the classroom will not catch our students off guard, or intimidate them.

Third, the research revealed three distinct student attitudes about mobile computing, and in particular, laptop use in the classroom. The first construct, titled General Acceptance of MC, represents a student's acceptance of mobile computing in the classroom. This scale asks the student about the efficacy of laptop use, laptop use relevancy toward learning objectives, and boosting the classroom experience. The second construct, titled Comfort/Satisfaction with MC, represents how well MC currently fits in the students' lives, both inside and outside the classroom. The third construct, titled Policy Attitude toward MC, examines the student's opinions when MC is an edict rather than a choice. It looks at aspects of MC when MC is required. As such, it provides a contrast between student attitudes toward MC when it is voluntary and initiated by the student, versus involuntary and decreed by authorities.

Study Two

The purpose of Study Two is to investigate the relationship personality has with the three attitudes of MC defined in Study One. Prior research suggests that personality does influence individual attitudes and behavior (Kassarjian and Sheffet 1991). As such, contrasting these three attitudes with personality traits may provide useful information for those attempting to implement MC into their curriculum.

Measures

The measures for categorizing personality come from Mowen's (2000) 3M Model of Motivation. This is a meta-theoretic model of motivation based on the work of Allport (1937) to describe how personality and situation interact to influence behavior. Mowen suggests that there are eight elemental traits that are the basic underlying predispositions of individuals that are cross situational, enduring dispositions to behave. The first five elemental traits are based on Saucier's (1994) Five Factor Model, and they include: (1) Introversion (bashful, shy and quiet), (2) Conscientiousness (precise, efficient and organized), (3) Openness to Experience (imaginative, original), (4) Agreeable (kind to others, softhearted), (5) Emotional instability (moody, temperamental). The next two are based on sensation seeking and evolutionary psychology (Zuckerman 1979). They include (6) the need for material resources

(enjoy buying expensive things, acquisition of things), and (7) the need for arousal (danger, excitement, activities with risk). The final elemental trait (8) the need for body resources (body as a tool, health, physical development) follow evolutionary psychology principles which suggest that the needs arose from Darwinian selection pressures and were necessary for the survival of the species.

This research will follow Mowen's proposition to include all eight elemental traits in this research as control variables. Further, it is important to include all eight elemental traits because if one does not, an 'illusory prediction' might occur, which is when it appears as if a compound or situational trait is predicting a surface trait (Mowen and Voss 2008).

Data Collection and Method

This phase of the research is an extension on the data collected for Study One. The 3M personality traits were included in the paper-and-pencil survey. Each of the eight traits was checked to see if that score differed from the median score of 5 (on the 1-9 Likert scale used in the survey). Seven of the eight traits were significantly different; only Materialism came up as non-sig (p=.055). In some cases, the entire sample was very biased on a trait, such as agreeability where the average score is very high or positive. See table in Exhibit Three. This suggests that students are sensitive to the scales, and are more likely to rank themselves as different from the median.

Next, stepwise linear regression was used to measure each of the MC constructs to the personality traits. In other words, a regression was first done using Factor 1 as the DV and the eight elemental traits as the IV. This was also done with Factor 2, and Factor 3 as the DV. These analyses were inconclusive, revealing fairly low R-squares (2.8, 1.8, 3.7 respectively). Subsequent analysis was performed with smaller segments of the student population. For example, the data was segmented by the demographic characteristics of gender, class, major, hours of employment, age group, GPA, and ACT score, and then compared to the three dependent variables. These analyses were much richer, resulting in a variety of significant relationships with R-squares, from 0.00 to 99.9. A catalog of those relationships was made in order to help understand the differences between the significant and insignificant results. See Exhibit Four for the table illustrating the catalog.

Exhibit 3
Personality Table of Means

Variable	Mean	Stand.Dev.	P-value
T1: Introversion	3.9	1.8	0.000
T2: Conscientiousness	6.6	1.2	0.000
T3: Openness to Experience	5.6	1.6	0.000
T4: Agreeability	7.0	1.2	0.000
T5: Emotional Instability	3.4	1.5	0.000
T6: Materialism	5.2	2.0	0.055
T7: Need for Arousal	5.8	1.8	0.000
T8: Need for Body Resources	5.9	1.8	0.000

Results

The results revealed a total of 67 statistically significant relationships between the MC and personality constructs. Specifically, the results show that the personality trait of agreeability has the largest frequency of relationships with the MC items at 13; two with MC1, four with MC2, and seven with MC3. Interestingly, all the relationships are positive, there were no negative relationships revealed. Second, the personality trait of emotional instability had the second most frequent relationships with the dependent variables with twelve. These were mostly negative (10 to 2). Specifically, MC1 had 7 negative and two positive, MC2 had one negative, and MC3 had two negative. Third, materialism was third in the count, with eleven relationships. Interestingly, these relationships were more balanced than the other two MC measures; with seven positive, and four negative. Specifically, MC1 had one negative relationship, MC2 had six negative, and MC3 had four positive relationships. It is also interesting to note that conscientiousness does not play a major role in this analysis, with one negative relationship with MC2. The relationships with MC1 and MC3 were all not significant.

Exhibit 4
Significant relationships between Elemental Traits and MC factors.

		MCI1	MCI2	MCI3	Sum	Total
T1: Introversion	Neg	3		1	4	6
	Pos		1	1	2	
T2: Conscientiousness	Neg		1		1	1
	Pos				0	
T3: Openness to Experience	Neg				0	9
	Pos	3	2	4	9	
T4: Agreeability	Neg				0	13
	Pos	2	4	7	13	
T5: Emotional Instability	Neg	7	1	2	10	12
	Pos	2			2	
T6: Materialism	Neg			4	4	11
	Pos	1	6		7	
T7: Need for Arousal	Neg	1	1	1	3	5
	Pos	1		1	2	
T8: Need for Body Resources	Neg				0	10
	Pos	3	2	5	10	
	Total	23	18	26		

Discussion

The results of Study Two suggest that one's personality does influence the acceptance of MC in the classroom. First, MC1 is mostly influenced by emotional instability. The number of negative relationships suggest that the more neurotic the personality, the lower the general acceptance of MC. Persons with a neurotic tendencies are more likely to experience negative emotional states such as anxiety, anger or guilt (Matthews and Dear 1998). It may be that those individuals feel that MC is a threat to them and their educational environment than those with higher levels of emotional stability. Second, MC2 is mostly influenced by materialism, such that the more materialistic one is, the more satisfied or comfortable one is with MC. Mowen (2000) suggest that humans have a need for material resources, which includes both hedonic and utilitarian goods (Csikszentmihalyi and Rochberg-Halton 1978). As such, those that already have the material good (the mobile computer) and the intangible skill to use the good (technical knowledge), will be more likely to accept MC into their classroom experience. Third, MC3 is mostly influenced by agreeability. The more agreeable the personality type, the more they support the policy of requiring MC use in the classroom. Agreeable individuals tend to be more compassionate and cooperative as opposed to argumentative and antagonistic. It seems logical that those with higher levels of agreeability would be more welcoming to policy issues than those individuals with lower levels of this personality trait. Finally, conscientiousness did not show much influence on the MC items. Conscientiousness is the tendency to show self-discipline or seek achievement. This is a logical result given the trends found in prior research (Friedrich and Hron 2010; Venkatesh et al. 2003).

CONCLUSIONS AND FUTURE RESEARCH

This research has resulted in two sets of findings. First, three dominant attitudes toward MC were defined and refined using factor analysis. Second,

those attitudes were compared to the personality traits of business school students. The results of this research suggest that personality does influence student perceptions of MC in a predictable manner. Additional research is necessary to expand upon these findings. Those investigations should include comparing the demographic traits of individuals and how those traits influence the three MC attitudes, as well as expanding the investigation to student populations beyond the business student sample.

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Developing Qualified Teachers: Mentoring Pre-Service Teachers for a Professional Development Initiative

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ABSTRACT

*Driven by NCATE Standards and the conceptual framework of the College of Education, faculty at the University of Central Florida created a professional development initiative with a strong mentoring component for teacher candidates. The mentor-mentee relationship helps the teacher candidates prepare for their first conference presentation at the HAPPY (**H**aving **A**ctive **P**articipation **P**repares **Y**ou) Hour Student Showcase. The Showcase is an in-house conference that includes all of the components of a professional conference. The authors outline the development of this professional enhancement opportunity and explain the steps of the mentoring process. This paper also includes feedback from student presenters and details suggestions for continuous improvements, including inviting past student presenters to serve as mentors.*

INTRODUCTION

> "Teaching is the profession that teaches all other professions" (Anonymous).

Teacher preparation programs train future professionals. In accordance with the NCATE Standard 1: Candidate Knowledge, Skills, and Professional Dispositions, this training must include participation in professional activities and professional development opportunities (2008). Sparks (2000) asserts that if educators are to successfully enable students to meet high standards, everyone who influences the quality of learning must be engaged in continuous growth opportunities. Studies have found that teacher effectiveness correlates positively with active participation in professional development (Parsad, Lewis, & Farris, 2001). Engagement in professional activities, according to NCATE, should entail teacher reflection. That is, teacher candidates should be able to analyze the experience, glean meaning from it, and critically discuss its impact on their future teaching. In addition, NCATE Standards stress the quality of faculty who "model best professional practices in scholarship, service, and teaching" (NCATE, 2008, p. 38).

The conceptual framework of the College of Education at the University of Central Florida (UCF) is in line with the importance of reflective thinking and continuous learning "to provide a high-quality education for its undergraduate students, graduate students and others as reflective practitioners." The UCF Teaching Academy, which hosts the College of Education professional development activities, also supports lifelong learning endeavors. A small cadre of College of Education faculty, using the mission statement, research findings, and NCATE Standards as their foundation, designed a unique, creative, and collaborative professional development initiative for their students pursuing initial teacher certification. Employing the premise that students "learn best when the content is meaningful to them, they have opportunities for social interaction, and the environment supports learning" (Brandt, 2003, p. 12), faculty wanted to create a program that included continuous learning, numerous opportunities for interaction, hands-on

application of concepts and strategies, reflection, and a mentoring component. Faculty selected a name indicative of the participatory nature of the program and that would also quickly grab the students' attention: HAPPY (**H**aving **A**ctive **P**articipation **P**repares **Y**ou) Hour. The two main components of HAPPY Hour—weekly professional development workshops and an annual in-house conference (and its mentoring component)--will be detailed later in this article.

LITERATURE REVIEW

One of the most powerful components of HAPPY Hour is the extensive mentoring afforded students, both by faculty, and by their peers. "A mentoring relationship involves volunteering, commitment, reciprocity, free services, and encompasses the concepts of development, communication and apprenticeship" (Cuerrier, 2004, p. 2). According to the Institute of Physics:

> Planned professional development is essential for all practising [sic] professionals. The responsibility for development must always lie with the individual, but the active support of a wise colleague, in the role of a mentor, can be extremely helpful at particular times, for example in the early stages of a career or in times of change. (p. 1)

Higher education students have been mentored for a variety of reasons. Mentoring provides a support system for at-risk, low-income students (Campbell & Campbell, 2007; Heirdsfield, Walker, Walsh, & Wilss, 2008; Ishiyama, 2007). Mentor-mentee relationships have also fostered the development of students into researchers (Bauer & Bennett, 2003; Boenninger & Hakim, 1999; Nagda, Gregerman, Jonides, von Hippel & Lerner, 1998). Research has found a positive correlation between quality mentoring and successful academic and professional lives (Campbell and Campbell, 2007).

Higher education mentoring programs can assume different forms. Davis (2008) discusses the use of faculty as mentors, while other researchers have studied the role of undergraduate students (Campbell & Campbell, 2000) and graduate students ((Rose, 2003) as peer mentors. Literature has delved into the mentor's perspective of the mentoring relationship (Monte, 2001; Shultz, 2001; Verkler, 2003; Verkler & Hutchinson, 2002). Ferrari (2004) instead focused on the mentee's reactions to being mentored.

Lopatto (2003) investigated student perceptions of a research experience at four undergraduate institutions. When he analyzed the responses provided by the student participants, he categorized them as either structure items or consideration items. Baba and Ace (1989) first identified these categories. Structure items deal with references to the structure of the research problem, while consideration items deal with the social and emotional needs of the student. When the students listed the benefits they received from the research experience, they commented on the academic benefits rather than the personal consideration benefits. Ishiyama's (2007) work with students at a state university in Missouri found that African American students were more likely than white students to pinpoint the personal consideration role of mentors in the Ronald E. McNair Program, a program designed to prepare first generation college students for entrance into a graduate school program leading to a doctorate. Comparable to studies focusing on undergraduate mentoring experiences, the current study looks at a unique mentoring structure that centers on the professional development of pre-service teachers. Of interest was the mentee perspective of the mentoring relationship in which they participated as they prepared to be presenters at an in-house conference.

BACKGROUND INFORMATION

Although the College of Education provides students with copious opportunities (field experiences, courses, and two internships) to train them for teaching, faculty in the Department of Teaching and Learning Principles at a large, metropolitan university in Central Florida felt that their professional preparation could be enhanced by additional professional development experiences. Thus, HAPPY (Having Active Participation Prepares You) Hour was born. Faculty wanted a name that was fun, catchy, and that reflected the premise of the initiative. As most of the workshops would be held in late afternoon,

a down time for education classes, and a time slot in which a presentation room could be easily found, HAPPY Hour offered an alternative to the typical happy hour. It was the vision of HAPPY Hour faculty that HAPPY Hour, because it supplemented the teacher preparation provided by coursework and field experiences, would enhance the quality of UCF's initial teacher certification program, contributing to the development of highly credentialed teacher education graduates. This program would also underscore the professional nature of their training. In addition, HAPPY Hour embodies the college's mission of developing reflective practitioners who value lifelong learning.

During the initial year, HAPPY Hour consisted solely of monthly professional development workshops conducted by university faculty on subjects relevant to our undergraduate education students. The workshops were 1-2 hours long and interactive, thus in line with the HAPPY Hour philosophy of "active participation." Each workshop instructor provided a workshop handout for attendees—a reference should they want to implement the workshop strategy in their future classrooms.

HAPPY Hour workshops covered a wide range of topics. One HAPPY Hour faculty member, an expert in reading, demonstrated literacy strategies. Another HAPPY Hour committee member used the audience to demonstrate a myriad of ways to group students humorously. In another workshop, students learned how to use and create rubrics. Other high interest topics included interviewing for a teaching position, classroom management strategies, and tips for an effective parent-teacher conference.

HAPPY Hour was so well-received by the College of Education student population (Kelley & Verkler, 2007) that it expanded the following year from monthly to weekly workshops. The greatest change made to HAPPY Hour was the development of the HAPPY Hour Student Showcase. After HAPPY Hour's initial year, the committee toyed with the idea of increasing the degree of student involvement in professional development. Since most undergraduate students and many in-service teachers are not often aware of professional conferences, the committee decided to build upon HAPPY Hour workshops, affording students an opportunity to experience an in-house conference. In addition, since educators participate in conferences both as audience members and as presenters, the students would be given this option as well.

THE HAPPY HOUR STUDENT SHOWCASE

Faculty designed the HAPPY Hour Student Showcase to simulate a professional conference, replete with a minimal conference registration fee, keynote speaker, teacher supply vendors, educational resources, door prizes, and refreshments. Partially funded by the university's Teaching Academy, which "prepares and renews competent, caring and qualified professional educators . . . who create the future for students of all ages" (Teaching Academy home page), the showcase provided students the opportunity to share course assignments, strategies or activities they learned during their courses, field experiences, or workshops in a conference format. The highlight of the HAPPY Hour Student Showcase was the hands-on, experiential 30- to 45-minute student workshops exemplifying best practices in education.

As in a professional conference, the conference included check-in at registration, an opening session with a keynote speaker, several time slots of concurrent sessions, and a closing session with concluding remarks and a door prize drawing. During the closing session, the HAPPY Hour Committee chair recognized the student presenters with letters of appreciation and certificates of participation, formally acknowledging their performance amid rounds of applause from their peers. The committee chair also recognized additional contributors to the success of the Showcase, such as the Teaching Academy, Technology Lab, and building facilities personnel, for their invaluable support.

THE RECRUITMENT OF STUDENT PRESENTERS

The HAPPY Hour Committee chair initiated the recruitment of HAPPY Hour Student Showcase presenters by announcing the showcase at the College of Education's first faculty meeting of the year, requesting the faculty to encour-

age their students to consider presenting at the Showcase. The need for faculty support was further underscored by fliers and emails distributed to faculty.

To familiarize students with the presentation process, the initial HAPPY Hour workshops of the new academic year provided an overview of the weekly HAPPY Hour workshops and the HAPPY Hour Student Showcase. Once students' enthusiasm grew, the workshops two weeks later specifically addressed the HAPPY Hour Student Showcase and the student presentation process. Students attending these workshops learned that presenting at the HAPPY Hour Student Showcase was the ultimate form of professional development in which students could augment their presentational skills, teaching qualifications, and scholarship. As stated in the HAPPY Hour Student Showcase Guidelines, students: had a chance to share work of which they are very proud, learned the process of submitting proposals for a conference, were able to hone their presentation skills, participated in a real-life professional development experience, and gained experience that they could include in their professional resumes and resource files.

During this workshop, the presenter delineated the steps involved in the presentation process (see Appendix A) to enable students to visualize the expectations, procedures, time and possible monetary investment in the process. Faculty distributed HAPPY Hour Student Showcase Guidelines to attendees. Faculty mentors were also accessible by email, phone, and office appointments. Faculty also designed HAPPY Hour workshops detailing how to write a conference proposal. At these workshops, students were able to begin working with mentors, an opportunity much appreciated, as indicative in the following student comments on the evaluation form distributed at the end of the workshop:

- It's reassuring that I will always have help.
- It's comforting to me to know that we will always have assistance.
- Realizing that I won't be alone has convinced me to present.
- I'm so glad I have a mentor to guide me since I've never done this before.

HAPPY HOUR WORKSHOP ON WRITING A PRESENTATION PROPOSAL

During the HAPPY Hour workshop on writing a presentation proposal, mentoring relationships developed as faculty mentors worked one-on-one or in small groups (depending on the number of students in attendance). After the presenter discussed the presentation process, she provided students with step-by-step instructions detailing how to write a creative title and a catchy and enticing description. In addition, programs from professional conferences were distributed to students to refer to as guides as they wrote their proposals.

The bulk of the workshop entailed brainstorming appropriate presentation topics, ranging from class projects to strategies and activities students learned from educators during field experiences. Students and faculty mentors reflected on the interest level and feasibility of the topics. This interaction spawned numerous ideas; these ideas became presentation topics.

Subsequent to the brainstorming session, mentors assisted the students in completing the HAPPY Hour Student Showcase proposal form. The faculty-student discourse was very interactive as students asked for clarification of the meaning and purpose of some of the requested information. The most time-intensive part of writing the presentation proposal was clearly composing a workshop title and description that would capture showcase attendees' attention. To assist students in this process, HAPPY Hour Student Showcase Guidelines with samples of catchy titles and descriptions were given to the students. In addition, faculty mentors shared titles of workshops they themselves implemented or attended. They modeled the process by which they arrived at their particular workshop title. Student appreciation was apparent, as evidenced by their following comments:

- These professors truly care about me being a successful presenter.
- I feel that I will always have help and that I will never have to be alone.
- It was so easy writing this proposal with the mentor's assistance.

- I was very surprised by how easy it was to write this proposal.
- My mentor was such a big help!

THE MENTOR-MENTEE RELATIONSHIP

Approximately one month after students were taught how to write a presentation proposal, the submission date was announced. Proposals were submitted to the HAPPY Hour Committee Chair. Because the HAPPY Hour Committee strongly felt that all students submitting proposals should be given the opportunity to present, all proposals were accepted. Shortly after the submission deadline transpired, the chair notified students of the acceptance of their proposal and assigned the mentor they requested on the proposal form. The chair then contacted the mentors, giving them the names and contact information of their mentees. She requested that they begin the one-on-one mentor relationship by making the initial contact with their mentees. The development of this mentor-mentee relationship was significant, for as mentors provided professional guidance, they could facilitate the success of their protégés (Boreen, Johnson, Niday & Potts, 2000).

Once mentors and mentees were matched, the formal mentoring relationship began. For about two months, the mentor-mentee pairs collaborated in the development of presentations that would be both engaging and professional. The collaboration assumed the form of phone calls, emails, face-to-face exchanges in faculty offices, coffee shops, and the like. Mentors assisted in numerous ways: offering ideas of activities to enhance the interactive nature of the workshops; providing instructional materials so that students would not have to invest their own money; reviewing instructional materials and presentation handouts for clarity; making copies of these handouts; suggesting appropriate strategies and delivery modes that would make the workshops engaging and enjoyable; and observing students practice their presentations while offering constructive feedback.

A mid-January workshop designed specifically for the student presenters to practice their presentations in front of other student presenters and mentors provided additional assistance. At this workshop, students received additional tips to polish up their presentations in preparation for the showcase at the end of January. Finally, the week prior to the showcase, technology lab staff made themselves available to any student presenter who needed instruction in the correct use of technology.

The positive comments below indicated that the student presenters appreciated the assistance afforded them at the mid-January workshop:

- Being able to get feedback from my peers and other faculty gave me some fresh perspectives.
- Learning about other tips in presenting helped to finalize my preparation.
- I'm going to be so good at the Showcase. I'm doing all of the things the professor said I need to do. That's good to know.
- This workshop helped me know that I am so ready for the Showcase! Bring it on!

HIGHLIGHTING THE STUDENT PRESENTERS AT THE HAPPY HOUR STUDENT SHOWCASE

In addition to the conference bags given to all attendees, the showcase student presenters were given gift bags with new books, instructional materials, and other goodies to emphasize the integral part they played at the Showcase. Their name badges, because of their different color, distinguished them from the rest of the participants. A student assistant helped them distribute and collect handouts and materials, and a technology assistant helped them to correct any technological problems. They were commended during the closing session, during which they received letters of appreciation, certificates of participation, and applause from the faculty and student population attending the Showcase.

STUDENT PRESENTER FEEDBACK

An evaluation form completed at the showcase and a focus group held two weeks later provided the HAPPY Hour Committee with valuable feedback from the student presenters. Via the evaluation form, students were asked to describe their overall experience concerning various as-

pects of the showcase, including the mentoring experience. Their positive feelings concerning the mentoring process were reflected in the following comments from the evaluation form:

- I had a lot of fun presenting and my mentor was great. She had a lot of great ideas that I did not think of.
- My mentor was able to see talents within me that I didn't know existed.
- My mentor was at my presentation; it was so reassuring to have her there. I knew she was rooting for me.
- My mentor helped me anticipate things I would not have anticipated. That helped my presentation run smoother.
- The thing I liked the best about the Showcase was the amount of support I received from HAPPY Hour faculty.
- What a great experience! My mentor was always available to help me – she even came to my house to help me with my presentation!
- My mentor always let me know what to expect; I felt comfortable in my ability to do a good job. There were no surprises.
- My mentor was excellent and I know that it was her motivation that helped me to see that I was capable of presenting.

Since only eight presenters completed the presenter evaluation form, the committee conducted a focus group a few weeks later, during which they hoped to probe deeper into the student presenters' experiences. HAPPY Hour faculty running the focus group solicited from the 15 attendees their perspective on the quality of mentoring they received. The most representative comments follow:

- My mentor was always there for me when I asked for advice. I believe she was able to help me as much as her schedule would allow. I was very pleased with the assistance I received.
- My friend and I prepared on our own, but there was a great amount of support coming from the HAPPY Hour Committee.
- There was more than enough assistance available.
- Wonderful! My mentor was easily accessible and always willing to help!
- Mentoring was just right!
- Mentoring went very well. She was there for me when I needed her.
- I always knew whom to contact when I had a question. This was great!
- Yes, more than enough ideas from my mentor.
- I was well supported throughout the process, communicated with regularly, I knew how to get help if I needed it…it was a terrific experience.
- When I become a teacher, I want to make sure I don't just rely on myself to get the job done. I need to remember that the road goes both ways. I need to seek out those suggestions from my colleagues, administrators, and even students. Teaching isn't just about what the teacher can offer. After having the experience of my very first teacher conference, I know there is so much more I need to know about teaching, and events like this make me want to learn more.

FUTURE CONFIGURATIONS OF THE HAPPY HOUR MENTOR-MENTEE RELATIONSHIPS

Since the initial HAPPY Hour Student Showcase, the number of experienced student presenters has grown and will continue to grow. These students become invaluable resources from which to draw mentors who have the expertise of the showcase presentation process. HAPPY Hour faculty intend to invite these former presenters to the HAPPY Hour workshops designed to recruit and mentor future student presenters. Oftentimes, experienced students can serve as very effective mentors to their peers, as found by Boreen, Johnson, Niday, & Potts (2000): "The finest, most rewarding professional development generally occurs by working and learning alongside trusted colleagues" (p. 99). Thus, instead of or in addition to faculty mentors, former student presenters can become a powerful entity in the mentor-mentee relationship.

In congruence with UCF's goal of becoming "America's leading partnership university," the HAPPY Hour Committee plans to recruit more K-12 educators to share their expertise at HAPPY Hour workshops. As the service area schools become more familiar with this professional development initiative, K-12 educators will be invited to serve as mentors to our student presenters. They can bring yet another source of expertise and experience to the mentor-mentee relationship.

CONCLUSION

Teacher education programs train professionals who recognize the value of life-long learning. To create and maintain a pool of highly qualified teachers, Holloway (2003) asserts that we must afford them support throughout their careers. "Mentoring is a learning approach highly suited to supporting a person in each stage of his professional development" (Cuerrier, 2002-2003, p. 4). As HAPPY Hour branches out into regional campuses and the service area school districts, and as partnerships with national educational businesses (such as publishers) develop, the mentor-mentee relationships of this unique professional development initiative will grow increasingly more diverse, complex, and perhaps fascinating.

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APPENDIX A

Steps in presenting at the HAPPY Hour Student Showcase

1. Brainstorm a topic you would like to share during a 30- to 45-minute presentation. Choose a topic that can be successfully taught within 30 to 45 minutes. Ideas for topics are as follows (the list is not all inclusive):
   a. Class assignments/projects of which you are proud
   b. Strategies you have learned in other workshops, such as HAPPY Hour workshops
   c. Strategies you have learned from your professors, supervising teacher, other teachers, peers, professional journal articles, etc.
   d. Strategies you successfully used during your internship
   e. Expertise you have in a particular area (e.g., American Sign Language)
   f. Internship experiences (how to remain sane during your internship, etc.)
   g. Strategies you developed yourself that you have successfully used.
2. Decide if you would like to present alone or with others.
3. Complete the HAPPY Hour Student Showcase Presentation Proposal Form online at the HAPPY Hour Website. Once you access this website, click on the link on the left-hand side of the screen to fill out and complete your presentation proposal on-line. Check out how easy it is to complete and submit a proposal.

4. If you need assistance in writing a presentation proposal, you can refer to the HAPPY Hour Student Showcase Guidelines (also available on-line when you work on filling out the proposal form). You can also make an appointment to meet with any of the members of the HAPPY Hour Committee, or any other interested faculty, and they will be happy to work with you one-on-one. Contact information for members of the HAPPY Hour Committee can be found on the HAPPY Hour Website. Look for "Committee Members." We can help you brainstorm topics, develop creative titles and workshop descriptions, etc. If you want to email us your ideas for our feedback, please do so. We are here to ensure your success. You will never need to work in isolation.
5. Submit your proposal online by the deadline date.
6. You will be notified by email of the acceptance of your proposal three days after the deadline date.
7. Once your proposal has been accepted, you will need to confirm your intent to present. Your confirmation indicates your commitment to present. Unless an emergency occurs, you will be expected to present at the HAPPY Hour Student Showcase. Dropping out for other reasons demonstrates a lack of professionalism on your part.
8. If you indicated on your presentation proposal that you would like to have a faculty mentor, one will be assigned to you. If you have a preference for a faculty mentor, provide their name on the proposal. Your mentor will be available to you to assist you in any way with your presentation. Do not hesitate to contact them.
9. Try to attend the HAPPY Hour workshop in January designed specifically for student presenters. You will be given tips for how to implement your presentation. You can practice implementing your presentation and receive constructive feedback from HAPPY Hour Committee members. If you cannot attend this workshop, you may meet with any other HAPPY Hour Committee members, or your faculty mentor for assistance.
10. Between the acceptance of your proposal and the HAPPY Hour Student Showcase, plan your presentation as you would plan a lesson that you will teach. Develop your activities and choose your instructional materials. Do a trial run to gauge the timing of your activities.

    A recommended sequence of activities is as follows:

    a. Anticipatory set – Something at the beginning of your presentation to grab the audience's attention. Example: Who has heard of (your topic/concept/activity)? What do you know about it? You might even do a K-W-L chart.
    b. Teach your concept.
    c. If possible, have the students do group work applying your concept/topic/activity. Try to interactively engage them during most of your presentation.
    d. Have groups share what they created.
    e. Ask the audience if they can think of any other ways they might apply your concept/topic/activity in their future classrooms. This makes what they learned relevant to their own professional lives.
    f. Provide time for questions from the audience.

g. Your presentation is over!

11. You will need to create a handout about your topic for audience distribution. If you are teaching a strategy, for example, you would need to include the steps for implementing the strategy. (Think of the types of handouts you receive at HAPPY Hour workshops.) You want the audience to be able to duplicate in the future what you've taught them in your presentation. The HAPPY Hour Committee will be happy to make copies of your handout for your presentation as long as you submit your handout at least a week before the Showcase. (See a sample presentation handout under "Sample Showcase Handout" under the "Student Showcase" link.)

12. The final step is presenting at the HAPPY Hour Student Showcase.

APPENDIX B
Happy Hour Student Showcase

PRESENTATION PROPOSAL FORM				
PRESENTER INFORMATION (Presenter submitting proposal will be the contact person.				
Name:				
Home Phone: ( )			Cell Phone: ( )	
E-mail Address:				
Mailing Address:				
Time needed for presentation: o 30 minutes o 45 minutes				
If time slots are available, would you want to present more than once? o Yes o No				
Names and addresses (email and snail mail addresses) of co-presenters (If applicable)				
PRESENTATION INFORMATION				
Title of Presentation:				
Use the space below to briefly describe your presentation. This description will appear in the HAPPY Hour Student Showcase program. It will serve to advertise your presentation, so it must accurately reflect the content of your presentation. Please limit your description to 75 words or less. Please proof your description before submitting your proposal.				
Audience (Check all that apply): o Early Childhood o Elementary o Secondary o K-12				
Room Configuration: o Computer Lab o Theatre-style o Tables & chairs for group work				
Equipment Needed:	o Overhead Projector	o Chart & Markers	o VCR/DVD	o CD Player
o Internet Access o Computer and Projector o Document Camera o None				
Is there a possibility that you might use a video clip? o Yes o No				

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Socially Responsible Accounting Students: An Oxymoron?

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ABSTRACT

Teaching social responsibility to accounting students presents a unique challenge. The attractiveness of Student Social Responsibility (SSR) with recruiters has grown, yet accounting students seem to lag behind in understanding social responsibility and practicing it. The question that is faced by many accounting faculty is that: Can social responsibility be taught to accounting students? This paper tries to provide the unique solution of Aristotelian Nicomachean Ethics to address this pedagogical issue.

The paper uses both qualitative and quantitative methodology to develop the pedagogical model. Quantitative tools like factor analysis and scree plotting are used to develop the pedagogical model. The Seven Step Process explicated by this study provides a rich pedagogical and philosophical approach for exploring and teaching the dynamic concept of social responsibility.

INTRODUCTION

What is Social Responsibility?

What constitutes social responsibility is still pondered upon by academicians in accounting, as well as other business areas. The topic of social responsibility is hotly debated (Rose, 2007). The lack of clear understanding in terms of what constitutes the construct of social responsibility has led to multiple definitions. For the purposes of this study, we define social responsibility as voluntary actions undertaken by a firm that aim to improve society.

The concept of Social Responsibility has gained a lot of attention in academia, as well as the workplace. From annual reports, annual general meetings, audit committees, external stakeholder statements, and corporate board meetings, it can be gauged that there is a tremendous interest in the topic of social responsibility. Corporate social responsibility is increasingly on the agenda of corporate boards and audit committees (Perrini, 2006).

The popularity of social responsibility in the business world can be gauged from the fact that social responsibility activities are a big part of the annual general meetings. Many corpora-

tions have started including social responsibility reports as a part of their commitment towards their stakeholders. In recent years there has been a noteworthy degree of administrative reform, in terms of the increasing number of companies proclaiming their social responsibility credentials. A recent study of 36 annual meetings of Swedish companies showed that the majority of the questions at the annual meetings dealt with social responsibility aspects of business, rather than the financial aspects of business. (Carrington & Johed, 2007).

The past few years have also seen a substantial growth in the area of social responsibility reporting. Many companies now have separate reports addressing social responsibility (Gray, 2006). Many accounting firms too have joined the bandwagon and now offer services catering to the new "socially responsible market." Most of the big accounting firms are offering services to help firms measure, audit, or report social responsibility. To give an idea of the popularity of social reporting, Norman and MacDonald (2004) reported that in February, 2004 there were 52,400 web pages that mentioned "triple bottom line"—a form of social reporting. In July, 2005 the same search resulted in 166,000 hits (Pava, 2007). In April, 2011 we repeated that same search on Google and obtained 452,000 hits.

Epistemological foundations of business education

Business school pedagogy has recently come under criticism from many academicians. Many business scholars have questioned the practical relevance of business education for business practices (Roca, 2008). This criticism primarily targets the fact that business education is not applied. That is, a business degree – apart from the getting the credential – does not prove to be helpful to students when they enter the real world. This point has been vociferously argued by authors like Donaldson (2002) and Mintzberg (2004).

In fact, many authors have gone as far as to assert that business education does not impart learning to business students, but is a contract between the academicians and the students, which enables the students to receive certification. This certification in terms of a degree enables them to find better jobs. Thus, the relevance according to these authors of a business education is primarily in imparting a certification rather than imparting real world knowledge. This view is ascribed to by Gray (2006) who indicates that business school faculty impart and students accept virtually useless knowledge just to get the required certification. Gray (2001) concurs by indicating that imparting useless knowledge results in a win-win situation for both the academicians, in that they get a controlled encounter and the students get qualification and certification. Business schools and accounting departments have traditionally cited the twin reasons of practical relevance of business education and academic rigor of the coursework to increase their enrollment and attract new students. To question these two foundational reasons entails nothing less than a headlong challenge of business education and its epistemological foundations (Roca, 2008).

Theory building

Apart from the above mentioned problems with accounting and business education, there are also some inherent problems in theory grounding for accounting and business research. Increasingly scholars have been getting away from "practical" research, and focusing on narrow specialized academic research. While it is commendable to build "rigorous" theory in an academic setting, it is of prime importance to have this knowledge disseminated to industry. That is, it is of prime importance for theory to have some practical application. Handfield & Melnyk (1998) indicate that to be successful at theory building, research must be accepted and applied by other researchers and managers in the field.

Thus, on one hand we have almost an explosion in the popularity of social responsibility in business in the real world, and on the other hand we also seem to have a substantial increase in academic papers addressing social responsibility. Yet, there are very few academic papers that address social responsibility at a student level. In fact, apart from the study done by Ibrahim et al., (2008), there seems to be a lack of interest on the part of academicians to address social responsibility at the student level. In terms of coursework too, there is very little done – particularly in the accounting field—to address social responsibility issues in business.

Rationale for this paper

This paper tries to fill this gap in the literature by developing and validating a scale to measure student social responsibility. The paper also uses the rich theoretical underpinning of Aristotelian Nicomachean Ethics to construct a pedagogical model of social responsibility. Aristotelian Nicomachean Ethics has a rich tradition of imparting useful knowledge to students for over two millenniums. Using this model, the dynamic concept of social responsibility can be given a strong theoretical background and can be taught in a "rigorous fashion" in an academic setting.

The authors posit that since social responsibility is very relevant in today's business world, social responsibility should be actively taught to accounting students. By teaching an area that has a lot of applied value, we in the accounting departments would be fulfilling the first epistemological foundation of business education. Also, if social responsibility can be taught in an "academically rigorous fashion," then it fulfills the second epistemological foundation of business education stated by Roca (2008).

LITERATURE REVIEW

Aristotle's Nicomachean Ethics

The ten books written by Aristotle in approximately 350 B.C. form what is known as Nicomachean Ethics (*Ta Ethika*). These ten books are based on Aristotle's lectures in the Lyceum and deal primarily with virtue and moral character. Authors differ in their opinion on whether these ten books were edited by Aristotle's son, Nichomachus or dedicated to him. Thus, Nicomachean Ethics looks at an individual's social responsibility towards herself/himself and towards society and state (Aristotle, 1941).

Many contemporary philosophers and business scholars have discussed and applied the principles of Aristotelian Virtue Ethics (Anscombe, 1997; MacIntyre, 2007, Perrett and Patterson, 1991). While Aristotle is regarded as one of the founding authors of virtue ethics, other authors have had an impact in the development of the theory of virtue ethics. Maori ethics is virtue ethics (Perrett and Patterson, 1991).

For the purposes of this paper, we concentrate specifically on Aristotle's Nicomachean Ethics. While Nicomachean Ethics is very similar to virtue ethics, it is different in the fact that while virtue ethics encompasses the ethical theories of Aristotle and other philosophers, Nicomachean Ethics looks solely at the ethics of Aristotle as elucidated by him in his books on Nicomachean Ethics. Thus, practically speaking Nicomachean Ethics can be considered as a more narrow focus and as a subset of virtue ethics (Vermigli, 2006). Also, from a pedagogical standpoint it may be more interesting to look at the framework of Nicomachean Ethics as given by Aristotle, as opposed to the erudite expositions on virtue ethics by scholars like Anscombe (1997) and MacIntyre (2007).

Aristotle's books on Nicomachean Ethics (Aristotle, 1941; Aristotle, 1998) provide a rich framework to evaluate the vibrant concept of social responsibility. Aristotle describes the range of actions as a determinant of the overall moral responsibility of the agent. The agents in our study are accounting students. From Nicomachean Ethics, we can gather that the habitual decisions taken by an accounting student (that is, the agent) will throw light on the ethical values of that student. By describing what the agent regularly does, one can describe the overall moral character of that particular agent. Aristotle stresses very often in his books that virtue cannot be learned just as a theoretical knowledge, but has to be practiced and cultivated as a habit.

In Nicomachean Ethics, Aristotle (1941) focuses upon how a person should be. That is, Nicomachean Ethics emphasizes the person responsible for the behavior (the agent), as opposed to the behavior itself (the act). Aristotelian ethics is fundamentally concerned with what sort of person one ought to be and what sort of life a person ought to live. It is not as concerned with what sort of acts a person ought to perform (Perrett and Patterson, 1991).

The case for teaching Aristotle's Nicomachean Ethics

Ethical difficulties arise when the responsibilities as a student towards society are pushed aside in favor of the end goal of getting a degree, or having a controlled encounter (Roca, 2008). By concentrating on the sole purpose of getting a diploma, the students' ethical decision making ability and consequently their responsibility towards society suffers. Translated to our scenario, if we as accounting faculty just train students to get their credentials, and not concentrate upon their development in terms of social responsibility, or the practical relevance of our accounting degrees, then even though our students may do well for some time – they could very well face (or cause) undesirable consequences like Enron and Arthur Andersen.

Aristotelian Nicomachean Ethics is particularly relevant in today's recessionary economies. For example, the ability to objectively discern the finer points in a particular situation is the crux of the Aristotelian virtue of practical wisdom. Aristotle (1998) defines practical wisdom as the ability to identify salient features of complex, practical situations. Thus, from an accounting faculty standpoint, the first time an accounting graduate gets a job in a public accounting firm, and she/he notices a discrepancy in expense reporting, should she/he say something about this issue? What if the discrepancy is very minor? What if reporting the discrepancy may result in the responsible employee suffering heavy consequences? Having a good understanding of the virtue of practical wisdom, or prudence as explicated by Aristotle may enable the accounting student to make a "practically wise" decision in such a complex real world scenario. Thus, the innate knack of acting "wisely" in a complex situation, as can be readily seen in businesses today may be addressable by Aristotelian Nicomachean Ethics. The mark of a prudent man is his ability to act appropriately in situations where there is no clear-cut answer (Aristotle, 1998).

Aristotle describes ethical virtue as "hexis." Hexis is the tendency, or the disposition induced by our habits. Thus, according to Nicomachean Ethics, a person's character is based on his habitual actions. Thus, if these habitual actions are virtuous, then the person happily chooses the right thing to do in a complex situation. Aristotle (1941) indicates that people with good moral character act in the right way (virtuously) because they are accustomed to taking the right actions, and they do these right actions happily.

Another key virtue put forward by Aristotle is moral imagination. Moral imagination has been defined by Aristotle (1941) as the ability to grasp the moral quality of an act, when a person is involved in a deliberation having moral implications. As accounting faculty, we can appreciate the benefits of our students gaining a deep insight in the virtue called moral imagination. The virtue of moral imagination is particularly relevant in today's domestic business environment due to the ethical implications of scandals like Enron and Arthur Andersen. With such scenarios plaguing the business world, it would behoove us to give our accounting students exposure to millennia old, rich ethical theories – such as Aristotelian Nicomachean Ethics.

The virtues listed in Aristotle's Nicomachean Ethics

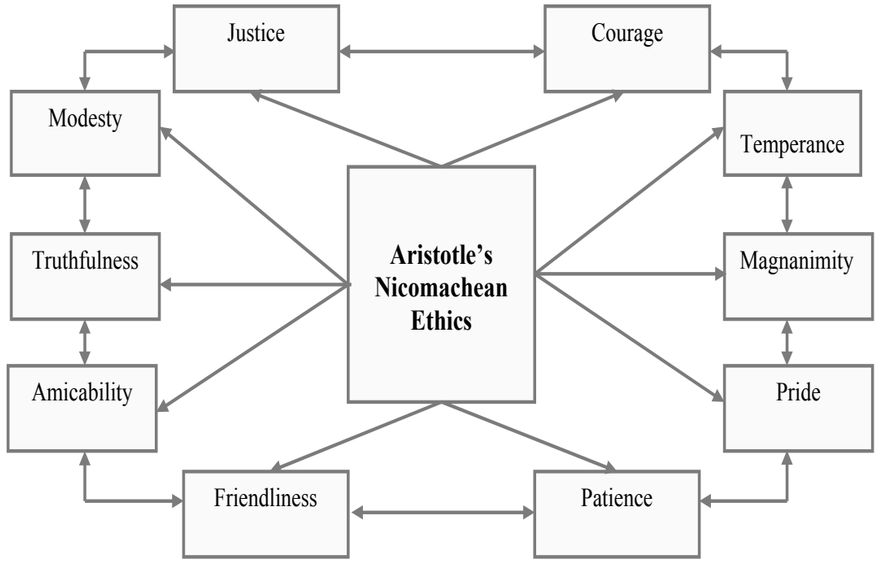
Aristotle believed that the virtues were from following a "golden mean." For example, courage is a virtue that is extolled by Aristotle, and courage falls between the excess of rashness, and the defect of cowardice. Similarly, modesty – another virtue enumerated by Aristotle – falls between the excess of shamelessness and the defect of bashfulness. Looking at Aristotle's Nicomachean Ethics (Aristotle, 1941) from a lens of a virtues approach and pedagogy gives us the following 10 virtues (Figure 1). The authors posit that these 10 virtues can provide a rich framework for teaching a model of social responsibility in the classroom:

1. Courage: Is the quality that falls between the two extremes of rashness and cowardice.
2. Temperance: Is moderation and balance. It is the quality that falls between the two extremes of self-indulgence and insensibility.
3. Magnanimity: The munificent quality that falls between the extreme qualities of prodigality and meanness.
4. Pride: The quality of pride is having honor. It falls between the extremes of empty conceit and arrogance, and false humility.
5. Patience: The quality of patience or *sabr* has been extolled by almost every spiritual tradition. Aristotle too admired this quality. He asserted that the golden quality of patience falls between the extremes of irascibility and the lack of spirit (lackluster attitude).
6. Truthfulness: This quality falls between the extreme qualities of boastfulness and understatement.
7. Amicability: This is the ability of a person to be witty and charming. This quality is a golden mean between the extremes of buffoonery and boorishness.
8. Friendliness: The ability to be gracious and sociable falls between the extreme qualities of sycophancy and bad-temperedness.
9. Modesty: This is a rare quality wedged between the garish extremes of brazenness and shamelessness, and undue shyness, or bashfulness.
10. Justice: Is righteous indignation that falls between the extreme qualities of reciprocity (an eye for an eye) and lawlessness (anarchy).

Teaching Nicomachean Ethics

Aristotle (1941) espouses both intellectual and moral virtues. According to Aristotle, intellectual virtues can be taught in the classroom, while moral virtues can be taught in the classroom, but also have to be "practiced." We learn from exercising the virtues. That is, the way that we habitually behave in our dealings with other people makes us just or unjust from a moral standpoint

Figure 1
Aristotle's Nicomachean Ethics



(Hodkinson, 2008). Thus in Nicomachean Ethics, we find that virtues can be cultivated by using them in our day-to-day activities. Aristotle (1941) explains that activities that are virtuous in nature, and done habitually, will produce dispositions that are also virtuous in nature (Aristotle, 1941). Therefore, if we can give students a deep appreciation of Aristotle's Nicomachean Ethics, and then encourage them to practice what they have learned (in terms of socially responsible activities), then we may be able to better prepare our students to face the realities of today's job markets.

The advantage of teaching accounting students Aristotelian Nicomachean Ethics is to use an ancient source of moral wisdom to show students how to do good for themselves and others. Thus, the framework of Aristotelian Nicomachean Ethics will help in pointing out to the accounting students how socially responsible activities can be a benefit for them, as well as the society around them. The function of Nicomachean Ethics is to teach us how to live well and prosper while doing that (Perrett and Patterson, 1991). Also, cultivating virtue helps us in bringing about human good (Aristotle, 1941).

From a pedagogical standpoint, the virtues that are listed in The Nicomachean Ethics provide a clear and concise guideline in terms of framing student social responsibility. While the broader field of virtue ethics and other ethical theories may also offer guidelines, the advantage of The Nicomachean Ethics is its succinctness and its amazing relevance to today's times. Again, this is particularly noteworthy in terms of encouraging student social responsibility. Aristotle stresses social responsibility many times in his book on Nicomachean Ethics.

METHODOLOGY

As a part of a larger study of student social responsibility and student spirituality, data was collected from undergraduate accounting students at a small Midwestern university. A questionnaire was given to 57 undergraduate accounting students during class time. This questionnaire had three parts. The first part looked at 21 components of social responsibility drawn from the literature. These definitions/components were whetted with an expert panel of 11 students. The second part of the questionnaire looked at questions that would help theory building efforts and give ideas for future research. The third part of the questionnaire consisted of demographics. The first sample of students consisted of accounting majors, who had completed at least 63 credit hours before they could take this course. All these accounting students were advised about the importance of the study and the confidentiality of their responses.

A second questionnaire was administered to a group of 71 undergraduate humanities students. These students were mostly freshmen and sophomores. Again, all the students were advised about the confidentiality of their responses and the importance of the survey for the research. All the students were given 10 points in terms of extra credit (1% of the total grade). Participation in the survey was voluntary. Also, for both the questionnaires the response rate was 100%.

Finally, a third questionnaire was administered to members of the MBA Association at a small state-funded Midwestern school. A questionnaire was given to 25 graduate students. Yet again, all these graduate students were advised about the anonymous nature of their responses, the confidentiality of their responses, and the importance of the survey for the research. For the MBA Association members, there were no academic incentives given (extra credit, etc.). Participation for these students too was voluntary. The response rate for this questionnaire was also 100%.

Student Social Responsibility (SSR) was measured with an instrument which was based on the social responsibility scale developed by Aupperle et al. (1985). The psychometric properties of this scale have been addressed before by Ibrahim et al., (2008). Aupperle's scale has 10 items, which are used in a forced choice format. Aupperle's scale was originally created for Social Responsibility Orientation (SRO) for practitioners. Ibrahim et al., (2008) adapted this scale to measure the SRO of students and compare it to the SRO of business managers. We used Aupperle's scale, but modified it to our requirements by using a 7 point Likert scale. The scale used the "Strongly agree" and "Strongly disagree" formats.

The rationale for using a second questionnaire is to improve the confidence in the validity of our findings. Again, the order of the questions on the instrument was randomly assigned and three different versions were produced. As opposed to replication techniques suggested by Lykken, 1968, we used the approach used by Kolodinsky et al. (2008) in using "constructive replication." In this method, some of the measurement instrumentation is varied in the second sample group. Using this conservative approach, if the results between the two samples converge, this may provide for more confidence in the validity of the findings (Kolodinsky, 2008).

Samples and Measures

A total of 57 accounting students responded to the first questionnaire (n = 57). The age range for all the students was from 20 to 39 (100%). Also, 21 students had volunteered in non-profit organizations in the past. The full-time work experience of these students ranged from 0 years to 11 years. Of the 57 responses we received 7 surveys were incomplete, and so had to be discarded. This reduced the final sample to 50 (n = 50). The sample comprised of 40% female students.

On the second sample, a total of 71 humanities students responded to the Student Social Responsibility Scale (SSRS). Again, participation in the survey was voluntary. In the second sample, we found 6 incomplete surveys and these were discarded. This decreased the final sample to 65 (n = 65) for the second sample. On the third sample, we had a total of 25 graduate business students respond to our SSRS instrument. In the third sample, we found 1 survey not completed correctly and this was discarded. This brought the final sample down to 24 (n = 24) responses.

The SSRS is a 21 item instrument which was designed to measure student social responsibility (Table 1). As mentioned previously, it is a Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. Items for this scale were adapted from Aupperle's instrument (1985). Representative items for this scale included "Social responsibility is taking part in philanthropic activities," and "Social responsibility is taking part in civic duties like voting." The internal consistency reliability for this instrument was 0.83 (Cronbach's alpha).

Statistical Methods

Apart from conducting the appropriate testing and checking of the data set, two different statistical methods were used to analyze the data set. These methods were factor analysis and Scree Plot. For the purposes of the pedagogical model, these are deemed sufficient.

Table 1
Attributes of Social Responsibility

Attribute	Description	Attribute	Description
PHIL	Philanthropic activities	BOLD	Being bold to voice opinions
VOTE	Participating in civic activities	BAD	Staying away from bad things
HELP	Helping people	BRAVE	To do the right things
MOD	Having moderation in life	RACE	Promoting race equality
FRIEND	Cultivating friendships on-campus and off-campus	HAPPY	Promoting happiness for others and oneself
ADOPT	Adopting homeless animals	GENTLE	Being gentle with other people
KIND	Being kind to all living beings	EDUC	Getting a solid education
BETTER	Improving oneself	AMIABLE	Being good natured
BLOOD	Taking part in blood drives	FAIR	Being fair and even handed
RESPECT	Acting respectfully	VIRTUE	Cultivating good habits
		TEMP	Being balanced between school work and social activities

Factor analysis was used to determine the underlying dimensions of the construct of student social responsibility. To check the validity of the dimensions suggested by the factor analysis, a Scree Plot was used. Thus, while the factor analysis looks at factors above certain eigenvalues, the Scree Plot plots all the eigenvalues from increasing to decreasing order.

RESULTS

The results of the Factor Analysis are shown in Table 2. The 21 definitional attributes of social responsibility included in the SSR questionnaire load on seven distinct dimensions (Figure 2). These underlying attributes each have clean loadings on one single factor. An exception to this was VIRTUE, which loaded .7571 on factor 1 (Virtue) and .5534 on factor 3 (Balance). Another exception was BOLD, which loaded on .7332 on factor 6 (Valiant) and .4751 on factor 4 (Fairness). A final exception to having strong loadings on one unique factor was AMIABLE which loaded .4915 on factor 2 (Friendship) and .4225 on factor 1 (Virtue).

The results of the Scree Plot coincide with the results of the factor analysis. The "side of the mountain" on the Scree Plot consisted of 7 factors. The "debris" on the Scree Plot began at factor 8 (Figure 3). The basic rule of thumb on the Scree plot is to stop the analysis at the point where the mountain ends (the sharp vertical drop in the graph changes) and the debris begins. The debris is the error, which begins when the graph starts to take a distinctly horizontal shape.

DISCUSSION

The study attempts to address four tasks. The first task consists of developing and validating an instrument that measures the construct of Student

Table 2
Factor Analysis of the Attributes

Attribute	Factor 1 Virtue	Factor 2 Friendship	Factor 3 Balance	Factor 4 Fairness	Factor 5 Generosity	Factor 6 Valiant	Factor 7 Learning
PHIL	**.7910**	.1777	.0874	-.0921	.0976	-.1227	.0035
VIRTUE	**.7571**	-.1665	.5534	.0954	-.1289	.1435	-.0123
KIND	**.7433**	.0780	.1235	.1879	.1560	.0261	.2346
BETTER	**.6401**	.0450	.1324	.2367	.0698	.1971	.0638
BAD	**.6311**	-.1568	-.1987	.2111	.1959	-.0543	.1239
VOTE	.0656	**.7710**	-.1245	.1033	-.0003	.1886	.1677
FRIEND	.1709	**.6877**	.0989	.2143	.1210	.0657	-.1510
RESPECT	.1110	**.6211**	-.0265	.3116	-.0173	.1657	.1286
GENTLE	-.1310	**.5113**	.0567	-.0341	.1402	-.0231	.1809
AMIABLE	.4225	**.4915**	.1098	.2187	-.1455	.0409	.2013
MOD	.1745	-.1091	**.7041**	-.1056	-.2231	.0772	.1318
HAPPY	.0567	.2121	**.5389**	-.0284	.1463	-.1312	.1765
TEMP	.0671	.0987	**.4257**	.2055	.0978	.0020	-.0090
FAIR	-.0031	.0761	.2034	**.7991**	-.0033	.1186	-.1087
RACE	.1222	-.0841	-.1290	**.6731**	-.1698	-.1310	-.0211
ADOPT	.2106	.0245	.2702	.2334	**.7614**	-.0163	.0333
BLOOD	.0117	.2134	.0231	-.1024	**.7520**	.1777	.1440
BOLD	-.1212	-.2110	-.0444	.4751	-.0222	**.7332**	.2360
BRAVE	.1201	.1389	.0781	.0123	.2100	**.7118**	.0204
EDUC	.1543	.0156	-.2134	.1377	.0118	.2120	**.7798**
HELP	.0897	-.0567	.2322	.0675	-.0899	-.0090	**.4217**

Figure 2
The Underlying Dimensions of Student Social Responsibility (SSR)

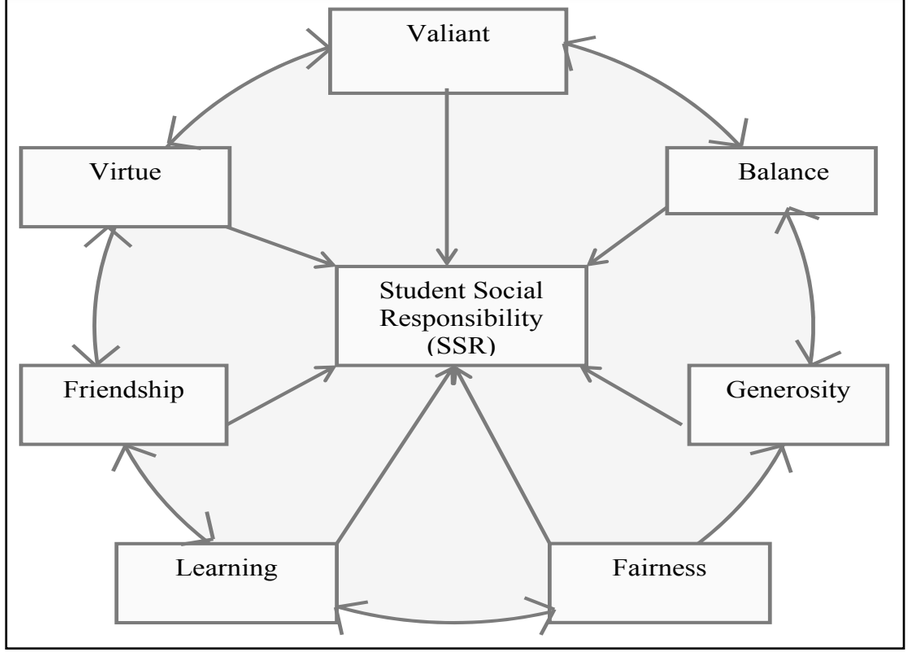
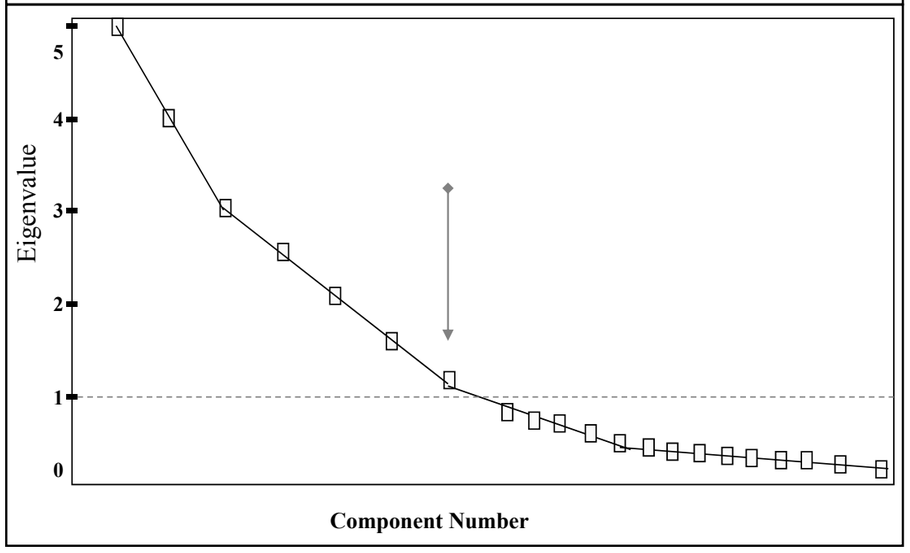


Figure 3
The Scree Plot



Social Responsibility. The second task is to glean out the primary underlying dimensions (factors) of student social responsibility. The third is to enumerate the virtues elucidated by Aristotle in The Nicomachean Ethics. The fourth and final task is to create a simple, practical model that can be used to teach accounting students the concept of social responsibility and the theory behind it (Nicomachean Ethics).

The authors addressed the first task by first fleshing out definitions of social responsibility from the literature. These definitions were then taken to an expert panel. After two iterations, a basic questionnaire was constructed. This questionnaire was administered as a pilot study to a group of undergraduate accounting students. After getting responses from the pilot study, the questionnaire was further improved and then finally administered to our current sample, which consisted of three different groups of students. The instrument was based on Aupperle's work (1985). This instrument has been thoroughly investigated from the standpoint of reliability and validity. Our instrument was also thoroughly tested for validity and reliability. The authors also paid particular attention to the problems presented by common method bias.

Factor analysis was conducted on the responses to the questionnaire. Results of the factor analysis (confirmed by the Scree Plot) suggest seven different factors (Figure 3), which we have named in the following way:

1. VIRTUE
   This dimension consists of the following attributes of social responsibility: PHIL (Taking part in philanthropic activities), VIRTUE (Cultivating good habits and being vituous), KIND (Being kind to all living beings), BETTER (Improving oneself), and BAD (Staying away from bad and corrupt things). The dimension of VIRTUE seems to have a very good fit with the Nicomachean virtues of "Modesty," and "Patience."
2. FRIENDSHIP
   This dimension is comprised of the following attributes of social responsibility: VOTE (Participating in civic activities), FRIEND (Cultivating friendships on-campus and off-campus), RESPECT (Acting respectfully and courteously towards others), GENTLE (Being gentle with other people), and AMIABLE (Being good natured and sociable with others). The dimension of FRIENDSHIP seems to have a very good fit with the Nicomachean virtue of "Friendliness."
3. BALANCE
   This dimension is made up of the following attributes of social responsibility: MOD (Having moderation in life), HAPPY (Promoting happiness for others and oneself), and TEMP (Being balanced between school work and social activities). The dimension of BALANCE may have a good fit with the virtue of "Temperance."
4. FAIRNESS
   This dimension is comprised of the following attributes of social responsibility: FAIR (Being fair and even handed with everyone) and RACE (Promoting race equality). The dimension of FAIRNESS seems to have an optimum fit with the virtue of "Justice."
5. GENEROSITY
   This dimension is comprised of the following attributes of social responsibility: ADOPT (Adopting homeless animals), and BLOOD (Taking part in blood drives). The dimension of GENEROSITY seems to have an optimum fit with the virtue of "Magnanimity."
6. VALIANT
   This dimension is made up of the following attributes of social responsibility: BOLD (Being bold to voice opinions about wrong things happening in society) and BRAVE (Being gutsy to do the right things). This dimension of VALIANT seems to have a good fit with the virtue of "Courage."

7. LEARNING
   This dimension is composed of the following attributes of social responsibility: EDUC (Getting a solid education) and HELP (Helping people in the community, friends, and other students). The dimension of LEARNING seems to have a somewhat decent fit with the virtue of "Patience."

The Seven Step Process for Teaching Social Responsibility to Accounting Students

Explicating the model of social responsibility to accounting students by synthesizing the ten key virtues of Aristotelian Nicomachean Ethics and the seven factors suggested by the factor analysis and the Scree Plot should be relatively simple. Given below is the Seven Step Process (Figure 4) that elucidates this synthesis from a pedagogical standpoint:

Step 1: Who was Aristotle?

Teaching students about the life and times of Aristotle should be fun and reflective. Understanding Aristotle in the context of time is essential. Explaining to the students the relationship that Aristotle had with Plato and Socrates may be beneficial. Giving an interesting life history of Aristotle at this point will be extremely helpful.

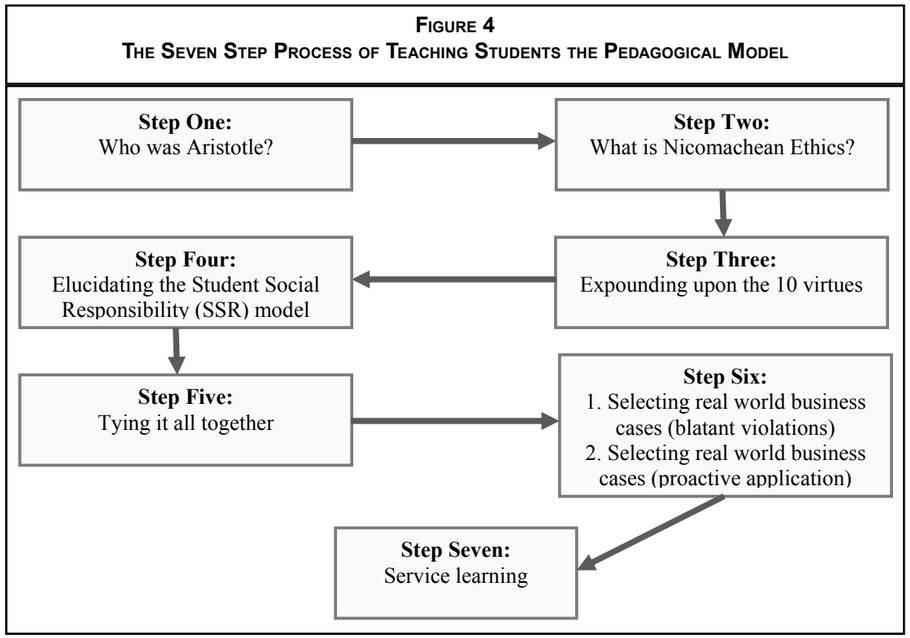
Step 2: What is Nicomachean Ethics?

Explain the philosophy of Aristotle to the students, particularly concentrating on Nicomachean Ethics. Differentiate between various ethical theories like utilitarianism, deontology, virtue ethics, etc. Emphasize the simplicity of using Aristotle's Nicomachean Ethics, particularly as it refers to the pedagogical model.

Step 3: Expounding on the Nicomachean Virtues

What are the virtues eulogized by Aristotle that are particularly relevant in today's academic and

Figure 4
The Seven Step Process of Teaching Students the Pedagogical Model



business worlds? What are Aristotle's views on these virtues?

Step 4: Elucidating the Student Social Responsibility (SSR) model

Explain the steps involved in developing and validating the Student Social Responsibility Scale (SSRS). It would be helpful to give a broad overview of factor analysis and the Scree Plot.

Step 5: Tying it all together

Explain how the virtues listed by Aristotle in Nicomachean Ethics help provide an underlying framework for student social responsibility. Draw the connection between student social responsibilities being the applied side (practice) of the underlying theory (Aristotelian Nicomachean Ethics). Emphasize the fact that apart from studying virtues, they need to be cultivated as a disposition (Aristotle, 1941).

Step 6-1: Selecting real world business cases that show the blatant violations of Nicomachean Ethics and Social Responsibility

Selecting cases which show the real world violations of Aristotelian Nicomachean Ethics (underlying theory with the ten virtues) and social responsibility is extremely important. Care should be taken to select contemporary cases, which fit in the student coursework. For example, in an accounting course, one of the authors used the recent cases of CPA firms in China. Faculty in other disciplines can use real world cases that target their areas.

Step 6-2: Selecting real world business cases that show the proactive application of Nicomachean Ethics and Social Responsibility

Selecting appropriate and interesting business cases that show real world application of the model (both theory and application) should also be used. This step will provide accounting students with real world proof that these virtues can be practiced successfully. One of the authors used the cases of socially responsible companies like Black Taj, Hobby Lobby, Tom's of Maine, etc. Again, these business cases can be targeted according to the area of study.

Step 7: Service learning and the practical side of Aristotelian Nicomachean Ethics

Service-learning is a method of teaching that combines academic classroom curriculum with meaningful service. This is particularly true in terms of establishing sustainable university and community partnerships (Kenworthy-U'Ren, 2008). From the pedagogical model standpoint, service learning may help accounting students actually initiate social responsibility activities as a part of the classroom. Hence, from an Aristotelian standpoint, service learning is a way to practice the virtues expounded by Aristotle.

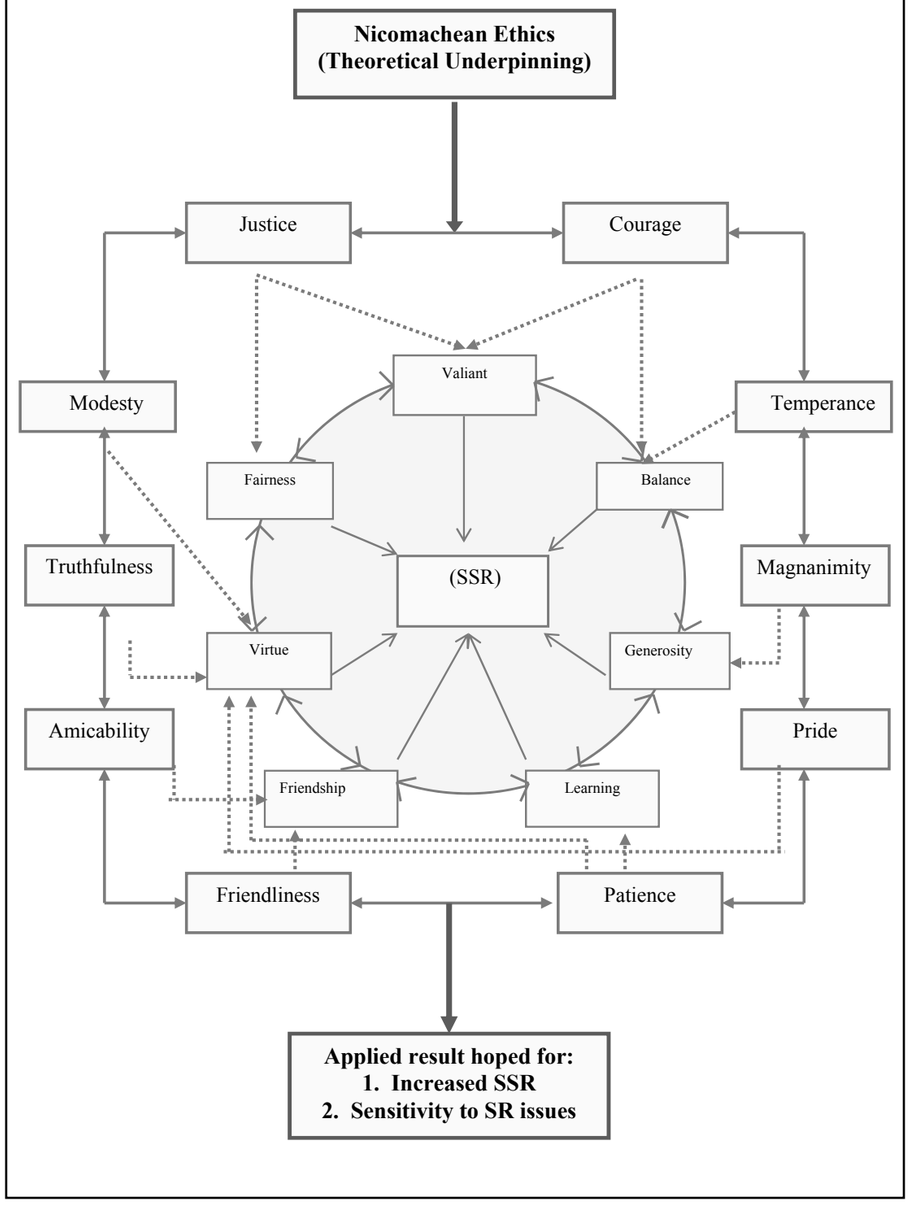
There are various other ways that service learning can be brought into the classroom as a part of this Seven Step Process (Figure 5). For example, accounting faculty can invite representatives of local not-for-profit organizations (on-campus and off-campus) to the classroom. This may be a very useful way to give easily accessible social responsibility opportunities to accounting students. This may also increase the likelihood of accounting students actually performing social responsibility initiatives.

Finally, the practical side of Aristotelian Nicomachean Ethics and Student Social Responsibility need to be constantly stressed. Accounting faculty need to stress the win-win characteristics of student social responsibility. For example, volunteering at the local Salvation Army may give the accounting student valuable business experience, and a differentiating point on her/his resume. At the same time, the volunteering may help the student cultivate virtue. Finally, volunteering by the accounting student at the Salvation Army may also cause direct benefit to the community.

CONCLUSION

Social responsibility is seen as a key topic in conducting business in today's world. Unfortunately, even with the immense popularity of the topic it is not taught in any detail in most accounting programs. As discussed earlier, one of the epistemological foundations of business education

FIGURE 5
THE STUDENT SOCIAL RESPONSIBILITY MODEL FOR PEDAGOGY PURPOSES



is that the course work should have practical applications. By not teaching social responsibility in any depth in accounting programs, we as academic scholars are eroding the very foundations of business education. This paper was written with the express purpose of addressing this issue.

A related issue deals with pedagogical approaches behind the topic of social responsibility. With the attention given to the topic of social responsibility in academic journals, the question arises as to why do so few papers address the pedagogical issues surrounding social responsibility? Again, the thrust of this paper is to create a theoretical foundation for teaching social responsibility in academia. For this purpose, we developed a pedagogical model using Aristotelian Nicomachean Ethics. Giving social responsibility such a rich underlying framework, will help ground the topic in sound theory.

One of the limitations of using an ethical theory in pedagogy is the very ingrained characteristic of that theory. Thus, while Nicomachean Ethics is not "perfect," or without limitations, it can at least provide a framework which academicians can use to encourage student social responsibility. At the very least, using this framework should sensitize accounting students to social responsibility issues. A second limitation of the study is that the study uses a convenient sample. Since we are building a pedagogical model and developing and validating a scale, generalizability of the findings may not be such a critical issue. A final limitation of this paper lies in the fact that the sample is not longitudinal. Having a longitudinal sample would have been of tremendous help in addressing issues of common method bias.

Can socially responsible activities in accounting students be encouraged by teaching other ethical theories like Virtue Ethics, Kantian Ethics, Maori Ethics, and Gandhian Ethics? The answer is an emphatic "Yes." Aristotle's Nicomachean Ethics is just one ethical theory that the authors feel may encourage accounting student social responsibility, but other theories can also accomplish the same goal. Thus, in terms of future research, one would hope to see some other theoretical approaches taken to this key concept of student social responsibility. Finally, the end goal in terms of epistemology of accounting education should be not only to provide academically rigorous education, but to also provide applicability particularly in terms of socially responsible behavior and real world needs.

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Integrating Ethics into the Teaching of Portfolio Management

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ABSTRACT

Sound ethical behavior should go beyond the textbook examples to practical application to ethical situations confronted by financial managers and corporate leaders on a daily basis. The focus of our paper is on the pedagogical process of integrating ethics subjects and coverage in an undergraduate course in portfolio management. As part of their responsibilities in the course students are required to manage an equity portfolio as part of a regional competition sponsored by a Federal agency in a prudent manner and are required to act as fiduciaries. Because of the nature of the management of an equity portfolio, students are more directly exposed to the potential conflict of interest that portfolio managers face in performing their professional activities. Within this background of current ethical issues in investment management and corporate governance, our paper will highlight and discuss the methods that have been used to integrate ethics into our portfolio management program.

INTRODUCTION

In light of the financial crisis of 2008, the investment scandals involving Ponzi schemes and the opening of UBS Bank's accounts of U. S. taxpayers to the IRS for tax evasion investigations (Mollenkamp, Saunders, and Perez 2009), teaching undergraduates about the ethical dimensions of business has taken on even greater importance in financial education. In our investment and portfolio courses we not only teach business ethics, but we also expose our students to the impact of ethical decisions on managing investment portfolios. Ethics is commonly described as a set of moral principles and values. Most individuals identify these moral principles as a lofty philosophical ideal, which has little significance in our daily lives. In recent years, we have seen what an ethical scandal can do to a business, in general, and investments (e.g., mutual funds, hedge funds, and subprime lending) in particular [see Jennings (2005) for a detailed discussion of the ethics scandals in portfolio management and corporate governance]. As a result of these recent scandals, companies and financial institutions are exploring different ways to communicate the importance of ethical behavior to their employees. Many colleges have begun to incorporate ethics classes into their curriculum, at least partly at the encouragement of the AACSB International. In 2004, the AACSB Ethics Task Force recommended a "renaissance" in ethics education (AACSB 2004); and since then, the agency has modified its standards to require ethics coverage in business programs.

Additionally, many business enterprises are requiring their employees to complete annual ethics review courses. The Institute of Management and Administration (Security Director's Report, 2006) showed that 70% of employees go through an ethics training program, which is 13% more than in 2003. It also revealed that 2% of employees say that they observed at least one act of misconduct in the year 2004, a percentage that is higher than 2003. Tyler (2005) noted that com-

panies are moving away from the notion of having 'ethics programs' and focusing on encouraging a culture committed to ethics and compliance, in which ethics is part of almost every business discussion. In a newspaper article (The Tennessean, March 23, 2007, p. 10A) it was reported that churches are beginning to address issues of workplace ethics with their congregations. As the current literature on the subject reveals, companies have been attempting to resolve ethical issues in evolving methods. Business educators need to seize the opportunity to teach their students the importance of moral/ethical behavior in class using a variety of methods which apply business practical applications.

The focus of our paper is on the pedagogical process of integrating ethics subjects and coverage in an undergraduate course in portfolio management. Our course is unique in that our students actively manage an equity portfolio as part of a regional competition sponsored by a Federal agency. As part of their professional responsibilities in the course, students are required to manage the client's funds prudently and must act as fiduciaries. Because of the nature of the management of an equity portfolio, students are more directly exposed to the potential conflicts of interest that portfolio managers face in performing their professional activities. Within this background of current ethical issues in investment management and corporate governance, our paper will describe and discuss the topics and methods that have been used to integrate ethics into our portfolio management program. It is of greater lasting benefit to students to apply ethical decision-making in their daily trading and security analysis activities than simply reading or hearing about the same situation in a case study or in the news media. It makes sense to encourage students to behave properly through practical corporate culture as opposed to a 'Code of Ethics' which students may learn in an ethics course. As educators of future financial managers, we need to encourage our students to become ethical corporate managers, business leaders, and responsible citizens. Our course attempts to foster ethical behavior through involvement and dialogue.

NATURE OF THE EQUITY PORTFOLIO MANAGEMENT COURSE

Our senior level portfolio management course primarily involves the active management of an equity portfolio created by the Tennessee Valley Authority (TVA), the federal corporation charged with the responsibility to provide electric power to the Tennessee valley area which includes not only Tennessee, but also southern Kentucky, western North Carolina, northern Mississippi and northern Alabama. The TVA program is unique in several respects. It was established in the spring of 1998 as a program to bring not only the opportunity to manage a stock portfolio to undergraduate and graduate students (primarily finance majors, but not exclusively), but also to simulate the client/professional portfolio manager environment. The program is also a competitive program that includes 24 public and private universities in the service area of the TVA and provides annual financial awards for those programs which earn returns superior to S&P 500 indices.

The basic charge for each school is to out-perform the selected benchmark (which can be the S&P 500 Composite Index, the S&P Barra Value Index, or the S&P Barra Growth Index) by actively managing the portfolio. In managing the portfolio, the student managers are required to achieve their task subject to a set of contractually agreed-upon client guidelines. The guidelines (to be discussed in more detail in the next section) specify the responsibilities of the university managers, the transactions that are permitted, and those that are prohibited. The guidelines mirror those the TVA requires its professional money managers to follow, with a bit of slack to provide the student managers more flexibility in managing the TVA's funds. All trades are executed through a broker specified by the TVA, and program and transactions are monitored by a trustee selected by the TVA. For reasons of compliance, the trustee monitors transactions and orders executed through the broker to ensure that the guidelines are followed and that there is an audit trail for the TVA to follow, if necessary. The TVA produces a monthly newsletter distributed to all the participating universities which contains a discussion of the recent historical performance

of the portfolios and provides a coded ranking of the individual participants performance for the current month and year-to-date. The annual monetary awards, given to universities that earn returns superior to their chosen index, are based on the spread between an individual portfolio's return for a calendar year and that of the benchmark followed by the participant. In establishing the program, each university agreed to and signed a management contract with the guidelines as part of the contractual obligation assumed by each participating university. Those who are permitted to execute trades are formally specified by the university managers (which are typically the faculty in charge of the individual programs), and only those individuals can execute trades through the broker.

The TVA left the specific management and course organization to each university to structure as they deem appropriate to their finance curricula. Program structures vary among the universities; most schools have formal courses, as we do, where students enroll for credit. Our course is an undergraduate level course usually taken by students in their senior year. Other universities only allow graduate students to manage their portfolio for credit, while others have used student organizations to manage the portfolio or have both undergraduate and graduate students manage their portfolios. We currently have students involved as an senior managers and mentors to our class who have been actively involved in the TVA program since enrolling in our undergraduate course. The student managers, after an introductory period to cover the client requirements, course requirements, review fundamental and technical analysis, make all the investment decisions for the portfolio. The course work also includes writing an economic forecast for the classes' management period, creating an investment policy statement the class will follow during the semester, analyzing individual sectors, and making final oral presentation before our advisory board composed of finance faculty and investment professionals. As part of the TVA's requirements, the funds are to be allocated among the ten S&P 500 sectors following the allocations specified in the S&P index. The class is divided into teams of two with each team responsible for managing and rebalancing stocks within their chosen sectors. In essence, each student and team becomes a sector analyst, security analyst, and portfolio manager for one semester.

ETHICS ISSUES IN PORTFOLIO MANAGEMENT

In addition to the students' responsibility to actively management our TVA portfolio to achieve superior returns to the S&P 500 Index, we cover topics in investment ethics and corporate governance. Our portfolio management course lends itself to coverage of material that has been emphasized by the AACSB ethics task force in regard to the emphasis on ethics and corporate government. Dobson (2008) discusses the levels of ethics integration into the finance curriculum. Our approach coincides with Dobson's first level of integration wherein the instructor makes students aware of the ethical dimensions of financial decision-making and that these are issues that deserve serious thought by the students. We agree with Dr. Dobson that the students are not programmed to act in certain ways, that behavior and decisions can be affected by thinking about the issues. Unlike higher levels of ethics integration, we strive to make students aware of the issues they will confront as professional portfolio and financial managers.

The specific issues that we address related to the work of our student managers are:

- Managers' fiduciary and prudent investor responsibilities to the client,
- Financial reporting, management of corporate earnings, and corporate accounting,
- Personal trading, churning, insider trading, and conflicts of interest for sell side analysts,
- Corporate governance issues such as executive compensation, roles of board of directors particularly related to the financial goal of stock price maximization,
- Sarbanes-Oxley Act (along with the recent Dodd-Franks regulation and SEC investigations) and implications for portfolio managers. This topic was specifically cited in the task force report as an important

area that should be covered in business courses [AACSB (2004)].

The following sections of the paper discuss the issues stated above as they are related to and/or presented in our portfolio management course along with resources that can be used as part of the coverage of corporate governance and ethics in portfolio management. We have included a bibliography of published resources related to the topics discussed in our paper as a reference source for faculty.

Role of Fiduciaries in Portfolio Management

One of the first topics covered in the portfolio management course is a discussion of the client guidelines set by the TVA to be followed by the student-managers. There are two main purposes in this discussion. The first, and obvious one, is that the managers' actions are constrained by the guidelines established by the TVA. All of the funds managed by professional money managers hired by the TVA are required to follow a strict set of investment rules; the TVA runs the program to simulate, as closely as possible, the environment in which their hired managers must work. The second purpose is to emphasize the ethical and legal responsibilities of our student-managers. They are told that by enrolling in the course, they have been "hired" by the TVA to manage the portfolio in the best interest of the client and are responsible for prudently managing the funds while achieving the primary financial objective of the client, to earn returns that are greater than that of the S&P 500 Composite Index. There are approximately twelve, the most relevant are:

- Cash cannot exceed 5% of the current value of the portfolio,
- There must be at least 20 stocks in the portfolio to maintain adequate diversification,
- The funds are to be allocated following the sector weightings in the S&P index,
- At purchase, no single stock issue can exceed 5% of the value of the portfolio, and if, after purchase, the value of a stock position exceeds 8% of the portfolio value the position must be reduced to 8% or less (managers must rebalance the portfolio),
- No more than 35% of the portfolio can be in small capitalization stocks (with market caps below $1 billion),
- The minimum market cap at purchase is $250 million,
- Stocks of foreign companies (traded on U.S. exchanges) can comprise 15% of the portfolio value,
- The managers cannot short sell, trade options, nor are they allowed to buy stocks on margin.

One of the first lessons to be learned by the students is that they must manage the client's portfolio as specified, even though the managers would prefer to do otherwise. Duska (2006) describes six rules to prevent ethical collapses that apply to our student managers as they perform their duties.

- Constrain self-interest.
- Don't be greedy.
- Keep worthwhile goals in mind.
- Avoid hubris.
- Don't misplace loyalty.
- Be professional.

The students are taught that even though they would enjoy trading options, short selling in declining markets, or to sell much of the portfolio and invest in cash during corrections or bear markets, it is their professional duty to abide by the guidelines which prohibit these activities. In essence, our students are taught to practice the six rules advocated by Duska. As Duska (2006) states, even Adam Smith felt that individuals may pursue their self interest as long as the actions do not violate standards of justice (ethical behavior). There are limits to the pursuit of profit which are not only laws governing actions for the benefit of society, but also ethical standards that an individual should follow.

The TVA monitors university manager adherence to the guidelines, particularly the limited amount of cash allowed, limiting the exposure to individual stocks, adequate diversification, and emphasis on large cap stocks. Violations of the guidelines, particularly the investment in cash, rebalancing the portfolio, diversification, and minimum market cap, are monitored by the TVA; and any offending university will be notified with instructions to correct the violation immediately. Unlike the TVA's professional managers, our student-managers will not be fired. However, a university that violates the guidelines may be prohibited from receiving an award for beating the index or may be suspended from the program. From our experience we have found that our students take their fiduciary responsibilities seriously and follow the guidelines. Our students have consistently acted professionally and in the best interests of their client in spite of the temptation of managing the portfolio to earn financial awards given by the TVA to the universities for beating the SP& 500 Index and the ego-boosting personal recognition in the news media for leading the competitive rankings in the Investment Challenge program.

Financial Reporting, Managing Earnings, and Corporate Accounting

Jennings (2005) describes the corporate accounting, security analyst, and investment banking abuses that occurred in the 1990's stock market in detail. One of the first assignments given in our course is for the managers to conduct an analysis of each company whose stock is contained in the portfolio. This includes the usual review of financial statements with emphasis on the cash flow statement, evaluation of the financial ratios, evaluating footnotes to statements, and estimates of the stocks' intrinsic value. The students are also required to compare and contrast the annual report with the SEC filings, particularly the most recent 10Q statements and 10K statements, for possible anomalies. That is, each manager is responsible for conducting due diligence into the quality of the management, evaluation of the risks of the business, and any current or potential legal liabilities the firm may have. The students are specifically instructed to review the SEC filings for possible government investigations, lawsuits, and changes in the nature of the firm's business and industry that might adversely affect the fundamentals of the companies in the portfolio. As an example, in the late 1990's students discovered that one of our companies had significant legal liabilities sufficient to question the quality of management and the ability of the firm to survive. The firm was a subprime lender whose stock was purchased the previous semester which had numerous lawsuits pending by customers and SEC investigations. Within a few months the firm filed for bankruptcy protection and was subsequently liquidated. Our managers decided several months before the company entered bankruptcy to sell the stock. This action was a lesson in legal compliance.

Our student-managers also learn to examine financial statements to help detect whether companies are manipulating their financial statements to create the image of a well-functioning and profitable organization (that is, window dressing). Shillit and Perler (2010) provides an extensive coverage of the potential abuses companies have engaged in and an investor should look for in performing his or her due diligence in evaluating stocks. It is the professional responsibility of our student-managers to perform adequate checks on financial statements to evaluate the quality of the earnings. The managers should not assume that because the statements appear publicly that companies are completely forthright in their accounting for assets and liabilities. Emphasis is placed on reading the SEC filings rather than just the annual reports, evaluating the information in the footnotes to the financial statements for activities hidden from the statements, and checking the balance sheet and income statement for traces of abuse. Students are also taught that the cash flow statements are subject to manipulation, and to evaluate the accounts within the cash flow statements for signs of manipulation to enhance corporate cash flow (Kim and Nofsinger [2007] provide insight into the auditing function and manipulation of statements with examples of Enron and Rite Aid accounting abuses). Each manager needs to determine whether a stock is worth buying if there are signs of financial statement "management"; that is, would they want to own stock in such a company even if it is a "good stock" that has a recent history or potential to out-perform the market and earn a high return for the portfolio? In these cases, our students will have to apply their own ethical standards to the investment decision. In a couple of cases, we have

had students who recommended sales of stocks of companies that have had significant legal liabilities. In one situation, a student recommended to the class that a stock should be sold because he did not approve the marketing strategy of the firm. He had convinced his fellow managers to sell the stock because of the firm's tactics even though the return would have been above average at least. This action also brings up a difficult-to-resolve issue: should a manager exert influence on the decision to purchase or sell stocks based on his or her ethical preferences even though the client does not state any preference about socially responsible investing? For our students, there may be times when one of their colleagues wants to sell a stock because one of the managers did not care for the way the company marketed its products even though the client did not impose any such constraints on investing and the group may not dislike the actions of the company.

Personal Trading and Insider Trading

Boatright (1999) discusses the ethical aspects of personal trading by professional managers, that they "wear two hats": they are hired to manage the funds of a client and they can trade for their own account. Students need to recognize that, as professionals, their personal trading has the potential for abuse and that effort should be made to prevent a conflict of interest. Our students maintain watch lists of stocks for the portfolio, and those with the resources to have trading accounts will invest in stocks they deem valuable. If they are willing to devote their money to particular stocks, they might feel the stocks are worthwhile for the TVA portfolio. However, they need to be aware that as a practicing money manager, there is a fine line between "eating one's own cooking" and promoting a stock in which the manager has a personal financial stake. The manager may profit from the purchase; however, it might turn out that the client does not profit as much or might suffer a loss depending on the price paid. The students are made aware of the SEC conflict of interest rules regarding the public promotion of stocks purchased personally or as part of a fund run by a money manager. This is illustrated by examples of mutual fund managers, during the 1990s, who were investigated by the SEC for promoting the purchase of stocks on television that were in their portfolios. More recently the students have been exposed to the Berkshire Hathaway story regarding David Sokol stock purchase and recommendation. The events related to Warren Buffett's handling of the affair lead to much discussion about the nature of Mr. Sokol's actions, Mr. Buffett's public actions, statements and ethical standards, and the possible conflict of interest in recommending a stock when a manager has a personal financial stake in the corporation. The Sokol affair was an excellent and timely example of alleged violation of corporate ethical standards and public reaction to the events.

One factor our students usually consider in making their investment decisions is the amount of insider trading (most often, insider buying) that occurs on a specific stock. Active insider buying can be taken as an indicator of whether a stock, with good fundamentals, is worth buying. However, active insider trading may also be a warning sign if insiders are selling while the stock price is rising substantially or if the stock is being promoted by investment firms or the company executives. Using Enron and security analyst cases of the 1990's (Jennings 2005) can illustrate the abuses that have occurred and the need to be vigilant in looking at the actions of management and investment houses for stocks with rapidly rising prices. The Jennings article also points out the conflicts of interest between security analysts and the investment banking activities of Wall Street firms (Jennings 2005) and the need to be skeptical about the recommendations made by security analysts, particularly the sell side analysts working for firms with investment banking operations. In our class, we point out the differences in recommendations made by specific analysts and the mean recommendations that appear on financial web sites. The mean recommendations or distribution of recommendations found on web sites may be more objective than that of an analyst on a web site or one working for an investment house since these are aggregations of the opinions of all the analysts following a stock. Students are made aware of the possible inaccuracies and self-serving promotions that occur on discussion boards. The student-managers need to be highly skeptical of the information that exists on discussion boards, and that people promoting stocks for their own financial benefit may be disseminating misinformation to boost the price of stocks and not assume that the information is necessarily an accurate reflection of the quality of the company or the stock.

Corporate Governance Issues

Our course affords an opportunity to discuss corporate governance issues such as the role of directors, executive incentive programs, and corporate takeover theories. The intent is to make students aware of the moral hazard issues facing corporate financial managers, the urge to act in his or her best interest rather than that of the principal. As stated by Dobson (2008), this moral hazard issue is at the heart of the behavioral dilemma in finance. Even though the term may not be used, students should be made aware of the moral hazard (that is, agency problem) facing corporate executives and the impacts on stockholders (both positive and negative) caused by managers who make decisions in their best interests. As an example, several stocks held in our portfolio over the years have been subject to strategic takeovers or leveraged buyouts by private equity firms. Though our portfolio has been the beneficiary of such actions which have generated cash for reinvestment or stocks that have appreciated in price, the actions of the acquiring firms may have been taken for the benefit of the executives (receiving large compensation packages) or large stockholders (who receive large capital gains) rather than for the benefit of the greater number of public stockholders. These situations create an opportunity to discuss the ethical aspects of the decisions. Questions that we address in class are:

- Do publicly traded firms that actively acquire other companies produce high stock returns?
- Do mergers and acquisitions generally work to the benefit of public shareholders?

These issues have been discussed in empirical studies and are discussed by Kim and Nofsinger (2007). This topic affords the opportunity to discuss the effectiveness of mergers, the tactics used by acquiring firms, the impact on stock prices (especially in recent years with the high level of leverage buyouts that have reduced the supply of stocks), the impact of recent issues such as the subprime mortgage securities (involving ethical issues of lending to individuals who have limited resources to service their debt with variable mortgage rates) and liquidity problems due to credit markets freezing up. Worth discussing are the personal motivations and actions of firms, either as corporate acquirers or as private equity firms, in taking over another company. Student-managers should ask themselves: is a takeover of a company truly motivated by strategic reasons or by the ego of the executives involved? If the acquisition does not make sense for strategic reasons, the probability of success can be very low; and it may not be worthwhile to continue owning that stock.

Corporate Governance: Sarbanes-Oxley Act

In their accounting text, Kieso, Weygandt and Warfield (2005) stated that markets, free enterprise, and competition determine whether a business is to be successful and thrive. This fact coupled with market forces places substantial burden on the accounting profession to measure performance accurately and fairly on a timely basis, so that the managers and companies are able to attract investment capital. Brigham and Ehrhardt (2005) stated that management's primary objective should be stockholder wealth maximization. While financial managers are trying to maximize stockholder wealth and make a profit, does not a corporation also have a responsibility to society?

For the past two decades it seems that increasingly people are responding positively to the corporate social responsibility. This change in society's attitude has led to the growth of socially responsible investing. Shank, et. al. (2005) defines socially responsible investing as an investment in which investors choose only to invest in assets, funds or stocks that mimic their core values. These investors tend to only choose stocks or mutual funds of companies that are environmentally conscious, do not perform tests using animals, are not associated with alcohol, tobacco or gambling, assist low income families, and so forth.

Due to public pressure and governmental response the financial profession has come under great scrutiny as a result of corporate misdeeds in their financial reporting processes. Some of

the most notable negative corporate misdeeds in financial reporting and accounting practices are those of Enron, Tyco, Fannie Mae, Freddie Mac and Country Wide Financial.

Since these acts have come to light, several policies and regulations have been placed into effect to alleviate possible misrepresentation and fraud in the future. This puts a strain on the corporate leadership, but it is extremely beneficial to the company's stakeholders. Perhaps the most notable action taken as a result of these scandals was the passing of the Sarbanes-Oxley Act of 2002. Corporations as well as other business professionals, such as accountants, are held in strict compliance of this Act to make sure a debacle such as Enron does not happen again.

Sarbanes-Oxley (SOX) legislation was first introduced as a response to the declining investor confidence as a result of the high number of corporate and accounting scandals. The major thrust on the United States Congress began and on July 30, 2002, President George W. Bush (2002) signed into law the Sarbanes-Oxley Act. The Sarbanes-Oxley Act was sponsored by Senator Paul Sarbanes and Representative Mike Oxley of Maryland with the support of the Security and Exchange Commission (SEC).

SOX has eleven titles that encompass the Public Company Accounting Oversight Board (PCAOB), auditor independence, corporate responsibility, enhanced financial disclosures, analyst conflicts of interest, commission resources and authority, studies and reports, corporate and criminal fraud accountability, white-collar crime penalty enhancements, corporate tax returns, and corporate fraud and accountability. SOX impacted the financial disclosures of organizations that are classified as 'issuers' under the Securities Exchange Act of 1934. According to the Securities Exchange Act, issuers can be domestic public companies, foreign companies trading on any U.S. exchange, banking and savings associations, foreign private issuers, issuers of asset backed securities and small business issuers. Even though SOX primarily applies to issuers as defined by the securities laws, it also applies to private companies that may buy a public company or may become a public through initial public offerings (IPOs).

SOX Act now requires that independent auditors agree with the company's evaluation and disclose the corporate internal controls in relation to their financial reporting; whereas before the Act, an independent auditor had to agree only to the material representation of the financial reporting. Without specific guidelines to adhere by, the cost of this risk assessment for management could be quite significant. The PCAOB and the SEC issued guidance to help alleviate the cost.

The SOX Act is complex and imposes many requirements on business which are designed to address the crisis of confidence sparked by corporate scandals. The major provisions of the Sarbanes-Oxley Act are summarized in the following provisions (http://www.sec.gov/about/laws/soa2002.pdf):

- It establishes an independent board to oversee the audits of public companies.
- It prohibits accounting firms from providing other service, such as audit functions combined with consulting in order to avoid conflict of interest.
- It requires CEOs and CFOs to certify the truth on their companies' financial statements in writing.
- It requires executives to pay back any bonuses or profits from stock sales they received after a financial report was issued that later had to be restated
- It requires full disclosure to shareholders of complex financial transactions
- It requires that at least one member on the audit committee be a financial expert.

The last two decades have brought governmental rules that have fostered changes in the way accounting firms report corporations' financial statements, how brokerage companies report their trading activities, and how traders participate in the market. Controls have been, and continue to be, put in place to curb and monitor ethical behavior. The study of the SOX Act enhances our students' understanding of the ethical and legal compliance issues relating to financial transactions.

SUMMARY

Ethics consists of standards of conduct or moral judgments. High standards of ethical conduct require that each corporate stakeholder deal and be dealt with in an honest and fair manner. The purpose of this paper is to discuss how various ethical and corporate governance issues have been incorporated into a course in portfolio management. The primary emphasis in the portfolio management course at our university is to actively manage the equity portfolio for the Tennessee Valley Authority following the guidelines established by the TVA. The course affords opportunities to discuss ethics and governance issues that relate directly to the decisions and actions that the student-managers make in the course or are related to the professional activities that they will confront as professionals in finance. The issues are not merely classroom topics discussed in the abstract, but are ones that the students will face and will have to resolve.

Our hands-on investment course provides our students the opportunity to encounter and act upon real ethical situations. It is of great lasting benefit to corporate success to apply ethical decisions as we propose in our investment course rather than just teaching ethics.

We may think that in our new global information age, everyone should have access to all information and be able to use it to make rational financial decisions. With the amount of information available, market participants are tempted to rely on company provided information rather than conducting their own due diligence and evaluating the information on their own. Until market players are willing to do their homework, to think for themselves, and to spend the time it takes to dig through the available information, professional analysts and money managers will continue to fall prey to information asymmetry. The number of CEOs and CFOs taking a hard look at what they are doing has increased dramatically since the implementation of Sarbanes-Oxley. Corporations should go beyond rules and mandated regulatory compliance to insure the adherence of its employees to ethical behavior as way of life. Corporate ethical behavior and compliance cannot be outsourced; they have to be nourished as part of the corporate culture.

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Effects of Tablet PC Use in the Classroom on Teaching and Learning Processes

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ABSTRACT

This study compares the use of a Tablet PC, one of the most recently introduced presentation technologies, with the use of an earlier generation of presentation technologies (e.g. overhead projectors, blackboards, PowerPointTM) that are an integral part of a traditional classroom learning environment. Presentation technologies are used to facilitate instruction and learning by performing three major pedagogical functions: (1) demonstrating the process of problem solving; (2) providing visual aids; and (3) keeping a record of instructional content. Tablet PC use appears to support these three functions to a greater extent than traditional approaches. Moreover, the Tablet PC approach appears to accommodate multiple learning styles and facilitates a higher level of interactive learning if properly used. Tips for effective use of Tablet PCs in the classroom are discussed.

INTRODUCTION

Presentation technologies (e.g., blackboards, overhead projectors, MS PowerPoint) are an integral part of a traditional classroom learning environment. They are used to facilitate instruction and support multiple learning styles by performing three major pedagogical functions: demonstrating the process of problem solving, providing visual aids; and keeping a record of instructional content. By writing problem solving steps on a blackboard while explaining orally, instructors demonstrate the process of problem solving. By displaying drawings, writings, pictures, maps, or slide shows, instructors provide visual aids for students to examine. By maintaining a repository of all materials used in the class (e.g., drawings, writings, pictures, maps, slides) instructors keep a record of instructional content which can be distributed to students and reused in future classes.

Over the past few decades, presentation technologies have evolved to more fully support these three pedagogical functions. A century ago, the only technology available in the classroom was the blackboard (the term blackboard is used herein to refer to both blackboards and whiteboards). Blackboards are an effective tool for demonstrating problem solving, but provide only limited visual aids and do not support record keeping. Students are forced to take detailed notes if they want to keep a record of lecture content. In the early 1900s, film projection was introduced to the classroom followed mid-century by the use of 35mm slides. While both film media are effective visual aids, they provide limited opportunity for an instructor to use them interactively in order to demonstrate a problem solving processes. In addition, there are both practical and legal limitations to the reproduction and distribution of film for study outside of the classroom.

Opaque projectors and overhead projectors were introduced into classrooms later on. More recently, the digital document camera has largely supplanted the opaque projector for the display of nontransparent materials such as book pages, maps and artworks. These document projection technologies are more adaptable than either blackboards, film or slides in that they readily support all three pedagogical functions. For example, instructors can demonstrate a problem solving process by writing on overhead transparencies or on documents that are projected by a document camera. Transparencies and annotated documents can provide more detailed and accurate visual aids than free hand drawing or writing on a blackboard since they can be copied from textbooks or other printed materials. Overhead transparencies and annotated documents can be saved, copied for distribution to students, and reused in future classes.

In recent decades, the use of desktop computers to display digital documents, such as Microsoft PowerPoint (PPT) slides, has become commonplace in the classroom. PPT documents are easy to prepare and instructors can insert a variety of teaching materials into their PPT presentations: for example, a piece of music, a video clip, a graphic, or an Internet hyperlink. Through the use of multi-color and multi-media capabilities, PPT is generally a more effective visual aid than other traditional presentation technologies. Moreover, PPT slides can be posted online so that students can print the slides beforehand then bring the pages to class to take notes on. PPT, however, is not an effective tool to demonstrate a detailed problem solving process since it does not support real time freehand writing. Instructors who need to demonstrate a problem solving process still rely primarily on technologies such as blackboards or overhead transparencies.

Recently, the Tablet PC has emerged as a promising technology for classroom use. A Tablet PC is a laptop computer that is manipulated with a stylus pen using natural handwriting and screen touches directly on the display. All writings and drawings produced on a Tablet PC can be saved in digital files. With appropriate software, the Tablet PC appears to support all three pedagogical functions supported by traditional presentation technologies. As with blackboards and overhead transparencies, it allows an instructor to demonstrate a problem solving processes in real time using free hand writing. It provides effective visual aid by supporting display formats such as PPT slides and digital video. Finally, it allows the instructor to save all lecture materials in digital files for future use.

Perhaps due to its versatility in providing built-in support for multiple functions, the Tablet PC is increasingly being adopted by instructors in North American universities. Is this new technology simply a fad, or does it truly represent the future of classroom presentation technology? How does this new presentation technology support learning from a theoretical point of view and how does it affect teaching and the learning process when actually used in the classroom?

This study is intended to provide insight into pedagogical principles that may be fundamental to any computer-assisted teaching practice and suggestions to help instructors make more effective use of the Tablet PC or adopt the Tablet PC with less difficulty. The study first reviews the theoretical background for technology supported learning then presents a case study in which we examine teaching and learning experiences drawn from the use of Tablet PCs in the classroom.

The paper is organized as follows: Section 2 discusses the use of Tablet PCs in typical classroom environments and presents prior research on Tablet PCs; Section 3 describes the theoretical framework for the study; Section 4 introduces the research methodology; Section 5 presents the findings of the study; and Section 6 discusses these findings, their limitations, and directions for future research.

USING THE TABLET PC: BACKGROUND AND PRIOR RESEARCH

There are two primary ways that Tablet PCs are used in the classroom; (1) an interactive mode, and (2) a non-interactive mode. In interactive mode, the instructor and each student are equipped with individual Tablet PCs which are connected to a wireless local area network (WLAN) which supports real-time interaction and communication between instructor and students. Whatever is written on the instructor's Tablet PC can be displayed on all students' screens simultaneously, thereby allowing students to annotate the instructors' notes, pose written questions, solve problems and submit answers, all in real-time. In non-interactive mode, only the instructor is equipped with a Tablet PC. In this scenario, the Tablet PC operates as a sophisticated presentation technology that supports the three pedagogical functions previously described but without real-time, network-supported interactivity. Because the interactive mode requires a much higher investment in technology and due to the complex issues surrounding networked interaction of the Tablet PCs, non-interactive use is far more prevalent in today's classroom. Therefore, this is the modality that we have chosen to investigate.

For non-interactive use, an instructor may prepare PPT slides or a Microsoft Word document to support a lecture. During lecture, the instructor opens the prepared document and projects it onto a large screen in front of the classroom. The instructor may explain problems orally, use a stylus pen to work out a problem, or manipulate the thickness and color of the pen to highlight key information. Mistakes made on the Tablet PC in digital ink are easily corrected. If the instructor needs to display a formula, diagram, or table from another digital document such as a Microsoft Excel workbook or an Internet webpage, he opens the document, uses the stylus pen to circle the section of interest and then copies and pastes the selection directly into the original document prepared for the lecture. By doing this, all information related to solving a problem or pertaining to a particular topic is maintained in a single document. All drawings, scripts, and imported content can then be saved by using an application such as Microsoft's Journal.

Another software package called Classroom Presenter allows for writing over or highlighting PPT slides and then saving the document with the annotations. Other applications such as Silicon Chalk record the process of drawing and writing on the screen and simultaneously capture the instructor's voice. When Silicon Chalk is used, two files are produced at the end of the class: the class notes in PDF document format and a digital video recording in MPEG format. These files can be posted online after the class for self-directed study and exam review. Figure 1 shows a convertible Tablet PC which allows the instructor to write directly on the display in the same manner that an overhead might be used. Figure 2 shows an example of handwritten notes recorded during a lecture.

Figure 1
Tablet PC used in Tablet Mode

Figure 2
Example of Handwritten Notes

As discussed earlier, the Tablet PC supports the three pedagogical functions of presentation technology: to demonstrate a problem solving process, to provide visual aids, and to keep a record of instructional content. Using multiple presentation technologies at the same time can address these same functions; however, the extent to which they are supported is significantly different. There are three major differences between the use of a Tablet PC and the combined-use of traditional presentation technologies. First, the Tablet PC allows the instructor to place all digital information pertaining to a particular topic or problem into a single document by simple cutting and pasting. Second, the Tablet PC not only saves class instruction (class notes) but also records the detailed instructional process including handwriting and synchronized voice. These recordings can be played anytime, anywhere, either in full or in student selected excerpts. Third, everything saved by the Tablet PC is digitized and can thus be easily edited, archived, distributed, retrieved, and reused.

As Tablet PC use has increased, research on its use for teaching and learning has gained considerable interest. Anderson and his colleagues (Anderson, Hoyer et al. 2004, Anderson, Anderson, Simon et al. 2004) have investigated use of the Tablet PC for lectures in Computer Sciences classes. Their studies, however, adopt a design science or an engineering perspective rather than a behavioral science or user's perspective. For instance, they investigated usage patterns for digital ink by classifying electronic writing into three categories: textual ink (written text), attentional ink (stroke for emphasis), and diagrammatic ink (drawings or diagrams). In other studies they attempted to develop tools for automated recognition of digital ink (Anderson, Anderson, Hoyer et al. 2004) and explored the use of speech recognition techniques for interpretation of digital ink (Anderson, Hoyer et al. 2004). Simon and his colleagues (Simon et al., 2004) also investigated the impact of using a Tablet PC and digital note taking from the users' perspective but their study concerned Tablet PC use in fully interactive mode in which instructors as well as students were equipped with Tablet PCs. Also, their study did not focus on investigating the effects of using the Tablet PC as a presentation technology. Arnett et al. (2005) investigated how students used a Tablet PC and digital ink to produce diagrams for class projects in Management Information Systems courses. However, they failed to study the instructor's use and the potential impacts of using the Tablet PC as a presentation technology. Blatz and Britton (2005) described their experiences in using Tablet PCs for their own teaching. However, they did not carry out a systematic study to capture their students' perception of the classroom use of the technology.

The current study departs from prior Tablet PC research in that this study investigates how Tablet PC use in the classroom affects learning in comparison with traditional presentation technologies. Furthermore, this investigation is guided by pertinent learning theory. We first develop a theoretical framework and then use that framework to guide our examination and evaluation of how various presentation technologies, and especially the Tablet PC, facilitate instruction and learning.

THEORETICAL FRAMEWORK AND RESEARCH QUESTIONS

Instruction can be viewed as a systematic process that consists of four interrelated components: learner, learning objective, instructional materials, and learning environment (Roblyer, 1997; Dick and Carey, 1996). Learning objectives and attributes of the learner (e.g., age, learning ability, learning history) largely influence the selection of learning materials and environment (Dick and Carey 1996, Heinich et al., 1996, Crews, 2004, p.19), which in turn contribute to achievement of the learning objective.

Since learning objectives and instructional materials are domain specific, we will not focus on these components. The learning environment includes instructional methods (i.e., procedures of instruction) and instructional media (e.g., texts, computers, etc.) (Heinich et al., 1996, Crews, 2004, p.19). This paper investigates how presentation technology, a type of instructional media, affects learning. Presentation technology, however, cannot be meaningfully examined in isolation from its interaction with the learner. While there are a variety of learning theories that address the interaction between learner and learning environment, we focus only on theory that we believe is most pertinent to our study. We discuss cognitive effort and active participation from the learner's perspective, and discuss multisensory learning, immediate feedback, and interactive learning from the perspective of the presentation technology.

The process of learning can be viewed as construction of a mental model or schema, which may change or evolve as new information is encountered and integrated into it (Rumelhart, 1980; Glaser, 1991; Crews, 2004, p.21). The learner applies cognitive effort to construct a schema, make sense of new information, filter it, and integrate it with his/her existing knowledge (Rumelhart and Norman, 1978; Sweller, 1999; Hashway, 1998 p.55; Crews, 2004 p.21).

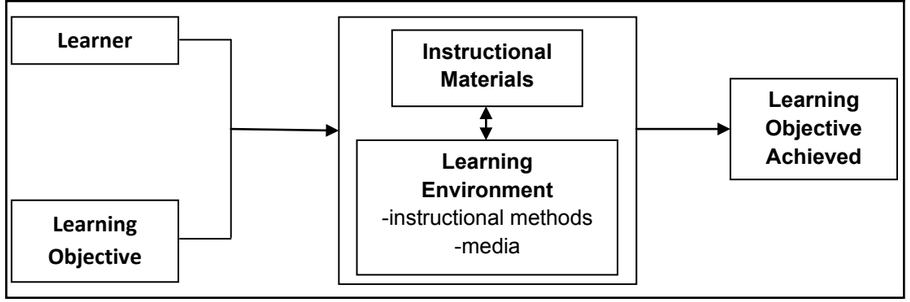
All persons have limited cognitive resources, one of which is working memory. Every mental task that an individual performs requires the use of some portion of working memory. The term cognitive effort refers to the active utilization of working memory to process a mental task, whereas cognitive load refers to the demand placed on the working memory (Crews, 2004 p.21). There are two types of cognitive load: intrinsic and extrinsic. Intrinsic cognitive load is the effort or demand inherent in the learning task itself while extrinsic cognitive load is the demand originating from outside sources that does not contribute to achievement of the learning objective (Crews, 2004 p.21). One common type of extrinsic cognitive load is distraction. Therefore the total cognitive load for a particular task includes both cognitive effort, distraction and other types of cognitive load. Reducing extrinsic cognitive load, i.e. distraction, decreases the demand on working memory thus freeing those memory resources for support of the learning process. Increasing distraction levels, on the other hand, increases demand for working memory and thereby impedes learning (Crews, 2004 p.21).

By putting forth cognitive effort, the learner actively participates in the learning process. However, active participation refers not only to the learner's cognitive engagement but also to the learner's physical engagement (Piaget 1980). Examples of physical engagement are note taking and performing physical experiments requiring use of the hands.

The central premise of multi-sensory learning is that human beings learn through their sensory perceptions (James and Galbraith, 1985). Three primary perceptual modalities are used for learning: visual (learning by seeing), aural (learning by hearing), and kinesthetic (learning by doing) (Wislock, 1993; Crews, 2004 p.22). Although an individual learner may prefer a particular perceptual modality for her primary learning channel, the engagement of multiple perceptual modalities is thought to encourage the development of reliable mental models (Crews, 2004, p.22). A student might learn by first watching a video clip, then observing an instructor demonstrate a problem solving process while listening to the instructor's oral explanation, and afterwards solving a similar problem or performing a related exercise.

A learner uses different senses (e.g., seeing, listening) to perceive the world, and engages cognitive effort to construct mental models or schemas to

FIGURE 3
INSTRUCTIONAL SYSTEM (FROM CREWS 2004, P.19)



represent the received perceptions. These models may either be reinforced or may require adjustment upon receipt of new information. Timely feedback plays an important role in the learner's process of evaluating and adjusting a mental model in sufficient time such that new information can be most readily assimilated (Guskey, 1997; Marakas, 1995, Anderson, Spiro and Montague, 1977).

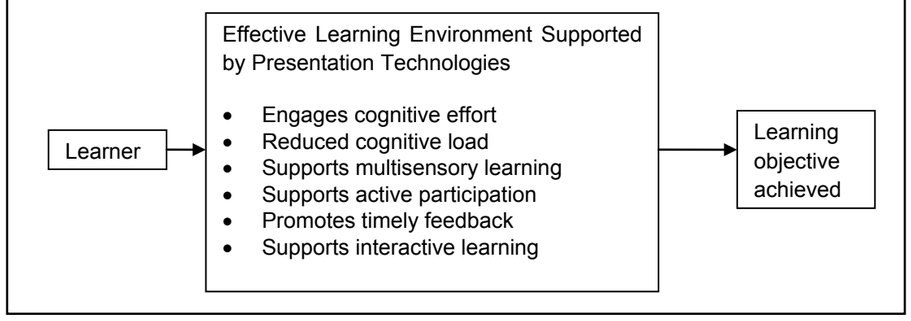
Another concept that pertains to the learning environment is interactive learning which refers to the interaction between the learner and instructor, between the learner and technology, and among learners. Interactive learning provides immediate feedback which helps students focus their attention on the learning task (Crews 2004, p.31), contributes to deeper information processing, and reinforces newly minted mental models.

A learning environment with its associated presentation technology should have a positive impact on learning through support of one or more learning principles. Figure 4 portrays a theoretical framework that incorporates the learning principles described above. This framework guides the analysis of the case study presented in this paper.

In classrooms supported by Tablet PC and where the students are told in advance that a complete record of instruction will be available after class, we expect that the availability of the class record should reduce the distraction or anxiety inherent in note taking thus allowing students to focus their cognitive resources on the learning task. In addition, students will be able to pay more attention to the lecturer and will have additional cognitive resources with which to process information, pose questions, and receive appropriate feedback from the instructor. There should also be increased levels of interaction between the instructor and students. After class, if students need to review particular portions of the instruction, they not only have the class notes, but they can also play the video of all or only a part of the lecture session. Archival video provides an additional multisensory learning opportunity for students who can see the writings or drawings and can listen to the instructor's synchronized voice for explanation. Moreover, since the instructor can store all information for a particular topic in a single document, students do not have to search for information in multiple sources (e.g., the textbook or the Web).

In summary, we speculate that the Tablet PC will, to varying degrees, support all of the learning principles discussed above. However, will we observe that support in actual use? How will instructors and students evaluate the efficacy of a class in which the instructor uses a Tablet PC as the primary presentation technology? We address these questions by investigating two classes in which the instructor used a Tablet PC.

Figure 4
An Effective Learning Environment
Supported by Presentation Technologies



RESEARCH METHODOLOGY AND PROCESSES

A case study approach was used for this investigation. One reason for this choice is that case study research allows researchers to gain an in-depth understanding of the phenomena of interest in the rich context where it manifests (Yin, 1984). A second reason is that there is little research concerning the Tablet PC's impact on learning and a case study approach is appropriate for gaining initial insights into a phenomenon of interest (Yin, 1984).

Two university classes in Civil Engineering were studied. Class A was a Geotechnical Design course, and Class B was a Solid Mechanics course. Both courses contained significant mathematical and design-based problem solving content. As such, much of the material presented to students during lecture consisted of detailed calculations and diagrams used to demonstrate the concepts being studied. There were 35 and 87 students respectively in the two classes.

Data were collected from instructors and students through observation, survey, and semi-structured interviews. Interviews were taped and transcribed for content analysis. In addition to interviews, both classes were directly observed by one author to examine how instructors used the Tablet PC during lecture. At the end of the semester, students in the two classes completed a voluntary survey on their perception of the course. A small random sample of students was also selected for interviews. Two of these students did not attend their interview session due to schedule conflicts. Eight of the interviewees were from Class A, six were from Class B, and one student was enrolled in both classes. Each interviewee was paid a nominal fee for participating in the interview which generally lasted from 10 to 20 minutes. While the survey was used to gain an overall picture of how students evaluated the classes, the interviews were used to reveal the possible rationale behind the evaluations provided.

Typically, the Civil Engineering instructors used applications such as Microsoft Word to prepare documents in advance of their lectures and both used Microsoft Journal in the classroom. In addition, Instructor A used Silicon Chalk, the software for recording voice. Instructor A posted PDF and digital video files on a website after each class. Instructor B posted a lecture outline and a set of questions with blank spaces in advance of class so that students could print the document and take notes by filling in the answer blanks during lecture. Instructor B, however, did not post his lecture notes following class since he was afraid that students might be discouraged from attending the lecture if notes were readily available.

FINDINGS

The following findings have been summarized from the classroom observations, student surveys, and student and faculty interviews. Students' evaluation of the Tablet PC teaching approach is summarized in regards to the three major pedagogical functions.

Students' Perception of Using Tablet PC

A simple survey was employed to assess students' general perception of Tablet PC use. A 7-point Likert-style scale was used for six non-demographic questionnaire items with 1 indicating strongly disagree, and 7 indicating strongly agree. Overall, students were moderately satisfied with the way in which the instructor used the Tablet PC (Class A: $\overline{X}$= 5.96, σ= 0.24; Class B: $\overline{X}$= 5.32, σ= 0.21); they would recommend other instructors use the Tablet PC in classes (Class A: $\overline{X}$ = 5.59, σ= 0.27; Class B: $\overline{X}$ =5.05, σ = 0.21); and they slightly agreed that the classes with the Tablet PC had apparent advantages over other classes without it (Class A: $\overline{X}$ = 5.07, σ= 0.32; Class B: $\overline{X}$ = 4.42, σ = 0.21). Interviews with students identified what learning principles may underlie the three major functionalities of the Tablet PC and how they affected students' learning process.

Support for demonstration of a problem solving process

As with blackboards and overheads, the Tablet PC allows instructors to demonstrate the process of solving a problem. During interviews, several students compared the Tablet PC with PPT. Students preferred the Tablet PC approach over PPT and they commented that since PPT did

not allow "write as you go", the instructor tended to read the PPT slides too fast, perhaps due to the fact that everything on slides had been prepared in advance. Students also stated that when the instructor used the Tablet PC, the motion inherent in the act of writing was likely to keep their attention on the topic and to slow down the instructor's explanation so that they had time to think about the subject matter.

> (Interviewee_ClassB): *PowerPoint is terrific if …you want to instill an overall impression on somebody... But, if you want to dissect, …an engineering problem or a scientific problem, step by step is really the only way to go*

> (Interviewee_ClassB): *I feel like I'm not [paying much] attention to it (PPT) because like there's nothing in motion.*

More importantly, the "write as you go" feature allows students to receive information using two senses: they see how the instructor solves the problem and listen to the oral explanations of the process. Several student interviewees also pointed out that other presentation technologies such as blackboards and overhead projectors also support "write as you go" and that the Tablet PC performed essentially the same function.

Support for presentation of visual aids

The students we interviewed judged the Tablet PC to be a more effective visual aid than other presentation technologies. The Tablet PC allowed instructors to copy and paste all the information pertaining to a problem or topic into a single document (e.g., formulae, tables, diagrams, graphics). Students identified three benefits associated with this copying and pasting: 1) instructors could cover more topics or spend more time explaining a topic when using the Tablet PC rather than other technologies because they did not have to spend time redrawing diagrams or rewriting questions; 2) the copied diagrams and graphics tended to be more accurate and contain greater detail than ones that might be drawn free hand in real time; and 3) the students did not have to reference multiple documents to review all related information after class.

> (Interviewee_ClassA): *If we need any tables or charts he'll (the instructor) go into the actual text notes that are on the net, he'll copy and paste a table or figure into his written notes. This way you have it right there and you don't have to flip back into the textbook…*

> (Interviewee_ClassA): *So it* (having the pictures inserted into the Tablet PC document) *saves more time then we can learn more.*

Students also mentioned that the Tablet PC documents made it easier to follow the lecture, because: 1) the instructor could use different colors to emphasize important processes or calculations; 2) the Tablet PC produced a document that was very clean and without smudges; 3) everyone in the classroom had a good view of the Tablet PC projection because the position of the projector screen was elevated (in contrast, students sitting at the back of the classroom could not easily see writing at the bottom of the blackboard); and 4) the size of the instructors handwriting was more consistent when the instructor used the Tablet PC since Microsoft Journal provides faint lines or rules on the document such as those found on notebook paper.

Student comments suggest that the Tablet PC provided more accurate visual aids, more information about a particular topic, and better organization of the information than other approaches. Its use may have increased students' learning by reducing their cognitive load.

Support for maintaining a permanent record of the lectures

The Tablet PC has the potential to provide a permanent record of lecture output (notes) as well as the lecture process itself (the writing or presentation process with synchronized voice). Students who thought that the Tablet PC approach was similar to the use of overhead projectors or blackboards agreed that saving the class notes was an advantage. Even the interviewees from class B, in which the instructor usually did not post the class notes, indicated that saving the document was a distinct advantage. In fact, only one out of

15 student interviewees failed to state that keeping a record of lectures was a benefit. As predicted, the advantage of having a PDF file and Silicon Chalk video file posted after class was evident. Students who preferred not to take notes could simply focus on listening intently rather than being preoccupied with note taking. Students who still preferred to take notes also indicated that they could pay more attention to the lectures because they did not have to worry about taking down every detail or possibly making mistakes. Three of eight student interviewees from Class A stated that Tablet PC use resulted in the class becoming more interactive and more discussion-oriented.

> (Interviewee_ClassA): *It is hard to listen and write at the same time.*

> (Interviewee_ClassA): *It just makes it a lot easier to have a complete set of notes for studying.*

> (Interviewee_ClassA): *You don't have to waste any time in class writing notes. You can actually sit and listen and pay attention…If I have any questions or any uncertainties, I'll pick them out better by paying attention in class rather than writing notes…*

> *…Tablet PC definitely makes it more interactive, the class. … Everyone was just in tune to what the prof (professor) was saying because they knew they could download it afterwards and then of course it almost became like a discussion class all the time.*

Playing Silicon Chalk files helped students review the lectures after class. Three out of eight interviewees from Class A indicated that they played a class video file five or six times during the term. Sometimes they played the entire video while at other times they only played those parts about which they had questions. One student who had not yet played any of the video indicated that he would do so for the final exam. Four students reported that playing video files was too time consuming or that they had not taken time to install the software required to play the files on their home computer. Yet another student, who reported having not missed any classes, felt that simply reviewing the PDF files was sufficient. All students liked the convenience, flexibility, and accessibility of downloading the class notes and printing them. Among the eight interviewees from class A, four interviewees reported taking complete notes in class, two occasionally took notes, and two did not take any notes at all. Instructor A reported that students often sent him email to remind him to post the notes if he failed to do so immediately following the class. The class B instructor did not post notes after each class, students state that they would have preferred to have had the notes posted for two reasons: 1) they could print the class notes from the web if they missed the class; and 2) they could compare their own notes with the instructors' to identify missing information or mistakes.

The students we interviewed indicated that the greatest advantage of using the Tablet PC derived from its ability to provide a full record of lecture content. Because students do not have to take notes, or worry about missing anything important or making a mistake while note taking, they are able to pay greater attention to the class content, ask questions more frequently, and find the classroom to be more interactive. Moreover, the full record of the class lecture allows students who miss a class to study the content at a later time without incurring a significant learning penalty. It also allows for self-paced learning when students review for exams.

When asked to describe the disadvantages of using a Tablet PC, all students interviewed suggested one particular drawback: that students might not make a concerted effort to come to class if the full notes were posted after class. One out of the 15 student we interviewed indicated that he would personally skip class if class notes were posted. However, all other interviewees indicated that they would still come to the class regularly because the instructor might not write everything down. These accounts suggest that, although class attendance may be a concern, it is not likely to be a major concern. In fact, Instructor A, who posted class notes, reported that attendance had not been an issue.

Students reported that instructors should pay attention to the mechanics of using the Tablet PC in order to make it a more effective tool for

classroom. In particular: 1) instructors should be careful not to scroll the screen up or down too fast, an action that makes following the text impossible; 2) instructors should be skilled at using the Tablet PC and its related software in order to avoid dead spots in their delivery; 3) instructors' handwriting should be precise enough for students to read easily (although, according to our interviewees, this had not been a major problem); and 4) instructors need to choose a pen color that is easy to read (for example, yellow was reported to be a particularly poor choice).

Instructors' perceptions of using the Tablet PC

Instructor insights into Tablet PC use were gathered through interviews and provide additional insights. Instructor A was a novice teacher who did not have extensive experience using alternative presentation methods (overheads, blackboards, PPT) in his teaching. He was, however, comfortable with using the Tablet PC and identified three major advantages of its use: 1) since the class notes were posted after class, students had the option to take class notes or not; 2) students could play the digital video file following his lectures to review the class session; and 3) the instructor could also play the digital video file to identify opportunities to improve his teaching.

Instructor B was an experienced teacher. He indicated that his class involved a lot of calculations and that PPT was "not good for classes with a lot of calculations". He preferred to use blackboards over the Tablet PC since blackboard use encouraged note taking. The blackboard in his classroom was large enough so that he could use one side of the board first, and then use the other side. This ensured that he did not have to erase the board too frequently, thus giving students time to copy notes while he lectured. In contrast, when he used the Tablet PC, he had to scroll down to a new page when the current page was full. When he scrolled down, the program often jumped to an empty new page and class notes on the previous pages were no longer displayed. It required considerable practice for him to make the transition between pages smooth enough so that students were able to copy all the written content from the previous page before it scrolled off the display. Instructor B reported two advantages for using the Tablet PC: 1) the instructor can cover more content since there is no need to redraw diagrams or copy problems onto the blackboard; and 2) the instructor does not get his hands dirty.

Both instructors indicated that writing on the Tablet PC was more difficult than writing on a blackboard due to a lack of frictional resistance and Instructor B emphasized that instructors should prepare most documents prior to lecture. Both instructors indicated that the Tablet PC was useful for demonstrating a problem solving process because of the ability to display free-hand writing. While neither instructor explicitly compared the functionality of displaying visual aids with a Tablet PC to other traditional approaches, they both suggested that other instructors should consider using a Tablet PC.

DISCUSSION

Presentation technologies are an integral part of a traditional learning environment. In the past few decades, presentation technologies have evolved to support three major instructional functions: 1) to demonstrate a problem solving process, 2) to provide visual aids, and 3) to keep a record of instructional content. The Tablet PC appears to support all three functions to a greater extent than previous technologies either alone or in combination. Furthermore, a learning environment should support as many of the six learning principles identified earlier in this article as possible. Specifically, a learning environment should: 1) engage students' cognitive effort, 2) reduce students' cognitive load, 3) allow timely feedback, 4) support multisensory learning, 5) promote active participation, and 6) support interactive learning.

Our study suggests that the Tablet PC indeed supports all six of the learning principles listed above. By providing a means for the instructor to demonstrate a problem solving process in free hand, the Tablet PC supports multisensory learning - students learn by watching a demonstration of process while listening to the instructor's oral explanation. By providing better organized visual aids (e.g., all information on a topic or problem located in one place, different colors for different type of information, and a crisp, clean document), the Tablet PC reduces the students' cognitive load of searching for and identifying pertinent information. By keeping a complete record of the instructional output and process, the Tablet PC frees or reduces students' cognitive effort from note taking so that students can focus more on the lectures, ask more questions, get timely feedback, and make the class more interactive.

The students we studied generally liked the classes in which the Tablet PC was used, and both students and instructors recommended that other instructors use the Tablet PC as a presentation technology. However, the observations and conclusions reported in this paper should be interpreted in light of the following limitations. First, as discussed earlier and illustrated in Figure 1, learning is affected by four interrelated factors: learner, learning objective, learning materials, and learning environment. There is an interaction between learning materials and the learning environment, and the learning environment consists of at least the instructional method, instructional media (e.g., presentation technology), and instructor. By focusing solely on the presentation technology and investigating only two classes in Civil Engineering, the generalizability of the study to other contexts could be limited. When the Tablet PC is used by different instructors, for different subject areas, or for different learning objectives, the students' evaluation of its efficacy may be very different.

Second, this is a case study employing only limited measurement of students' perceptions. The study did not develop scales with which to quantitatively measure students' perceptions of the extent to which the Tablet PC may have engaged their cognitive effort, reduced their cognitive load, allowed timely feedback, supported multisensory learning, increased active participation, or fostered interactive learning. The study was designed in this manner because we felt that the six learning principles might prove to be too abstract for students to comprehend and accurately assess given the limited time available to us for the survey and interview. Without these measurements, however, the conclusion that the Tablet PC supports all six learning principles is not as strong as it might be.

Third, this study investigates the effects of using a Tablet PC in teaching and learning processes, it does not investigate the effects on the desired outcome, in this case, learning. Examining students' and instructors' attitude toward the technology does not tell us whether it helps students obtain better learning outcome. Students may like the use of Tablet PC technology; however, their actual learning may not improve.

Despite these limitations, the study does provide insight into the use of the Tablet PC and other presentation technologies from both theoretical and practical perspectives. From a theoretical point of view, the study helps us understand what instructional functions are supported by presentation technologies and how these functions are related to learning principles. From a practical point of view, the study sheds light on the advantages of using a Tablet PC rather than traditional presentation technologies and provides suggestions for more effective use of the technology. The study also indicates that several questions related with Tablet PC usage are worth pursuing further. First, a quantitative study is needed. Such a study should; i) use an experiment design in which a control group uses traditional presentation technologies and a treatment group uses Tablet PC technology, ii) measure the degree to which the presentation technologies provide support for the six learning principles, and iii) measure the effect of presentation technology use on learning outcome. Second, methods for using Tablet PC technology to support distance learning should be investigated. For example, MIT currently provide online courses by posting class materials on its university website for anyone to download. Instructors who record lectures using a Tablet PC and appropriate software can easily post all recordings to the university website. Pedagogically, how would this approach compare to posting PPT slides or other types of media? Finally, in an environment in which an instructor's lectures can be easily published to the Internet, issues regarding intellectual property rights need to be addressed.

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Undergraduate College Student's Spreadsheet Project Performance: A Comparison Between Business and Non-business Majors

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ABSTRACT

The purpose of this study is to explore the potential impact of support materials on student spreadsheet skill acquisition. Specifically, this study examines whether there are any significant differences between mean scores of two groups of undergraduate students defined by whether their major is business-related or not. This study hypothesizes that the business major will perform significantly better that the non-business discipline student. Student performance was measured using scores on 10 individual spreadsheet projects. Significant differences were observed between the groups for only two of the ten projects, but further research is needed to identify additional factors that may influence these findings. Additionally, business majors were examined based upon their actual discipline and there was no significant difference between the disciplines.

INTRODUCTION

The electronic spreadsheet was first introduced in 1979 by a product known as VisiCalc®. The popularity of spreadsheet software grew and the market was quickly dominated by a variant of VisiCalc®, Lotus 1-2-3® (Pemberton & Robson, 2000). As with all free-markets, competition followed and the introduction and subsequent dominance of Microsoft's Excel® continues as a de facto industry standard. There is considerable research that establishes spreadsheet skills as critically important to the business person (Loraas & Mueller, 2008; Pemberton & Robson, 2000; Spiech, 2005). This would lead one to ascertain that acquiring spreadsheet skills such as modeling, what-if analysis, and other forms of cost analyses is important to university business majors in virtually every discipline (Alexander, 1996; Ganesh & Paswan, 2010; Van Mourik, 2006). Using the data collected, comparisons of results were examined between business and non-business majors and also among various business academic disciplines. The expectations were that business majors would perform better on spreadsheet projects than their non-business peers, and that certain business disciplines might be more adept at acquiring spreadsheet skills due to a perceived need in specific majors. Accounting and finance students, for example, may understand the relevance of cost analyses and what-if scenarios before their marketing and management counterparts.

LITERATURE REVIEW

Electronic spreadsheet software, like Lotus 1-2-3® and Microsoft Excel® is useful to university students in various ways. First, more disciplines are integrating computer-based skills into their curriculum (Alexander, 1996; Ganesh & Paswan, 2010; McKeown & Piercy, 1997). Loraas & Mueller (2008) posit that "routine accounting and financial statement preparation require the

ability to use advanced spreadsheet functions, and expand the position by arguing that users should possess higher-level analytic skills" (p. 66). Their position is that "spreadsheet users should understand the purpose of the functions being used, understand the arguments of the function, and that results should always be checked to ensure operating accuracy" (p. 66). Ganesh & Paswan (2010) explore the marketing discipline and how it often lacks financial accountability. The primary purpose of their paper was to better understand how "to impart spreadsheet skills and encourage an accountability mindset" (p.162). Moncarz & O'Brien (1988) pointed out early in the expansion of the use of spreadsheets that the investment required to effectively teach spreadsheets is relatively low and further that instructors need not be experts in programming and the resources, hardware and software.

Perhaps more importantly, spreadsheet software is very useful for modeling business problems and enabling data analysis using what-if, pivot tables, and even statistical analysis functionality (Van Mourik, 2006). Fostering fluency in the use of spreadsheets includes demonstrating its various uses and then providing the student with opportunities to reasonably ensure that key competencies are acquired. Most universities teach spreadsheet skills in introductory computing courses but often delegate the task to instructors who are challenged to ensure adequate coverage and the methods used typically do not ensure effective teaching and learning (Boon, 2005). One method that produces results is the demonstration and practice method. Instructors in this approach demonstrate to students how selected functions work, discuss the applicability, and then ask students to solve problems that require them to apply those skills. Often these results are limited by the student becoming dependent on the professor to demonstrate, observe, practice, and then examine (Vitt, 2006).

Spreadsheet skills have traditionally been taught as skills critical to business students (Pemberton & Robson, 2000). Organizations outside the business disciplines also understand the usefulness of spreadsheets. Lejeune & Yakova (2008) detail the experience of the Fred Astaire Dance Studio and how they used a spreadsheet to handle their summer showcase programs (p. 176). Herrmann (2008) describes how public health officials used spreadsheets to generate custom emergency preparedness models for a government entity in Maryland. While the argument could be made that these examples remain business applications, that argument might also be transformed into the case that all organizations possess a business presence.

METHODOLOGY

It is hypothesized that there are significant positive differences between college students' individual spreadsheet project scores for students in a business major versus those in another discipline. These disciplines are defined for the purposes of this paper as accounting, economics, marketing, management, business administration, information systems, and finance, as outlined in Table 1. A second hypothesis is that there are significant positive differences between business school academic majors. The premise here is that academic disciplines like accounting, finance, information systems, and economics will outperform students in majors like management, business administration, and marketing simply due to the greater emphasis placed on quantitative approaches to decision-making.

Participants

Participants selected in this study were students in established sections of principles of management information systems survey courses at one south central, public university. The total number of students included in this study is 878. The sections represent a convenience sample and there are no perceived differences between these sections in terms of student selection beyond the typical registration process. Students that dropped the class or students that completed less than eight out of ten projects were not used in our study.

Data Collection and Procedures

The data were collected across several semesters beginning in 2007 using spreadsheet projects offered through Casegrader for Excel 2007® by Crews and Murphy and published by Cengage Learning. The projects in this particular product

Table 1
Demographic Data

Program of Study	Students
Accounting	118
Management	222
Marketing	171
Finance	91
Economics	19
Information Systems	24
Business Administration	33
Non-business majors	200
Total	878

are scored using an automated engine that has been shown to be accurate, consistent, and reliable. According to one author, Dr. Thad Crews (personal interview, March 2, 2010), over one million projects have been consistently and successfully graded for thousands of students across campuses throughout the U.S. and Canada.

Biographical data were requested and obtained from university records and merged using Excel with the student score data. This data included the students' sex, course section number, student identification number, as well as other biographical data. The course section number was coded so that face-to-face and online sections are distinguishable, and a simple code to identify each type of class offering was inserted for each participant to enable further data analysis for future studies. The number of students in each respective discipline is provided in Table 1.

Data Analysis

The students were divided into two groups, business majors and non-business majors. This was accomplished by regrouping specific majors into categories which allowed the business versus non-business breakdown without compromising individual disciplines. The list of defined business disciplines are shown in Table 1. To test the initial hypothesis, an ANOVA was performed to compare students' individual Casegrader project scores between the two groups. In this instance, the mean score of each independent project was compared between the group defined as business school majors and the group defined as non-business school majors. Additional tests, specifically Levene's Test for Equality of Variances and a 2-tailed t-test were run to further validate findings of significance.

To test the hypothesis that posits a significant positive difference between the defined business disciplines within the business school, a second ANOVA was performed based upon discipline grouping codes. The results of this test are listed in Table 5. There were no projects that indicated significance and therefore the hypothesis that differences in performance between the business disciplines would exist is not supported.

FINDINGS

The results of our data analysis were mixed. The hypothesis that states that there are significant positive differences between college student's individual spreadsheet scores when they are a business major is supported in two projects. The results for projects 8 and 10 indicated significant support for this hypothesis. Table 3 contains the results of the Test for Homogeneity of Variances which lists the Levene statistic and P score for each project. Projects 8 and 10, respectively, again indicate significance. The Levene Statistic for those projects are high and according to (Shoemaker, 2003) are an indicator for equality of variances for different samples. When these values are high, procedures that do not assume equality of variance should be employed. A 2-tailed t-test was then performed as shown in Table 4. This process found significant differences in projects

Table 2
ANOVA Results Prior to Variance Analysis
(N = 878 p<.05*)

Excel project	F	Sig.
1	.387	.534
2	.419	.518
3	.390	.532
4	1.865	.172
5	1.072	.301
6	.326	.568
7	.415	.519
8	8.565	.004*
9	1.303	.254
10	4.573	.033*

Table 3
Test of Homogeneity of Variances

Project	Levene Statistic	Sig.
1	.423	.515
2	.088	.766
3	.387	.534
4	1.958	.162
5	3.234	.072
6	2.381	.123
7	4.186	.041
8	10.740	.001
9	.089	.765
10	10.717	.001

8 and project 10 whether variances are equal or unequal.

The secondary hypothesis states that there are significant positive differences between student's spreadsheet scores between the different business disciplines depicted in Table 1. The results of the hypotheses testing are presented in Table 5 (Appendix). There is no support for this hypothesis based on the results of the ANOVA.

DISCUSSION OF FINDINGS

The original hypothesis that significant differences would exist between business majors and non-business majors is supported, but only in two projects. There was significance only for projects; 8 (.003) and 10 (.037), respectively. Project 8 introduces the concept of creating applications in Excel and includes skills like validation rules and recording macros, which may be new topics for most students. Project 10 is lengthy and introduces students to concepts like Goal Seek®, one and two-variable data tables, scenario manager, and an optimization problem using Solver®.

One possible explanation for these results may be that the course offering is a lower-division college of business core requirement. Business majors may not have recognized the relevance of spreadsheet skills and the importance of spreadsheet modeling since this course is completed prior to official entry into the major. It is interesting to note that economics, information systems, marketing, and finance majors did not perform as well as their counterparts, as seen in Table 6 (Appendix). Although the differences are not significant, the mean scores among finance and economics majors were often several points lower than management and marketing majors. One possible reason for these differences may be that management and marketing both offer more lower-division courses than do economics and finance at this institution allowing for an earlier foundation for relevancy. If this is a valid assumption, then perhaps all accredited business schools should consider offering their introductory management information systems course as a lower-division offering to aid students as they progress into more challenging courses that might require spreadsheet skills like statistics and quantitative management. Further, by ensuring that spreadsheet use is integrated into the various upper-division courses across disciplines, student acceptance and relevance will increase. McKeown and Piercy (1997) demonstrated this by integrating spreadsheets into introductory marketing and finance courses that resulted in students performing significantly higher using a pre- and post-test methodology.

The literature indicates that the importance of sound spreadsheet skills is critical to business students (Loraas and Mueller, 2008; Pemberton and Robison, 2000). Speich (2005), states that being "good at using spreadsheets and databases to analyze information" (p. 40) is one critical skill in being a great financial analyst. Loraas and Mueller (2008) reinforce this concept for accounting majors by suggesting that the spreadsheet developer "completely understand the calculation that the [Excel] function was designed to perform" (p. 67) by checking expected and actual results of calculations. Identification of whether or not spreadsheet skills are actually important for all university majors is also an issue. The results support the belief other disciplines value these skills as only two of the more difficult projects demonstrated significant differences. Lejeune and Yakova (2008) and Herrmann (2008), describe scenarios not normally considered business-related where the effective spreadsheet skills assisted a dance studio and public-sector, emergency planners, respectively. Gordon and Erkut (2004), cite yet another example of the use of a decision-support tool used to assist in scheduling volunteers.

A final observation is, that overall, means for each case decrease as the semester progresses.

Table 4
ANOVA Results Post Variance Analysis

		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
Ex1	Equal variances assumed	.518	.9265	1.4322
	Equal variances not assumed	.531	.9265	1.4762
Ex2	Equal variances assumed	.487	.8629	1.2419
	Equal variances not assumed	.473	.8629	1.2017
Ex3	Equal variances assumed	.559	-.7543	1.2904
	Equal variances not assumed	.532	-.7543	1.2066
Ex4	Equal variances assumed	.161	1.4307	1.0189
	Equal variances not assumed	.180	1.4307	1.0653
Ex5	Equal variances assumed	.290	2.1729	2.0502
	Equal variances not assumed	.318	2.1729	2.1727
Ex6	Equal variances assumed	.544	1.3478	2.2198
	Equal variances not assumed	.561	1.3478	2.3187
Ex7	Equal variances assumed	.548	-1.3716	2.2830
	Equal variances not assumed	.517	-1.3716	2.1155
Ex8	Equal variances assumed	.003	4.8626	1.6461
	Equal variances not assumed	.008	4.8626	1.8304
Ex9	Equal variances assumed	.245	2.6724	2.2994
	Equal variances not assumed	.245	2.6724	2.2925
Ex10	Equal variances assumed	.037	-4.3134	2.0607
	Equal variances not assumed	.020	-4.3134	1.8498

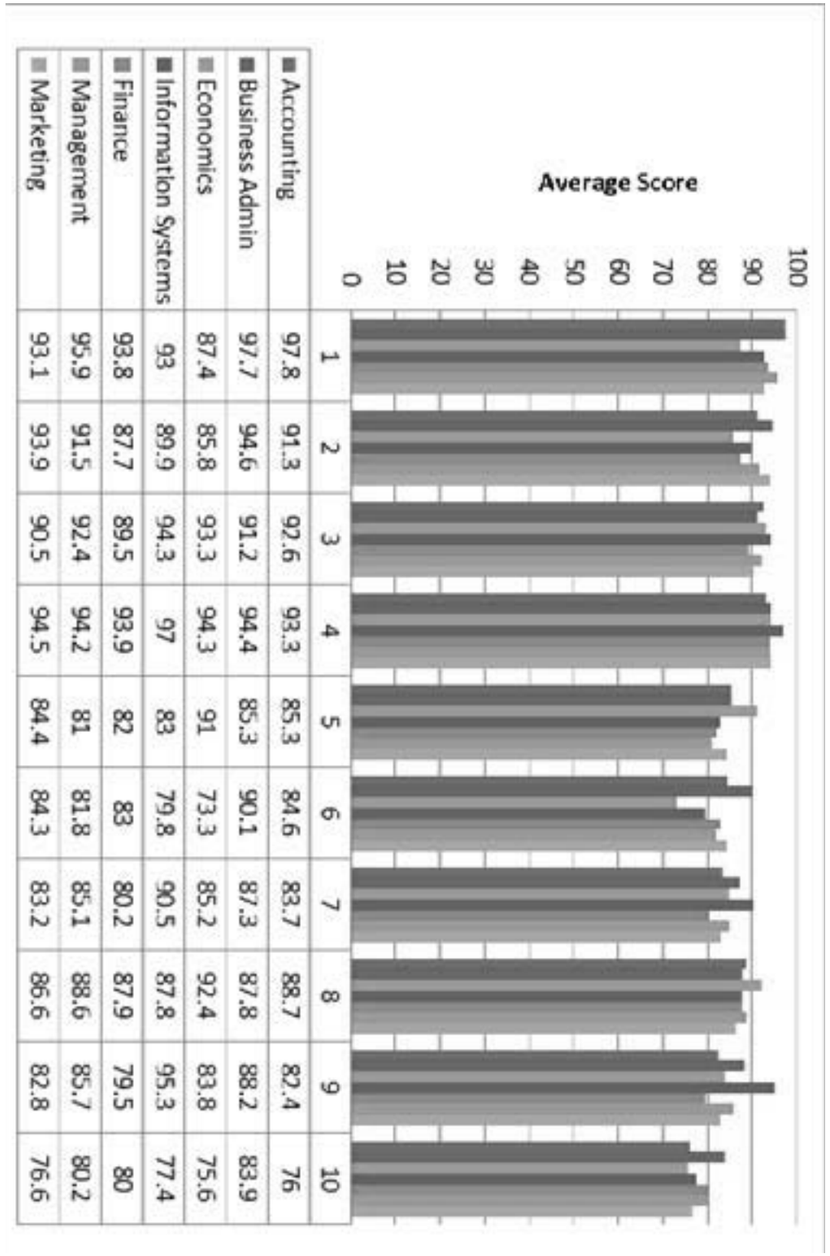
It would be easy to assume that this is, in part, explained by the anticipation of semesters' end. It is perplexing, however, due to an increase in faculty-student interaction as the semester progresses. Less time is spent during labs covering details for the first few spreadsheet assignments due to the simplicity of the projects; however, as the projects progress in rigor, each faculty member describes the project in greater detail, and provides demonstrations during the lab sessions allowing students to complete difficult tasks and ask questions. These observations are in line with the findings of Vitt (2006), who observed that technology skills have been taught successfully through active student-instructor interaction, including demonstration, practice, and observation.

Additional Research

The management information systems course in which these assignments are administered is offered in both face-to-face and online venues. Additional analysis is necessary to further identify differences in student performance across each type of offering, and differences in performance using gender as the control variable.

Table 5
ANOVA Results for Defined Business Majors
(N = 878, p<.05)

Spreadsheet Project	F	Sig.
1	1.551	.147
2	1.628	.124
3	.640	.723
4	.739	.639
5	.874	.526
6	.910	.498
7	.632	.729
8	1.535	.152
9	1.368	.216
10	1.364	.217



	1	2	3	4	5	6	7	8	9	10
Accounting	97.8	91.3	92.6	93.3	85.3	84.6	83.7	88.7	82.4	76
Business Admin	97.7	94.6	91.2	94.4	85.3	90.1	87.3	87.8	88.2	83.9
Economics	87.4	85.8	93.3	94.3	91	73.3	85.2	92.4	83.8	75.6
Information Systems	93	89.9	94.3	97	83	79.8	90.5	87.8	95.3	77.4
Finance	93.8	87.7	89.5	93.9	82	83	80.2	87.9	79.5	80
Management	95.9	91.5	92.4	94.2	81	81.8	85.1	88.6	85.7	80.2
Marketing	93.1	93.9	90.5	94.5	84.4	84.3	83.2	86.6	82.8	76.6

Table 6
Comparison of Excel Project Grade Means by Academic Discipline

While each faculty member uses the same course resources, additional studies should be considered that compares pedagogical differences between instructors to explore implications on student performance. Specifically, further work should be performed that would compare teaching style differences, professor reputation, and student project lab participation.

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Six Principles of POM Research

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ABSTRACT

To more fully understand any strategy at all of how to be a successful researcher of business, this paper conducted a Delphi study to gain experts' agreement on six general research methodological and philosophical questions. Experts were consulted in two ways: to obtain their personal judgments related to the six questions and, after summarization and classification of these judgments, rank orders of summary categories related to the six questions. The resulting consensus allowed for the identification of six overarching principles guiding the research efforts of emerging scholars in the business administration field.

INTRODUCTION

What does it take to become a successful scholar in the Production and Operations Management (POM) discipline? This question is perhaps the most crucial one confronting faculty members early in their academic careers. As an emerging scholar, I often feel like a beginner in a game of chess: I already know the rules that define some moves as legal and some as illegal (confound variables, for example), but nothing in these rules provides a strategy for winning the game – to become a successful researcher. It is one thing to get doctoral training in research but quite another to know how to apply this knowledge. I have discussed this issue with many junior scholars and found that they share the same feeling as me.

To identify whether commonly-agreed upon principles actually exist on how to do research, I surveyed more than 70 top POM researchers. By summarizing and categorizing their opinions, this paper tries to help junior scholars in the POM fields gain a perspective on doing research.

COLLECTING STELLAR SCHOLARS' OPINIONS ON RESEARCH

To identify leading scholars in POM, the h-index for POM-related professors in 225 American business schools in BusinessWeek's list was calculated. This project identified 78 professors whose h-indexes are equal or greater than 10 (see Appendix. (The detailed procedure can be obtained from the author.)

To make these stellar scholars' personal opinions converge on some commonly agreed upon principles, I used the Delphi method. Focusing on the junior scholars' most frequently asked questions, the first phase involved sending out the open-end questions listed below to the individuals identified in the preceding step:

a. Where do ideas for new research come from?

b. What is the efficient/effective way to build up the scholarship (refer to accumulate knowledge of literature)?

c. Facing the complex real world, what are the key points that your model setting or research design can reflect the reality?

d. What are your rules of collaboration?

e. What are your rules of writing a publishable paper?

f. What is your philosophy of research?

In the initial round of the Delphi, fifty-eight usable responses were received. For each survey question, I summarized respondent's opinions into several most-frequently-mentioned-opinions (MFMOs). Then I resent these six questions with their MFMOs to these stellar scholars, asking

them to rank these summarized opinions based on their importance. Using this process, the opinions tended to converge toward several areas of common agreement.

RESULTS

After the first round survey, I categorized the responses in the six open-end questions through a frequency analysis, i.e., for each opinion, I counted how many times it was mentioned by respondents. Table 1 reports these MFMOs and their respective frequencies.

For Q1 (Where do ideas for new research come from?), the following opinions are the most frequently mentioned:

a. **Teaching:** students' questions; working closely with doctoral students.

b. **Reading the literature:** unsolved theoretical questions that we stumble upon; what can you do to improve upon what has already been done; whether your approach would add substantial value over the approach taken (or vice versa).

c. **Networking:** conference presentations; serving on a variety of panels; talking, discussing, or working with colleagues.

d. **Contact with the real world:** field studies/site visit, working/talking with industrial people, reading industry or practitioner-oriented publications, consulting.

e. **Curiosity about things:** interesting applied problems can come from anywhere, such as intuition, analogies from other fields, hypotheses formed from real-life observations and so on. There was no "the best source", but rather an intersection of sources.

Table 1
The Most Frequently Mentioned Opinions

Questions	MFMO	Frequency
Where do ideas for new research come from?	Reading the literature	32
	Contact with the real world	28
	Curiosity about things	27
	Networking	19
	Teaching	9
What is the efficient/effective way to build up the scholarship?	Whole picture	36
	Snapshot	31
Facing the complex real-world, what are the key points that your model setting or research design can reflect the reality?	To ensure reality, know and understand reality	29
	It is a trial and error process	21
	It is an art	13
	Remember Occam's razor	8
What are your rules of collaboration?)	Personality	30
	Research topic	27
	Expertise	25
	Consistency	12
What are your rules of writing a publishable paper?	Contribution	43
	Motivation	39
	Expression	34
What is your philosophy of research?	Follow your interests.	34
	Focus on the "big problem"	26
	Doing derivative work	22
	Start with simple ideas and extend them	18

For Q2 (What is the efficient/effective way to build up the scholarship?), most stellar scholars believed that there is far too much research written to master all of it, or even a small percentage. Their opinions varied and sometimes even contradicted each other on how to establish necessary knowledge of the literature.

a. **Snapshot:** It is important not to repeat the past but also not to be led too much by it. So, try to develop something on your own and then look at the literature. You only search for literature that is related to your current projects. With the huge advantages of online search, it is relatively quick to compile citations on a well-defined topic.

b. **Whole picture:** Everyone needs to struggle through the learning curve by reading top-tier journals in the area regularly, attending conferences, and following new research trends and directions. It is better to stay focused in your research rather than being opportunistic and moving from topic to topic. Since you read the literature as it happening, you would develop a strong sense of the historical development of your subject.

For Q3 (Facing the complex real world, what are the key points that your model setting or research design can reflect the reality?), stellar scholars provided the following opinions about modeling:

a. **It is an art:** A model need not (indeed cannot) exactly match reality. In POM we tradeoff robustness with accuracy. The key point is that a model must improve people's understanding of a real situation. Stay flexible about everything and experiment, and don't get hung up on any one set of assumptions.

b. **It is a trial and error process:** Facing a real-world problem, the effective method of reaching a correct solution or satisfactory result is to try out various means or theories until error is sufficiently reduced or eliminated.

c. **Remember Occam's razor:** Always build parsimonious models, test and demonstrate a model's robustness. Try to filter out the local specifics, ask general questions, and answer them with general principles.

d. **To ensure reality, know and understand reality:** Acceptable approximations to reality for research publications must have some concrete "hooks" to what is really happening. Have a deep understanding of what you are investigating.

For Q4 (What are your rules of collaboration?), to pick up the right people to make the collaboration enjoyable, successful, and worthwhile, the stellar scholars suggested focusing on the following criteria:

a. **Personality:** pick coauthors with whom you are comfortable or like personally, with whom you have congruent working habits and writing styles.

b. **Consistency:** Because research requires stamina, you need coauthors that are smart and ready for a marathon.

c. **Expertise:** seek out collaborators who can help to forge new frontiers and methodologies; work with people who have expertise in the area with which you are struggling.

d. **Research topic:** work with people whose ideas excite you; work with people you can find with similar interests.

For Q5 (What are your rules of writing a publishable paper?), most stellar scholars warned junior ones that always write with the reviewers in mind. Reviewers are very busy, so try to make their job easier. Neglecting reviewers risks getting them angry. Once that happens, their axe comes out and giving the author a whack. Every author's goal should be to keep the reviewer's axe in its sheath. The following aspects are the most frequently mentioned by stellar scholars:

a. **Motivation:** Not every reviewer who picks up your paper will be directly interested. If you don't motivate reviewers well, they may purposefully pick holes in your paper.

b. **Contribution:** A paper is publishable if and only if it has something new to say. If your paper does not make your contribution to the literature very clear, reviewers will go through your paper with a negative attitude, rather than digging for the contributions.

c. **Expression:** The expression of an idea can be as important as the idea itself. A good idea badly expressed has no impact; an average idea superbly expressed can have great impact. And impact is the key measure of success.

For Q6 (What is your philosophy of research?), although most stellar scholars pointed out that their research philosophies may be just well suited for their own interests and talents, their philosophies reflect that their research strategies cluster in the following areas:

a. **Focus on the "big problem"** which lasts and gets cited years after it is published. You should go for the big winner and be sure that you will be proud of your article when you look at it years later.

b. **Follow your interests and work on problems you enjoy**. Doing quality research requires a passion for the topic, because it drives innovation, originality, and impact.

c. **Start with simple ideas and extend them** as far as possible to increase applicability and understanding.

d. **Doing derivative work is okay**, as long as it is not too trivial to have an impact. You may develop improved theoretical or methodological results over what other people have done (i.e., applying new methods to old problems), or work on problems that seem intriguing and interesting, and where you have a chance of applying your familiarized tools to solve them (i.e., applying old methods to new problems).

In the second round of the Delphi, the stellar scholars ranked the importance of MFMOs for each questions. I received 52 useful responses. The results are listed in Table 2.

DISCUSSION

After the second round, the opinions converged toward some common principles that may provide valuable insights to junior scholars.

Where do new research ideas originate?

Marshall Fisher (Wharton) says: "As I argued in the paper (Strengthening the Empirical Base of Operations Management. Manufacturing & Service Operations Management 9(4) Fall 2007, pp. 368-382), I've always felt most researchers rely too much on academic papers and the business press as a source of research ideas, which tends to result in less innovative research. I've found working with a company on a real problem to be a great source of new research topics." John McClain (Cornell) believes that "practices in the real world lead the academic community. JIT is an example. Academic investigation of those practices can lead to improvements in the way they are applied (e.g. optimization), or at the very least, introducing your colleagues to a great 'new' idea." Hau Lee (Stanford) lists several common approaches to connect with the real world: "I mostly get ideas on research from real world problems – through my interactions with industry executives, in attending industry conferences, executive programs, and industry publications."

Table 2
Results of Importance Ranking

Questions	MFMO	Mean	S.E.	Analysis
Q1	a	4.06	0.14	ANOVA results: F = 19.25; F-critical = 2.41; p-value = 0.00 Reject H_0 (All means are same)
	b	2.92	0.20	
	c	2.37	0.07	
	d	3.04	0.21	
	e	2.15	0.19	
Q2	a	1.47	0.12	Paired t-test results: t = 0.82; t-critical (two-tail) = 2.12; p-value = 0.42 Fail to reject H_0 (Two means are equal)
	b	1.29	0.11	
Q3	a	2.82	0.14	ANOVA results: F = 24.18; F-critical = 2.65; p-value = 0.00 Reject H_0 (All means are same)
	b	2.12	0.14	
	c	3.06	0.15	
	d	1.61	0.12	
Q4	a	2.37	0.15	ANOVA results: F = 1.16; F-critical = 2.65; p-value = 0.33 Fail to reject H_0 (All means are same)
	b	2.65	0.16	
	c	2.31	0.18	
	d	2.58	0.11	
Q5	a	1.67	0.11	ANOVA results: F = 1.54; F-critical = 3.06; p-value = 0.22 Fail to reject H_0 (All means are same)
	b	1.53	0.09	
	c	1.78	0.11	
Q6	a	2.43	0.14	ANOVA results: F = 95.99; F-critical = 2.65; p-value = 0.00 Reject H_0 (All means are same)
	b	1.11	0.04	
	c	2.78	0.10	
	d	3.43	0.09	

Aleda Roth (Clemson) also gets many of her ideas this way: "I tend to work on problems that emerge from real problems faced by managers--either through field work or through networking with faculty and executives. I also get good ideas from teaching cases in areas in which I'm interested. Oftentimes, such cases bring out issues that have not yet been thoroughly researched. Others ideas come from operations issues raised in the press."

However, several stellar scholars warn junior researchers that they should sparingly undertake consulting. They believe networking is a more effective and thought provoking approach for junior faculty. Keith Ord (Georgetown) suggests: "... staying current with the literature and networking with other researchers in the areas are most important." Kenneth Boyer (Michigan State) also emphasizes the importance of networking: "Social capital is immensely valuable in academia. By regularly conversing with colleagues – about anything – good ideas and themes are bound to develop."

Reading literature sounds like a cliché, but many stellar scholars reveal new insights of it. Wallace Hopp (Michigan) says: "while I don't think that one usually finds highly promising research areas by reading the OM literature, I do think that important research ideas can come from reading other literatures." Richard Chase (Southern Cal.) shares his experience of reading literature with junior scholars: "My work on service design started out when in the process of revising the 2nd edition of my book with Aquilano. We realized that there was little theory on service operations and I decided to develop an operational structure for services. This resulted in the customer contact model for service encounters. My basic source for structuring service interactions

was an organization theory book, 'Organizations in Action' by James D. Thompson. He proposed several propositions about organizational rationality that could be applied nicely to services... I also read Academy of Management, Journal of Marketing, and more recently various journals in behavioral decision theory."

While teaching generally requires a separate effort from a professor's research, students can sometimes inspire professors with unanticipated questions. In addition, professors have to invest a significant effort in preparing materials for their courses. This teaching activity can deepen a one's understanding of potential research topics. Many times new ideas come from working closely with doctoral students (Anna Nagurney at UMASS). Michael Crum (Iowa State) says: "I think it is very important for researchers, particularly young researchers, to create synergies among their research, teaching, and outreach. The more you can tie these together, the more time efficient and productive you can be."

Even though stellar scholars agreed that "real world", "networking", "teaching" and "reading literature" as possible sources of new ideas, they also emphasized that without a curious mind, you still cannot discover new ideas through those sources. Urban Wemmerlov (Wisconsin) says: "I do research out of curiosity. I try to learn (a) what is going on in organizations, (b) how people or organizations make certain decisions (c) why they make those decisions, and (d) how they should make those decisions for better outcomes."A successful researcher should have "a general curiosity about things combined with exposure to new situations and problems" (Garrett van Ryzin at Columbia). Paul Zipkin (Duke) says: "I picked E (curiosity), because it sort of means 'all of the above'." This may be the reason why "curiosity about things" was ranked the most important source of new ideas.

What is the efficient/effective way to build up the scholarship?

Stellar scholars acknowledged that it is very difficult to rank the importance of "Snapshot" and "Whole picture". After running a paired t-test, I found that there is no significant difference between the two schools of thought.

For choice B (whole picture), many stellar professors pointed out its benefits to junior scholars. James Orlin (MIT) believes that young researchers should "have an intimate knowledge of research that is very closely connected to the research they are doing." By doing so, they can "have a working knowledge of lots of research ideas and methodologies from a wide range of areas so that they can try out lots of different ideas on whatever problem that they are addressing..., and know where to look when they want to pursue an idea." Zhi-Long Chen (Maryland) suggests: "it is important to see the whole picture of the problem/methodology you study and even look at problems and methods in other areas. This can give you complete information as to where you stand. .. There is a time-consuming setup if you want to dive into a new area. So, do not move from topic to topic. Popular topics come and go quickly. You need to focus on a few topics that you can research for a long time."

In contrast, some stellar professors believed that becoming familiar with the literature is a second priority compared with the newness of research idea. As a result, they ranked A over B. John Birge (Chicago) says: "I often follow a process of trying to develop something on my own and then look at the literature." Wallace Hopp (Michigan) also holds the same opinion: "I strongly believe that the most important research ideas come from studying the world, not the research of others. However, after one has discovered a research opportunity by looking at the world, it is important to study the literature in order to understand what has been done and what tools might be relevant to the problem."

David Pyke (Dartmouth) describes his thoughts when he ranked choices A and B: "I tend to stay focused on an area of research or two (choice B), but I often begin a new area by finding a problem from industry or curiosity, and then searching the literature to find out if and how it has been solved (choice A). The reason I put 'B' above is because I think it is very important for young researchers to avoid jumping topics frequently." Similarly, Sridhar Tayur (Carnegie Mellon) believes A and B are two parallel paths: "Pick a long term 'canonical' research direction, such as multi-echelon inventory theory; do many interesting real world contemporary projects, such as time-shared jet aircraft, dynamic in-game (video games) ads scheduling, designing rapid response supply chains." This may be the reason why stellar scholars' opinions evenly distribute between the two choices.

What are the key points where your model setting or research design reflect reality?

Several leading scholars mentioned that in trying to solve a problem, one is always tempted to use tools with which one is familiar. This is very natural. Our doctoral training for the most part deals with tools. Exercises associated with such learning are always designed to fit these tools. As a result, when junior scholars tackle a problem outside the textbook, their first instinct is to reach for these tools. Too often, they bend the problem to fit the solution. This may trigger one of the greatest dangers in OM research: Type III error – solving the wrong problem (Wallace Hopp at Michigan). Hau Lee (Stanford) urges junior scholars should always be problem rather than methodology driven. He says: "Maybe not the methodologies that we use, but the problem itself, the insights and inferences from the analysis, and the implications and lessons of the completed work, should be of interest to practitioners. With this in mind, I think our research, regardless of what methodologies were used, would make a difference and be of value to industry." To maintain managerial relevance and academic rigorousness simultaneously, only after the former seed planting and germination can the latter grow and flower. "Understanding the reality" is not only important before modeling but also after modeling, since many researchers "live in a 'model-oriented' world, not checking that their work is not applicable" (Sridhar Tayur at Carnegie Mellon). Christopher Tang (UCLA) and Gary Pisano (Harvard) suggest that the model should always be tested against whether it helps people understand reality. "One way of tapping into the real world is to engage in discussions of the problem with knowledgeable practitioners. I call it an OM sense-making exercise," says Aleda Roth (Clemson).

Compared to "understanding reality" that is treated as a strategy by stellar scholars, the other three MFMOs (a trial and error process, an art, and Occam's razor) focus on tactical issues. However, they are also important to the development of innovative research.

Egon Balas (Carnegie Mellon) shares his experience of how to go through the trial and error process: "Facing a real-world problem, my first approach is to try to capture its essential features into a model that is manageable, even if the answer is far from an accurate representation of it. In other words, to get going, I settle for an imperfect representation. Then I set out to refine it by adding those features which can be accommodated without making the problem unmanageable."

However, "the real world is always going to be more complex than your model; that is, your model is always wrong" (Keith Ord at Georgetown). As a result, a model's acceptable approximations become an art that takes time to develop (Abraham Seidmann at Rochester). To ply this art, Garrett van Ryzin (Columbia) tells junior scholars: "The best advice I can give is to stay flexible about everything and experiment and do not get hung up on any one set of assumptions." Roger Schroeder (Minnesota) suggests: "You must start with a solid theory, (because) you test the theory itself, not the hypotheses. The hypotheses are only a reflection of the theory that is worth testing; the conclusions are only as good as the assumptions that are part of the theory."

Many well-recognized scholars emphasize the importance of building parsimonious models. Gregory Dobson (Rochester) urges junior scholars to "remember Occam's razor", because "too often modeling becomes an exercise in itself" (Gary Pisano at Harvard). A good model should take the problem as it presents itself and not form any pre-conceived idea on how to solve it. Confronting a problem on its terms promotes looking at it in the simplest terms since we have nothing but common sense to guide us. Many authors forget this simple fact; rather, they view the modeling process as an opportunity to bolster their own egos and impress the reader, even discomfit the reader somewhat with too much material.

What are your rules of collaboration?

A stellar scholar (who desires anonymity) provides the analogy that business schools follow

the zoo model to build up the faculty group. In a zoo, you have one animal of each kind. Academic staff is chosen to teach their particular curriculums, so the thinking is that you need to have a pretty deep expertise in the subject. However, in today's cross-discipline dominated atmosphere in academic research, a researcher should follow another model in doing research: the safari park model where you have a small number of packs of similar animals. One of the reasons that research groups may be more productive than individuals is that there is a good deal of shared knowledge (Uday Karmarkar at UCLA). Lee Krajewski (Notre Dame) says: "sometimes the coauthor has expertise in a particular methodology necessary for the project or the coauthor comes from a different field of study and provides a needed perspective in a project aimed at bridging disciplines; sometimes the coauthor is a source of energy and excitement and is a great colleague to work with." These stellar scholars' criteria of collaboration almost evenly distribute among the four MFMOs.

Many stellar scholars directly mention personality as a key factor and only work with friends and people that they like (Christian Terwiesch at Wharton). Garrett van Ryzin (Columbia) says: "I like collaborating with many people and working with people I like personally and enjoying working with. If it's a fun project with people I like, the result is more productive and creative." Abraham Seidmann (Rochester) states: "I like to work with coauthors that share my personal joy of research, have bright mind, and a sense of humor."

Some top scholars believe that the research topic is the key driver of collaboration (Jeannette Song at Duke). Charles Corbett (UCLA) believes that the selection of coauthor is opportunistic: "whoever is interested in similar problems." Nicholas Hall (Ohio State) emphasizes: "Work with the best people you can find with similar interests." In addition, working with people have same research interest with you does not waste a lot of time and effort establishing background knowledge when you want to discuss issues.

Since it is hard fully to grasp cross-discipline knowledge, complementary expertise is a reasonable criterion to select coauthors. The anonymous stellar scholar makes a strong statement: "The best way is to work with people who already know how to do it!"

Abraham Seidmann (Rochester) points out: "Research requires stamina; you need coauthors who are ready for a marathon." Nicholas Hall (Ohio State) warns: "Try not to work with people who are obviously overburdened with other tasks, or even other research." Stefan Thomke (Harvard) emphasizes that good coauthors should "delivers high quality contributions on time." To keep all coauthors on the same pace, Herbert Moskowitz (Purdue) suggest: "Meet once per week (regularly) to discuss/evaluate research status and progress, and to set goals for following week."

What are your rules of writing a publishable paper?

The anonymous stellar scholar joked that a paper published in an academic journal is read on the average by five persons – the author, the editor, and the three reviewers of the paper. This is not far from the truth because most academic papers are difficult to understand and follow even for the professionals. As a result, it is naturally that most stellar scholars mentioned the importance of keeping reviewers in mind during the paper writing.

Many stellar scholars ranked "Contribution" as the No. 1 necessity of a publishable paper. They believe that a publishable paper must "be very clear what your contribution is to the literature" (Christian Terwiesch at Wharton), whether its advancing theory, developing a new methodology, empirically examining an important issue, etc. Egon Balas (Carnegie Mellon) says: "My rule is simple: a paper is (or should be) publishable if it has something new to say. How significant the new thing is will decide whether the paper should go to a top level or to a less exigent publication. But, again, the ruling criterion is to have something new to say." Reviewers are not here for the money. The real benefits for them are that they stay current in their own fields and improve their own reputation by being associated with a good-quality journal. As a result, reviewers often think in terms of "value of the paper per unit time spent reviewing the paper" (James Orlin at MIT). You have to "make sure the contribution is evident right up front" (Wallace Hopp at Michigan).

Reviewers are "forced" to read your paper, so that they often will not be directly interested in your paper (Nicholas Hall at OSU). In addition, because the reviewers are often those who work on different topics, it is important to help them find your paper interesting (James Orlin at MIT). The paper should grab the reader's attention and interest early (Michael Crum at Iowa State). The author should facilitate the review of the paper by not placing unreasonable demands upon the readers. Wallace Hopp (Michigan) reminds junior researchers that they should be very careful to cite the literature properly: "An author who fails to cite a previous paper that is related to the current paper can be perceived as trying to deceive the referees into thinking the contribution of the current paper is larger than it is. Nothing turns off referees faster than a perception of deception."

Many stellar scholars emphasize the importance of expression. They advise junior researchers to "strive for excellence in writing" and "strive to make explanations and reasoning as simple, clear and direct as possible" ((Urban Wemmerlov at Wisconsin; Garrett van Ryzin at Columbia). Michael Crum (Iowa State) points out that "nothing frustrates reviewers more than a paper that is poorly organized, full of typos, formatted improperly, etc." The quality of reading flow stems naturally from a well-organized outline. Charles Corbett (UCLA) says: "write VERY VERY carefully and thoroughly; define the outline of the paper, then the outline of the sections, then the outline of the subsections, etc. Don't just start writing, it will be impossible to read and painful to edit." An anonymous stellar scholar mentions: "In many ways writing a research paper is like writing a good novel, which gets readers absorbed in the plot and eager to read the next chapter."

What is your philosophy of research?

Facing the four MFMOs, almost all stellar scholars ranked "follow your interest" as the top issue, i.e., "find a research topic/area about which you are passionate" (Bruce Golden at Maryland). John Current (Ohio State) says: "In my opinion, B (follow your interest) is the most important advice in the entire list!" Wallace Hopp (Michigan) points out that "too many authors seem to do research on problems because 'they can'." In fact, "doing quality research requires a passion for the topic" (John Birge at Chicago).

The second most important attitude of research was ranked as "focus on the big problem", because the big problem related research "will be published forever" (Nicholas Hall at Ohio State). Gary Pisano (Harvard) gives more detailed reasons of why junior scholars should do this: "Too often, younger scholars fall into a trap of thinking they have be 'safe' by doing incremental work well. That's NOT a safe approach. In fact, I would say it is a sure fire way to get nowhere. When you start working on a project, ask yourself: what is the upside? Can I have big impact? If not, don't do it. It is not going to help your career to publish one or two incremental papers. You might as well strike out completely. Go for the big winners." Aleda Roth (Clemson) concurs: "Research should address problems and issues that can potentially have a high impact on the profession and society – either in substance or in research methods, and oftentimes in both areas. Importantly, senior scholars can often contribute to the development of junior colleagues as collaborators, mentors and readers."

While many stellar professors praise the attitude of "focusing on the big problem", they also remind junior scholars that "no one can write a 'big idea' paper every time out" (Wallace Hopp at Michigan) and "to focus on big problems requires enormous foresight, patience, and permission to spend time on research that may take long time to come to fruition" (Urban Wemmerlov at Wisconsin). Wallace Hopp (Michigan) suggests to junior researchers: "it's better to think in terms of a portfolio. With the goal of having an impact on an area you really care about, write some papers that address small issues and some that address large ones. While you might not change the world with a single paper, you might with your cumulative portfolio." John Current (Ohio State) compares the creation of a research portfolio to landscaping: "You need some tall oak trees but you also need some lesser trees and shrubs as they also enhance the overall impact. Over time, some 'shrubs' end up being a highlight of the landscape (portfolio)." To build up such a rich portfolio, beside "focusing on the big problem", stellar scholars' advice converges on

"starting with simple ideas and extending them as far as possible to increase applicability and understanding" and "doing derivative work is okay, as long as it is not trivial."

CLOSING THOUGHTS

The POM field is a relatively "hard" discipline in management. Gregory Dobson (Rochester) describes: "Our field is a strange one. What we do is not quite science since we don't just explain the world but work on finding ways to improve it. We don't just want to make a particular situation better because we want to generalize what we learned. We struggle to generalize by making our model mathematical, but occasionally fail to make realistic in the simplifying assumptions." Junior scholars must struggle with these conflicts to develop their research "rigorous enough to defend to academia while relevant to interest business people" (Seungjin Whang at Stanford).

While junior scholars may possess the latest analytical/statistical techniques, these research methods tell them almost nothing about how to do research. "Vision" and "sense" in research are unlikely to be learned through examinations. Junior scholars need guidance and experience to build up their vision and sense in research. Consequently, interaction and feedback with established scholars is a necessary part of this process.

The beginning of this paper started out by posing issues that were important to emerging scholars. As we progressed through the paper, the observations, advice and even philosophical commentary about research were provided by leading POM scholars. Some common wisdom that was culled from these scholars for developing a research agenda are listed as the following principles:

Principle 1:
You must be curious

While new ideas can come from everywhere, whether from media, colleagues' papers or presentations, students' questions, or consulting projects, the underlying principle is that you must have a basic curiosity to synthesize unconnected pieces of information and relate your knowledge to the real world; otherwise, you are not able to explore new insights beyond known.

Principle 2:
Dichotomy of literature does not matter

No matter which school of thought you belong to, it is important for emerging scholars to recall the purpose of academic research: to advance the collective knowledge of the discipline. So it is not a matter of either the snapshot or the whole picture. "Be driven by the world around you, not the academics next door" (Christian Terwiesch at Wharton).

Principle 3:
You must know and understand reality

While all of the following statements are true – models should be parsimonious, models are appropriately developed by trial and error, and modeling is something of an art - the real key to a good model is that it captures the true essence of the system under study. "No amount of modeling skill can serve as a substitute for a deep understanding of the problem" (Wallace Hopp at Michigan).

Principle 4:
Working with the right people

"The collaboration has to be based on mutual respect and support" (Hau Lee at Stanford). As a result, your coauthors' personality, complementary expertise, research interests, and working styles and habits are all critical to a successful collaboration.

Principle 5:
A publishable paper is a trio

Contribution, motivation, and expression are all important to a publishable research, and very hard to pick one as more important than another, i.e., "these factors are multiplicative, not additive" (Charles Corbett at UCLA), so if a paper completely fails on any of the three aforementioned, it's not publishable.

Principle 6:
Follow your interest rather than your tools

"If you aren't interested in your topic – no one else will be either. Your goal is to convey your enthusiasm" (Kenneth Boyer at Michigan State). If you are engaged in problems that you enjoy, whether they are big problems or small ones, "you are creating, not working; you have a passion, not a job" (John Current at Ohio State).

APPENDIX
STELLAR SCHOLARS IN THE FIELD OF POM (BASED ON PUBLICATIONS SINCE 1985)

Name	University	H index (by 04/15/08)
Hau L. Lee	Stanford University	30
Awi Federgruen	Columbia University	22
Egon Balas	Carnegie Mellon (Tepper)	19
Paul H. Zipkin	Duke University (Fuqua)	18
Sunder Kekre	Carnegie Mellon (Tepper)	18
Dimitris J. Bertsimas	MIT (Sloan)	17
Uday S. Karmarkar	UCLA (Anderson)	17
Roger G. Schroeder	University of Minnesota (Carlson)	17
Morris A. Cohen	University of Pennsylvania (Wharton)	16
Wallace J. Hopp	University of Michigan (Ross)	16
Herbert Moskowitz	Purdue University (Krannert)	16
Suresh P. Sethi	University of Texas at Dallas	16
John Sterman	MIT (Sloan)	16
John R. Current	Ohio State University (Fisher)	15
Alan R. Dennis	Indiana University (Kelley)	15
Marshall L. Fisher	University of Pennsylvania (Wharton)	15
Nicholas G. Hall	Ohio State University (Fisher)	15
Panos Kouvelis	Washington University (Olin)	15
James B. Orlin	MIT (Sloan)	15
Lawrence M. Wein	Stanford University	15
Yu-Sheng Zheng	University of Pennsylvania (Wharton)	15
Gabriel R. Bitran	MIT (Sloan)	14
Paul Glasserman	Columbia University	14
Thomas L. Magnanti	MIT (Sloan)	14
David F. Pyke	Dartmouth (Tuck)	14
Nallan C. Suresh	Buffalo University	14
Christopher S. Tang	UCLA (Anderson)	14
Sridhar R. Tayur	Carnegie Mellon (Tepper)	14
W.C. Benton, Jr.	Ohio State University (Fisher)	13
Bruce L. Golden	University of Maryland (Smith)	13
Sushil Gupta	Florida International University	13
Haim Mendelson	Stanford University	13
Anna Nagurney	University of Massachusetts - Amherst	13
Abraham Seidmann	Rochester (Simon)	13
Glen L. Urban	MIT (Sloan)	13
Kenneth R. Baker	Dartmouth (Tuck)	12
John R. Birge	University of Chicago	12
Gérard P. Cachon	University of Pennsylvania (Wharton)	12

APPENDIX
STELLAR SCHOLARS IN THE FIELD OF POM (BASED ON PUBLICATIONS SINCE 1985)

Name	University	H index (by 04/15/08)
Zhi-Long Chen	University of Maryland (Smith)	12
Gérard P. Cornuéjols	Carnegie Mellon (Tepper)	12
Gregory Dobson	Rochester (Simon)	12
Izak Duenyas	University of Michigan (Ross)	12
Howard C.Kunreuther	University of Pennsylvania (Wharton)	12
Evan L. Porteus	Stanford University	12
David A. Schilling	Ohio State University (Fisher)	12
Shawnee K. Vickery	Michigan State University (Broad)	12
Peter T. Ward	Ohio State University (Fisher)	12
Urban Wemmerlov	Wisconsin (Madison)	12
Seungjin Whang	Stanford University	12
Kenneth K. Boyer	Michigan State University (Broad)	11
Suresh Chand	Purdue University (Krannert)	11
Charles J. Corbett	UCLA (Anderson)	11
Stephen Eppinger	MIT (Sloan)	11
Barbara Flynn	Indiana University (Kelley)	11
Soumen Ghosh	Georgia Tech	11
J Michael Harrison	Stanford University	11
Paul Kleindorfer	University of Pennsylvania (Wharton)	11
Ram Narasimhan	Michigan State University (Broad)	11
Gary L. Ragatz	Michigan State University (Broad)	11
R. Ravi	Carnegie Mellon (Tepper)	11
Aleda Roth	Clemson University	11
Rakesh K. Sarin	UCLA (Anderson)	11
Jeannette Song	Duke University (Fuqua)	11
Morgan Swink	Michigan State University (Broad)	11
Christian Terwiesch	University of Pennsylvania (Wharton)	11
Richard B. Chase	USC (Marshall)	10
Clayton M. Christensen	Harvard Business School	10
Michael R. Crum	Iowa State University	10
Charles H. Fine	MIT (Sloan)	10
Robert M. Freund	MIT (Sloan)	10
Genaro J. Gutierrez	Texas – Austin (McCombs)	10
Lee J. Krajewski	University of Notre Dame (Mendoza)	10
Vincent A. Mabert	Indiana University (Kelley)	10
John O. McClain	Cornell University (Johnson)	10
Steven A. Melnyk	Michigan State University (Broad)	10
Praveen R. Nayyar	NYU (Stern)	10
J Keith Ord	Georgetown University (McDonough)	10

APPENDIX STELLAR SCHOLARS IN THE FIELD OF POM (BASED ON PUBLICATIONS SINCE 1985)		
Name	**University**	**H index (by 04/15/08)**
Michael L. Pinedo	NYU (Stern)	10
Gary P. Pisano	Harvard Business School	10
Srinivas (Sri) Talluri	Michigan State University (Broad)	10
Kwei Tang	Purdue University (Krannert)	10
Stefan H. Thomke	Harvard Business School	10
Garrett J. van Ryzin	Columbia University	10

A Study on International Students' Cross-Cultural Adaptability of Learning Mandarin Chinese Abroad

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ABSTRACT

In response to the internationalization of higher education and the trend of studying abroad, the recruitment of international students and the evaluation of the concrete effects of overseas learning have become the educational objectives of higher education institutions in various countries. In addition, to enable students to face the competitive global job market, higher education is attaching increased importance to the development of cross-cultural adaptability and communication skills. This study examined international students learning Mandarin Chinese at the Chinese language centers of universities in Taiwan to investigate their cross-cultural adaptability. The research results showed that, in general, the cross-cultural adaptation of international students of diversified cultural backgrounds studying in Taiwan was good. The international students suggested that the living environment in the Tainan metropolitan area was safe and satisfactory. Approximately 38% of the international students suggested that they were satisfied with their learning in Taiwan. However, most of the international students suggested that the Mandarin Chinese teaching materials and the teaching materials of other professional courses taught in Chinese were difficult and exhaustive.

INTRODUCTION

Research motives, purposes, and expected contributions

The increasing internationalization of campuses, companies, and communities is a major recent development. Marcum (2001) suggested that in a world where interest in global issues only continues to grow, studying abroad must be viewed from a much wider perspective. In light of the trend of overseas learning and in response to competitive student recruitment of global higher education institutions, an important strategy for the internationalization of higher education adopted by the Ministry of Education in Taiwan is to increase both the number and quality of international students studying in Taiwan. Regarding the Project for Increasing the Number of International Students Studying in Taiwan by the Executive Yuan, the Ministry of Education mentioned, "The government has started to invest considerable funds, and it is expected that in 2011, there will be as many as 12,830 international students studying for degrees in Taiwan" (Ministry of Education, 2007). With the impact of the low birth rate in Taiwan, international student recruitment can be regarded as one approach to solve the problem of a shortage of students in higher education institutions. Therefore, higher education institutions in Taiwan should view international student recruitment as a long-term objective and establish complete policies and systems. In today's world of higher education, demonstrated outcomes and applicability to the real world are vital to the sustainment of academic programs. Students and their parents are more inclined than ever to hold colleges and

universities accountable for the quality of the educational opportunities they provide; education consumers want assurances that institutions will provide the knowledge, skills, and awareness that will contribute directly to success after graduation (Vande Berg, 2001). The skills needed for success today differ from those needed just a few years ago. Furthermore, college graduates currently face a capricious job market; in such a market, they can be expected to change careers, and not just jobs, six times during their lives, and they may retire from jobs that do not even exist at present. In fact, rather than looking for specific training in a single field, many employers today consider communication skills to be the top priority when looking for employees (Job Outlook, 2000).

This study investigated the cross-cultural adaptation problems encountered by international students of diversified cultural backgrounds during the course of their studies in Taiwan. To help students face the competitive global job market in the future, higher education should attach importance to the development of their cross-cultural adaptability and communication skills during their studies in Taiwan. Most of the current studies on international students focus on life adaptation or adaptation status, for example, physiological, psychological, and stress situations, instead of the important issue of cross-cultural adaptation. Currently, Chinese language courses constitute the most common form of higher education for international students in Taiwan(Ma, 2008), because all the colleges and universities are devoted to the development of Chinese language courses for assisting international students in academic learning and life adaptation. The subjects in this study were international students learning Mandarin Chinese at universities in the Tainan metropolitan area. The purpose of this study was to understand the current status and differences between international students of different cultural backgrounds learning Mandarin Chinese in Taiwan. It was expected that practical suggestions could be proposed for the development and improvement of policies and systems for international student recruitment in higher education in Taiwan. These suggestions will be based on an understanding of the actual situation of international students' cross-cultural adaptability, and they will help international students studying in Taiwan adapt themselves to cultural differences, local learning, and life as effectively and quickly as possible. This could then further improve the cross-cultural adaptability and communication skills of international students in Taiwan and achieve the educational objective of the internationalization of higher education. After this educational objective is achieved, higher-quality international students can be recruited to study in Taiwan and promote improvements in the quality of internationalization. As there are few studies on international students' cross-cultural adaptability and overseas learning in Taiwan, the research results can resolve the present deficiencies in literature on international students, cross-cultural adaptability, and studying abroad.

Definitions

1. "Studying abroad" refers to the act of students pursuing educational opportunities in a country other than their own.
2. "International students" refers to students of other nationalities who are formally learning Mandarin Chinese at colleges and universities with Chinese language centers in Taiwan.
3. "Cross-cultural adaptability" refers to the reconsideration and adjustment of behavior and ideological criteria to better match another culture. During the course of cross-cultural adaptability acquisition, individuals will experience various feelings or physical and psychological changes (Ward & Kennedy, 1996).

LITERATURE REVIEW

International Students Studying Mandarin Chinese in Taiwan

International students form the bridges of international friendship, and international student recruitment can strengthen Taiwan's international relationships. Moreover, the number of international students is not only an important indicator of the internationalization and international competitiveness of higher education but also a sign of national attractiveness and the influence of a country. According to the statistics as of October 30, 2009, there were 22,366 international students pursuing degree programs and non-degree courses (including exchange students, short-term trainees, personal study students, and Mandarin Chinese learning students) in Taiwan in 2009. According to the statistics, there were 11,612 international students studying at Chinese language centers in colleges and universities in 2009, with the number increasing by 961 from 2008, when there were 10,651. Among these international students, most of them (6,209 in total, or 53%) came from Asian countries, followed by the Americas (3,071, or 26%). The international student pool comprised students from 126 countries. The highest number of international students were from the following five countries: the US (2,087), Japan (1,739), Korea (1,145), Vietnam (1,055), and Indonesia (877). These students studied at 30 Chinese language centers in Taiwan; most of them (3,364) studied at National Taiwan Normal University, followed by Chinese Culture University (1,070), Tamkang University (720), National Taiwan University (696), and National Cheng Kung University (635) (Department of Statistics, Ministry of Education, 2009). In the inter-governmental policy advisor discussion of academic education categories, President Ma Ying-jeou indicated that colleges and universities have faced a shortage of students. It is expected that the proportion of international students (including overseas Chinese students) in colleges and universities in Taiwan will increase to twice of that in 2008 (1.3%) in order to increase the international competitiveness of college students. Therefore, growth in the number of international students pursuing non-degree courses will also be included in future objectives for growth in international student numbers. Under the premise of improving the international education quality of higher education, the Ministry of Education will encourage colleges and universities to improve their language-barrier-free internationalized campus environments to attract excellent international students to study in Taiwan or serve as short-term trainees to further increase the interaction and exchange between local students and international students, thereby improving the overall level of in-campus international education (Office of the President, Taiwan, 2010).

Studies on the cross-cultural adaptability of international students

Jin, Donna, and Robyn (1998) suggested that if international students' learning can be accompanied by local peer students, the problem of cross-cultural adaptation can be effectively resolved, and the international perspectives of local students can be cultivated. Ward and Kennedy (2001) suggested that studies concerning international students' cross-cultural adaptability mainly focus on three parts: first, to investigate international students' social networks from the perspective of cultural learning theory; second, to investigate the social skills obtained by international students from the perspective of stress and adaptation theory; and third, to study the in-group cognition and relationships from the perspective of social identity theory. Hellstén (2002) mentioned that to meet the needs of international students, educational reform and implementation must understand the planning and design of teaching materials and teachers for education, as well as communication and interaction models between schools and international students, and must include international students' nationalities, cultural backgrounds, and features in relevant discussions and reviews. In addition to cultural and living problems, the cross-cultural adaptation problem mainly encountered by international students is academic pressure (Sam, 2001; Bochner et al., 1997). Arthur (2004) suggested that when there is a conflict between the teaching style of the host schools and the former learning experiences of international students, the students may face difficulties in learning cross-cultural adaptation. Li and Gasser (2005) pointed out that, in terms of the learning adaptation of international students studying abroad, social adaptation has to include: the expression of attitudes, feelings, and emotions; the adoption of the appropriate polemic posture; an understanding of the gaze patterns of the people they are interacting with; and the carrying out of ritualized routines, taking leave, self-disclosure, making or refusing requests, and self-assertion.

Relevant Aspects of Studies

Sezrle and Ward (1990) indicated that cross-cultural adaptation includes two major aspects: "psychological adjustment" and "socio-cultural adjustment." Psychological adjustment refers to the perceived levels of happiness and satisfaction. However, factors such as "pressure," "social support," "partners of the same nationality," "local friends," "life changes," "attitude towards interactions with local friends," and "other individual factors" will affect psychological adjustment. Moreover, the factors affecting socio-cultural adjustment are mainly based on social learning theory and thus include assessments on the bases and models of interactions, such as "cross-cultural contact," "cultural distance," "cross-cultural training," "previous cross-cultural experiences," and "length of residence." Sandhu and Asrabadi (1994) developed the Acculturative Stress Scale for International Students, which has been widely used in studies concerning international students. Uehara (1988) investigated international students' cross-cultural adaptability in Japan using Baker's (1981) Freshmen Student Adjustment Scale. The scale focuses on social and cultural aspects, and the aspects of the scale include "studying and researching," "mind-body wellness," "interpersonal relationships," and "culture and economics of the living environment." This study used the amended Cross-Cultural Scale adopted by Uehara (1988), as it is based on the socio-cultural model. This study mainly investigated the difficulties encountered by international students during their learning adaptation abroad, and expanded the aspects of cross-cultural adaptability from a psychological aspect to the interactions and relationships with local society. As a result, the scale comprehensively included all the factors that affect cross-cultural adaptability.

RESEARCH METHOD

Research scope and subjects

This study examined international students learning Mandarin Chinese in the Chinese language centers at the three universities of the Tainan metropolitan area. International students in the universities totaled 459 (Department of Statistics, Ministry of Education, Taiwan, 2009). A total of 285 questionnaires were distributed, and 215 were returned. There were 204 valid questionnaires, for a return rate of 72%.

Research instruments

This study adopted a questionnaire survey, with analysis based on SPSS. Analytical approaches included descriptive statistics including mean, frequency distribution, and standard deviation, and inferential statistics refer to the independent sample t-test and one-way ANOVA.

The questionnaire for the quantitative study included two parts. Part one was an independent demographic variables information form, which included a total of eight items: homeland, gender, age, educational background, marriage status, dwelling, monthly allowance, and length of stay in Taiwan. The item concerning the homeland was designed on the basis of seven continents and their countries, and the relevant regional and cultural characteristics of the majority of the international students in the Tainan metropolitan area. The homeland was categorized into the US, South America, Canada, Europe, Southeast Asia, Japan, Korea, Australia, and others. Part two was the scale of cross-cultural adaptability for international students learning abroad, and the questions were developed based on amendments made to the questions concerning five aspects in the Cross-Cultural Scale adopted by Uehara (1988). In other words, the cross-cultural adaptation problems encountered by international students could be analyzed based on these questions. A total of 39 items were used to measure international students' responses, using a five-point Likert Scale ranging from five (strongly agree) to one (strongly disagree). The aspects and contents of the scale are shown in Table 1. Cronbach's α of the scale of cross-cultural adaptability for international students was 0.929, and of the questions ranged from 0.691 to 0.904. Therefore, the internal consistency of the scale was high, representing a high reliability of the scale. In order to test the appropriateness and representativeness of the contents and questions in the scale, it was important to conduct a content validity analysis. The value of the Kaiser-Meyer Olkin Measure of Sampling Adequacy (KMO), ranging from 0 to 1, can be used to determine the appropriateness. When the KMO value is greater than 0.50, the content validity is high and the scale is representative. The KMO value of the scale was 0.841, and that of the questions ranged from 0.770 to 0.910. Therefore, the content validity of the scale was high and the scale was representative.

Table 1
Aspects and items of scale of cross-cultural adaptability

Aspects	Numbers of items, and items
Studying and researching	1. I feel happy in my studies recently. 2. I have been very happy since I began to study at the university. 3. My study attitude has been positive recently. 4. I have a clear goal in studying at the university. 5. I feel positive on the value of research or study at the university. 6. My research project or study has progressed very smoothly. 7. I have benefited from the curricula I am studying at the university. 8. I am satisfied with the courses of this semester. 9. I understand my chosen courses very well. 10. I feel easy reading books in the Chinese language for my chosen specific course. 11. Overall, I am satisfied with my study at the university.
Physical, mental health and emotions	1. I have had a good health recently. 2. I have sleep very well recently. 3. I have felt homesick recently. 4. I have often felt pleasure recently. 5. My recent emotional ups and downs very smooth. 6. I am very active in the relationships recently. 7. I own psychological or spiritual satisfaction.
Interpersonal relationship	1. I have good Taiwanese friends at my university. 2. I have good international student friends. 3. I have good Taiwanese friends from outside the university. 4. I can communicate well with the professors or lecturers of my course. 5. I have had fairly good interpersonal relationship recently. 6. I have ample opportunities and Interactive for group activities with Taiwanese students at the university. 7. Overall, I have good relationships at the university.
Local culture	1. I understand and can integrate into Taiwanese culture in my daily life. 2. Although I am a foreigner, I feel I have integrated into the local life.
	3. People in Taiwan do not discriminate strongly against foreigners; I can easily take part in group their group activities. 4. People in Taiwan are friendly, so communicating with them is easy. 5. I can understand the cultural identity of the Taiwan people. 6. I obtained a lot of information about Taiwan before I came.
Living environment and financial conditions	1. My current living environment is comfortable and satisfactory. 2. The living environment and hygienic conditions are good in Taiwan. 3. The neighborhood is very safe around my residence. 4. I get along very well with the neighbors around my residence.
	5. I can adapt to the local weather. 6. The rent charge of my residence is reasonable. 7. My current financial state is very good. 8. Overall, I am satisfied with the local life.

RESEARCH RESULTS

Analysis of Demographic Variables

The homeland of 36 (17.6%) of the students was the US, 15 (7.4%) were from South America, and 6 (2.9%) were from Canada. There were 43 (21.1%) students from Europe, 64 (31.4%) from Southeast Asia, 10 (4.9%) from Japan, 7 (3.4%) from Korea, and 23 (11.3%) students from other countries. Most of the international students came from Southeast Asia, followed by Europe and the US. In terms of gender, there were 111 male students (54.4%) and 93 female students (45.6%), showing no significant difference between the number of male and female students. In terms of age, there were 26 students under the age of 20 years (12.7%), 142 students aged 21–30 years (69.6%), 34 students aged 31–40 years (16.7%), and 2 students aged 51–60 years (0.8%). Most of the international students were aged 21–30 years, followed by the age group of 31–40 years. In terms of educational background, there were 138 students studying in colleges (67.6%), 64 students studying in graduate institutes (31.4%), and 2 students studying in PhD programs (1%). In terms of marriage status, 185 students were single (90.7%) and 19 students were married (9.3%), showing that the international students studying in Taiwan were mainly single. In terms of dwelling status, 78 students lived in school dormitories (38.2%), 86 students lived alone outside the school (42.2%), and 40 students lived with roommates outside the school (19.6%). The international students mainly lived alone outside the school. In terms of monthly allowance, 14 students (6.9%) spent less than NTD$5,000 per month, 59 students (28.9%) spent NTD$5,000 to 9,999 per month, 44 students (21.6%) spent NTD$10,000 to 14,999 per month, 33 students (16.2%) spent NTD$15,000 to 19,999 per month, 34 students (16.7%) spent NTD$20,000 to 24,999 per month, and 20 students (9.8%) spent more than NTD$25,000 per month. Most of the international students spent NTD$ 5,000 to 9,999 per month. Regarding length of stay in Taiwan, 109 international students (53.4%) studied in Taiwan for less than one year, 63 students (30.9%) studied in Taiwan for one to two years, 15 students (7.4%) studied in Taiwan for two to three years, four students (2.0%) studied in Taiwan for three to four years, seven students (3.4%) studied in Taiwan for four to five years, and six students (2.9%) studied in Taiwan for more than five years. Most of the international students studied in Taiwan for less than one year, meaning they were short-term students.

Descriptive Statistics

As shown in Table 2, the mean of most of the international students learning Mandarin Chinese in Taiwan in every aspect of cross-cultural adaptability revealed positive and satisfactory responses. In the aspect of "studying and researching," the items "I feel happy with my studies recently" (Mean = 4.01), "I have a clear goal for studying at the university" (Mean = 4.08), and "Overall, I am satisfied with my studies at the university" (Mean = 4.01) revealed international students' positive learning attitudes. However, the item "I feel it is easy to read books in the Chinese language for my chosen specific course" (Mean = 3.30) revealed lower satisfaction, indicating that most of the international students suggested that it was difficult and exhausting to learn the Chinese language teaching materials and teaching materials of other professional courses in Chinese provided by universities of higher education in Taiwan. Regarding "physical, mental health and emotions," international students showed the highest level of satisfaction for the item "I have been in good health recently" (Mean = 4.05), suggesting that, in general, international students were in good health. The item "I have psychological or spiritual satisfaction" (Mean = 3.77) also revealed that most of the international students suggested they were physically and spiritually satisfied. The item "I have sleep very well recently" (Mean = 3.54) revealed that some international students still failed to sleep normally and experienced poor sleep quality. Regarding "interpersonal relationships," the items "I have good international student friends" (Mean = 4.14) and "I have good Taiwanese friends at my university" (Mean = 3.54) revealed that international students' social circles were still restricted to the population of foreign students with whom they could easily communicate, and that they would keep local people and students at a distance. Regarding "local culture," the item "People in Taiwan do not discriminate strongly against foreigners; I can

Table 2
Descriptive statistics of the cross-cultural adaptability of international students

Dimensions	Variable	Mean	Std. Dev.
Studying and Researching	I feel happy in my studies recently.	4.01	0.842
	I have been very happy since I began to study at the university.	4.00	0.931
	My study attitude has been positive recently.	3.94	0.863
	I have a clear goal in studying at the university.	4.08	0.953
	I feel positive on the value of research or study at the university.	3.93	0.812
	My research project or study has progressed very smoothly.	3.64	0.862
	I have benefited from the curricula I am studying at the university.	3.96	0.805
	I am satisfied with the courses of this semester.	3.81	0.899
	I understand my chosen courses very well.	3.83	0.908
	I feel easy reading books in the Chinese language for my chosen specific course.	3.30	1.146
	Overall, I am satisfied with my study at the university.	4.01	0.873
Physical, mental health and emotions	I have had a good health recently.	4.05	0.940
	I have sleep very well recently.	3.54	1.115
	I have felt homesick recently.	2.98	1.295
	I have often felt pleasure recently.	3.71	0.902
	My recent emotional ups and downs very smooth.	3.35	0.969
	I am very active in the relationships recently.	3.69	0.939
	I own psychological or spiritual satisfaction	3.77	0.935
Interpersonal Relationship	I have good Taiwanese friends at my university.	3.54	1.141
	I have good international student friends.	4.14	0.767
	I have good Taiwanese friends from outside the university.	3.59	1.265
	I can communicate well with the professors or lecturers of my course.	3.85	0.933
	I have had fairly good interpersonal relationship recently.	3.87	0.808
	I have ample opportunities and Interactive for group activities with Taiwanese students at the university.	3.52	1.047
	Overall, I have good relationships at the university.	4.00	0.765
Local culture	I understand and can integrate into Taiwanese culture in my daily life.	3.81	0.912
	Although I am a foreigner, I feel I have integrated into the local life.	3.72	0.900
	People in Taiwan do not discriminate strongly against foreigners; I can easily take part in group their group activities.	3.59	0.955
	People in Taiwan are friendly, so communicating with them is easy.	3.80	0.900
	I can understand the cultural identity of the Taiwan people.	3.71	0.836
Living Environment and financial conditions	My current living environment is comfortable and satisfactory.	3.74	0.896
	The living environment and hygienic conditions are good in Taiwan.	3.53	0.999
	The neighborhood is very safe around my residence.	4.06	0.782
	I get along very well with the neighbors around my residence.	3.75	0.858
	I can adapt to the local weather.	3.47	0.974
	The rent charge of my residence is reasonable.	3.81	0.856
	My current financial state is very good.	3.61	0.926
	Overall, I am satisfied with the local life.	3.95	0.767

easily take part in their group activities" (Mean = 3.59) revealed that international students still found it stressful to integrate themselves with local communities and groups in Taiwan. However, the items "I understand and can integrate into Taiwanese culture in my daily life" (Mean = 3.81) and "People in Taiwan are friendly, so communicating with them is easy" (Mean = 3.80) revealed that international students suggested that Taiwanese were friendly and easygoing, and that they liked to integrate themselves with local culture in Taiwan. Regarding "living environment and financial conditions," the items "The neighborhood is very safe around my residence" (Mean = 4.06) and "Overall, I am satisfied with the local life" (Mean = 3.95) revealed that the international students felt the living environment in the Tainan metropolitan area was safe and satisfactory.

Level of response

Table 3 summarizes the level of response to the cross-cultural adaptability of international students learning Mandarin Chinese in Taiwan. The international students checked boxes ranging from "strongly agree" to "strongly disagree" for each item of the five aspects of cross-cultural adaptability, which were "studying and researching," "physical, mental health and emotions," "interpersonal relationships," "local culture," and "living environment and financial conditions" in order to express their opinions and reveal their level of response to cross-cultural adaptability. Regarding the item "I have felt homesick recently," "disagree" was chosen by the largest number of students (41 in total, or 20.4%), followed by "strongly disagree" (36 in total, or 17.6%), suggesting that one-fifth of the international students only slightly missed their homeland, and another one-fifth of them did not miss their homeland at all. Regarding the item "My research project or study has progressed very smoothly," "neither agree nor disagree" was chosen by the largest number of students (77 in total, or 37.7%), indicating that more than one-third of the international students suggested they were satisfied with their learning and further studies in Taiwan. Regarding the item "Overall, I am satisfied with the local life," "agree" was chosen by the largest number of students (126 in total, or 61.8%), suggesting that more than half of the international students were satisfied with and had adapted to the life in the Tainan metropolitan area. Therefore, they were less perturbed by homesickness. Regarding the item "I have a clear goal for studying at the university," "strongly agree" was chosen by the largest number of students (81 in total, or 39.7%), suggesting that most of the international students decided to come to Taiwan after careful consideration and with explicit objectives. Furthermore, the item "My recent emotional ups and downs have been very smooth" was completed by the smallest number of international students (18 in total, or 8.8%), suggesting that international students did not have any appropriate way to release the stress caused by cross-cultural adaptation, resulting in emotional ups and downs.

Demographic Variables and Cross-Cultural Adaptability

As shown in Table 4, the independent sample t-test and one-way ANOVA were performed to analyze the relationship between demographic variables and the cross-cultural adaptability of international students learning Mandarin Chinese in Taiwan.

Table 4
Statistical Methods on the International Student's Demographic Variables and the Dependent Variable Cross-Cultural Adaptability

Independent variable	Statistical Methods
Homeland	one-way ANOVA
Gender	t-test
Age	one-way ANOVA
Education background	one-way ANOVA
Marriage status	one-way ANOVA
Dwelling	t-test
Monthly allowance	one-way ANOVA
Stay period	one-way ANOVA

Table 3
Statistics on the level of response to the cross-cultural adaptability of international students (number with % below)

Variable	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I feel happy in my studies recently.	0 0%	14 6.9%	28 13.7%	102 50.0%	60 29.4%
I have been very happy since I began to study at the university.	4 2.0%	10 4.9%	33 16.2%	90 44.1%	67 32.8%
My study attitude has been positive recently.	1 0.5%	15 7.4%	31 15.2%	105 51.5%	52 25.5%
I have a clear goal in studying at the university.	1 0.5%	18 8.8%	24 11.8%	80 39.2%	81 39.7%
I feel positive on the value of research or study at the university.	2 1%	7 3.4%	41 20.1%	106 52.0%	48 23.5%
My research project or study has progressed very smoothly.	2 10%	12 5.9%	77 37.7%	79 38.7%	34 16.0%
I have benefited from the curricula I am studying at the university.	0 0%	7 3.4%	49 24%	93 45.6%	55 27.0%
I am satisfied with the courses of this semester.	1 0.5%	13 6.4%	59 28.9%	80 39.2%	51 25.0%
I understand my chosen courses very well.	3 1.5%	14 6.9%	43 21.1%	97 47.5%	47 23.0%
I feel easy reading books in the Chinese language for my chosen specific course.	14 6.9%	37 18.1%	60 29.4%	60 29.4%	33 16.2%
I have had a good health recently.	3 1.5%	12 5.9%	31 15.2%	84 41.2%	74 36.3%
I have sleep very well recently.	8 3.9%	32 15.7%	51 25.0%	68 33.3%	45 22.1%
I have felt homesick recently.	36 17.6%	41 20.1%	43 21.1%	60 29.4%	24 11.8%
I have often felt Pleasure recently.	2 1%	19 9.3%	51 25.0%	95 46.6%	37 18.1%
My recent emotional ups and downs very smooth.	6 2.9%	36 17.6%	59 28.9%	85 41.7%	18 8.8%
I am very active in the human relations recently.	1 0.5%	27 13.2%	43 21.1%	95 46.6%	38 18.6%
I own psychological or spiritual satisfaction.	5 2.5%	13 6.4%	48 23.5%	95 46.6%	43 21.1%
I have good Taiwanese friends at my university.	9 4.4%	35 17.2%	40 19.6%	75 36.8%	45 22.1%
I have good international student friends.	0 0%	7 3.4%	26 12.7%	101 49.5%	70 34.3%
I have good Taiwanese friends from outside the university	16 7.8%	29 14.2%	37 18.1%	61 29.9%	61 29.9%

Table 3
Statistics on the level of response to the cross-cultural adaptability of international students (number with % below)

Variable	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I can communicate well with the professors or lecturers of my course.	6 2.9%	11 5.4%	36 17.6%	104 51.0%	47 23.0%
I have had fairly good interpersonal relationship recently.	4 2.0%	4 2.0%	45 22.1	112 54.9%	30 19.1%
I have ample opportunities and Interactive for group activities with Taiwanese students at the university.	9 4.4%	27 13.2%	47 23.0	89 43.6%	32 15.7%
Overall, I have good relationships at the university.	0 0%	10 4.9%	29 14.2%	115 56.4%	50 24.5%
I understand and can integrate into Taiwanese culture in my daily life.	3 1.5%	15 7.4%	44 21.6%	97 47.5%	45 22.1%
Although I am a foreigner, I feel I have integrated into the local life.	6 2.9%	10 4.9%	52 25.5	102 50.0%	34 16.7%
People in Taiwan do not discriminate strongly against foreigners; I can easily take part in group their group activities.	4 2.0%	18 8.8%	73 35.8	71 34.8%	38 18.6%
People in Taiwan are friendly, so communicating with them is easy.	3 1.5%	17 8.3%	38 18.6%	106 52.0%	40 19.6%
I can understand the cultural identity of the Taiwan people.	0 0%	18 8.8%	55 27.0%	99 48.5%	32 15.7%
My current living environment is comfortable and satisfactory.	2 1.0%	20 9.8%	43 21.2%	103 50.5%	36 17.6%
The living environment and hygienic conditions are good in Taiwan.	9 4.4%	20 9.8%	57 27.9%	89 43.6%	29 14.2%
The neighborhood is very safe around my residence.	2 1.0%	4 2.0%	32 15.7%	107 52.5%	59 28.9%
I get along very well with the neighbors around my residence.	2 1.0%	9 4.4%	67 32.8%	85 41.7%	41 20.1%
I can adapt to the local weather.	9 4.4%	15 7.4%	79 38.7%	72 35.3%	29 14.2%
The rent charge of my residence is reasonable.	3 1.5%	11 5.4%	46 22.5%	105 51.5%	39 19.1%
My current financial state is very good.	4 2.0%	20 9.8%	58 28.4%	91 44.6%	31 15.2%
Overall, I am satisfied with the local life.	0 0%	14 6.9%	23 11.3%	126 61.8%	41 20.1%

Influence of Homeland on the Difference in Cross-Cultural Adaptability

As shown in Table 5, the one-way ANOVA analysis indicated that, owing to the difference in homeland, there were significant differences in three aspects of the cross-cultural adaptability of international students learning Mandarin Chinese in Taiwan: "studying and researching" (F = 3.083, p = .004 < .05), "physical, mental health and emotions" (F = 4.688, p = .000 < .05), and "living environment and financial conditions" (F = 3.371, p = .002 < .05). However, there were no significant differences in the aspects of "interpersonal relationships" and "local culture." Therefore, in terms of the cross-cultural adaptability of international students of different nationalities, the influence of homeland on the aspects of "interpersonal relationships" and "local culture" in cross-cultural adaptability should be regarded as a personal factor. The Scheffé method posteriori comparisons showed that the level of cross-cultural adaptability in the aspect of "studying and researching" for international students with South American nationalities was higher than that of those with Southeast Asian nationalities. In addition, the level of physical and psychological health of international students with South American nationalities was higher than that of those with European and Southeast Asian nationalities as well. However, the Scheffé method posteriori comparisons showed no significant between-group differences in the aspect of "living environment and financial conditions" in cross-cultural adaptability caused by the difference in homeland.

Influence of Gender on the Difference in Cross-Cultural Adaptability

As shown in Table 6, the independent sample t-test analysis indicated that, owing to the difference in gender of international students learning Mandarin Chinese in Taiwan, there was a significant difference in the aspect of "living environment and financial conditions" (t = 2.200, p = .029 < .05) of cross-cultural adaptability only, revealing the level of cross-cultural adaptability to living environment and financial conditions varied with the requirements and expectations caused by different genders. However, there were no significant differences in the other aspects of cross-cultural adaptability.

Table 5
Difference analysis on the international student's homeland and cross-cultural adaptability (SD: standard deviation)

Variable	Mean	SD	F value	*P* value	Scheffé method (posteriori comparisons)
Studying and researching	42.57	7.10	3.083	0.004**	South America > Southeastern Asia
Physical, mental health and emotions	25.11	4.24	4.688	0.000***	South America > Europe, Southeastern Asia
Interpersonal relationships	26.56	4.78	0.777	0.680	
Local culture	22.02	3.77	0.530	0.811	
Living environment and financial conditions	29.95	4.64	3.371	0.002**	

p<.05* *p*<.01** *p*<.001***

Table 6
Difference analysis on the international student's gender and cross-cultural adaptability

Variable	Mean Difference	t-value	P value
Studying and researching	0.670	0.670	0.503
Physical, mental health and emotions	0.949	1.599	0.111
Interpersonal relationships	0.908	1.354	0.177
Local culture	0.361	0.681	0.497
Living environment and financial conditions	1.423	2.200	0.029*

p<.05* p<.01** p<.001***

Influence of Age on the Difference in Cross-Cultural Adaptability

As shown in Table 7, the one-way ANOVA analysis indicated that, owing to the difference in the ages of international students learning Mandarin Chinese in Taiwan, there were significant differences in the two aspects of "interpersonal relationships" (F = 2.843, p = .039 < .05) and "local culture" (F = 3.057, p = .029 < .05) in cross-cultural adaptability. In the aspect of "international relationships" of cross-cultural adaptability, as the international students' needs and ideas about friendship varied with their ages, the level of interaction in interpersonal relationships of international students of different ages varied. In the aspect of "local culture," it was found that international students' level of adaptation to and acceptance of local culture in Taiwan varied with age. However, after the Scheffé method posteriori comparisons was performed, no significant between-group differences were found in the aspects of "interpersonal relationships" and "local culture" caused by the difference in ages.

Influence of Monthly Allowance on the Difference in Cross-Cultural Adaptability

As shown in Table 8, the one-way ANOVA analysis indicated that, owing to the difference in the monthly allowance of international students learning Mandarin Chinese in Taiwan, there were significant differences in two aspects: "local culture" (F = 3.246, p = .008 < .05) and "living environment and financial conditions" (F = 4.520, p = .001 < .05). However, after the Scheffé method posteriori comparisons was performed, no significant between-group differences were found in the aspect of "local culture" in cross-cultural adaptability caused by the differences in monthly allowance, suggesting that monthly allowance would affect international students' cross-cultural adaptability to local culture. However, the amount of monthly allowance was not the key factor. Moreover, after the Scheffé method posteriori comparisons was performed, the level of cross-cultural adaptability in the aspects of "living environment and financial conditions" of international students whose monthly allowance was more than NTD$ 25,000 was found to be significantly higher than that of those whose monthly allowance was NTD$ 10,000 to 14,999 or NTD$ 5,000 to 9,999.

Influence of Length of Stay on the Difference in Cross-Cultural Adaptability

As shown in Table 9, the one-way ANOVA analysis indicated that, owing to the difference in length of stay in Taiwan of international students learning Mandarin Chinese, there were significant differences in three aspects of cross-cultural adaptability: "studying and researching" (F = 5.076, p = .000 < .05), "interpersonal relationships" (F = 3.037, p = .012 < .05), and "living environment and financial conditions" (F = 6.373, p = .000 < .05). After the Scheffé method posteriori comparisons was performed, regarding the aspect of "studying and researching," the level of cross-cultural adaptability of international students who stayed in Taiwan for less than one year, one to two years, two to three years, and more than five years was significantly higher than that that of those who stayed in Taiwan for four to five years. Regarding the aspect of "interpersonal relationships," the level of cross-cultural adaptability of both international students who stayed in Taiwan for one to two years or two to three years was significantly higher than that of those who stayed in Taiwan for four to five years. Regarding the aspect of "living environment and financial conditions," the level of cross-cultural adaptability of international students who stayed in Taiwan for less than one year, one to two years, two to three years, and more than five years was significantly higher than that of those who stayed in Taiwan for four to five years.

Table 7
Difference analysis on the international student's age and cross-cultural adaptability (SD: standard deviation)

Variable	Mean	SD	F value	P value
Studying and researching	42.57	7.10	1.403	0.243
Physical, mental health and emotions	25.11	4.24	1.410	0.241
Interpersonal relationships	26.56	4.78	2.843	0.039*
Local culture	22.02	3.77	3.057	0.029*
Living environment and financial conditions	29.95	4.64	1.261	0.289

p<.05* p<.01** p<.001***

CONCLUSIONS

The research results found that most of the international students learning Mandarin Chinese in Taiwan revealed positive responses and satisfaction in each aspect of cross-cultural adaptability. In other words, in general, the cross-cultural adaptability of the international students learning Mandarin Chinese in Taiwan was good. They were able to keep themselves in a good mood for learning, and were satisfied with their learning and further studies in Taiwan. They showed a positive attitude towards learning performance as well. Therefore, international students could adapt to and integrate themselves with the learning environment in Taiwan. In the aspect of "studying and researching" in cross-cultural adaptability, the teaching model and learning environment of higher education in Taiwan in general won the recognition of international students. International students also suggested that the people in Taiwan were enthusiastic and friendly, and their interactions with teachers in Taiwan were good. As opposed to China, the harmonious teacher-student relationship further

Table 8
Difference analysis on the international student's monthly allowance and cross-cultural adaptability (SD: standard deviation)

Variable	Mean	sd	F value	*P* value	Scheffé method (posteriori comparisons)
Studying and researching	42.57	7.10	1.905	0.095	
Physical, mental health and emotions	25.11	4.24	1.300	0.265	
Interpersonal relationships	26.56	4.78	1.218	0.302	
Local culture	22.02	3.77	3.246	0.008**	
Living environment and financial conditions	29.95	4.64	4.520	0.001**	over 25000NT>5000-10000NT over 25000NT>10000-15000NT

p<.05* *p*<.01** *p*<.001***

Table 9
Difference analysis on the international student's stay period in Taiwan and cross-cultural adaptability (SD: standard deviation)

Variable	Mean	sd	F value	P value	Scheffé method (posteriori comparisons)
Studying and researching	42.57	7.10	5.076	0.000***	under 1 year , 1-2 years, 2-3 years, over 5 years > 4-5 years
Physical, mental health and emotions	25.11	4.24	2.145	0.062	
Interpersonal relationships	26.56	4.78	3.037	0.012*	1-2 years, 2-3 years > 4-5 years
Local culture	22.02	3.77	2.097	0.067	
Living environment and financial conditions	29.95	4.64	6.373	0.000***	under 1 year , 1-2 years, 2-3 years, over 5 years > 4-5 years

p<.05* p<01** p<.001***

increased international students' identification and satisfaction with the educational environment in Taiwan. Furthermore, international students suggested that the living environment and consumption level in the Tainan metropolitan area were safe and satisfactory. They also suggested that the prices of commodities in the Tainan metropolitan area were reasonable and acceptable. Approximately 62% of the international students were satisfied with the living functions in the Tainan metropolitan area. Therefore, they were less perturbed by homesickness. Of the participants, 38% did not miss their homeland.

Most of the international students in this study had stayed in Taiwan for less than one year, and most of them were short-term students. It was found that the level of cross-cultural adaptation of international students who stayed in Taiwan for one to two years and for two to three years in the aspects of "studying and researching," "interpersonal relationships," and "living environment and financial conditions" was higher than that of those who stayed in Taiwan for four to five years, suggesting that the factor affecting international students' cross-cultural adaptation was their level of identification, preference, or acceptance for culture in Taiwan, instead of the length of stay in Taiwan. If international students ideologically suggested that they were strangers who could not integrate themselves with the culture in Taiwan, they would constantly be perturbed by the issue of cross-cultural adaptation. The cross-cultural adaptability of international students who came to Taiwan for four to five years was poorer than that of other students with different lengths of stay. The reason might be that these international students had encountered the bottleneck of cross-cultural adaptation during their stay, or that they had stayed in Taiwan for a longer period of time and their adaptability had reached the maximum before starting to decline. Therefore, their cross-cultural adaptability was poorer than that of those with different lengths of stay.

The international students in this study were mainly from Southeast Asia, followed by Europe and the US. Among them, the level of cross-cultural adaptability of international students with South American nationalities in the aspect of "studying and researching" was higher than that of those with Southeast Asian nationalities. In addition, in general, international students suggested that they were in good health. The level of physical and psychological health of international students with South American nationalities in the aspect of "physical, mental health and emotions" was higher than that of those with Southeast Asian nationalities. The reason might be that the personalities of international students with South American nationalities were more vivid and passionate compared to those of other nationalities. Therefore, when facing the emotional problems caused by cross-cultural adaptation, they could easily overcome them, and they would encounter fewer problems as opposed to those of other nationalities.

Moreover, regardless of the international students' native language, most of the international students suggested that it was difficult and exhausting to learn the Chinese language materials and the other professional courses taught in Chinese provided by colleges and universities in Taiwan. In addition, the social circles of the international students learning Mandarin Chinese in Taiwan were restricted to the international student population, with whom they could easily communicate. They kept a distance from local Taiwanese or Taiwanese classmates. In other words, they had difficulties with the language and it was stressful for them to integrate themselves with local communities and groups in Taiwan. Therefore, their Chinese ability would affect their learning and interpersonal relationships. The research results also verified that the learning experience of being abroad in and of itself was not enough; international students must interact with the local culture and people to gain increased intercultural communication skills. As new studying abroad programs are created and international students are received, new ways must be found to facilitate their interaction with the people of their host culture. To sum up, it is advised that, under the premise of improving international education quality, the higher education institutions in Taiwan should continuously strengthen internationalized language-barrier-free campuses, increase the number of courses in English, add more teachers with international teaching experiences, increase academic resources, encourage college teachers to aggressively engage in teaching in English, and employ experts and scholars with international teaching experience to design Chinese language teaching materials and diversified courses for international students from diversified cultural backgrounds in Taiwan. Examples include the provision of specific courses for academic terms in Chinese, professional and practical internship courses, distance learning, and offshore special classes. In addition, more efficient teaching strategies should be used to improve and assess the learning performance of other professional courses for international students learning Mandarin Chinese in Taiwan. According to the actual situation, international students should be provided with after-school tutoring when necessary, to reduce their difficulties in cross-cultural adaptation.

College students today need a higher education that provides them with cross-cultural adaptability and communication skills that will allow them to compete in a global market with an increasingly higher-educated population. The type of outcome assessment that stresses student outcomes over teacher input forces educators to evaluate what students are learning, what skills they are developing, and how these skills translate into the knowledge needed for jobs and for life (Fantini, Arias-Galicia & Guay, 2001). Vande Berg (2001) also mentioned that international educators have, during the past decade, become increasingly aware of the need to identify and measure the learning outcomes of international students participating in study-abroad programs. Therefore, international education and studying abroad is just one area of higher education that is progressing toward competency-based evaluations and exams to measure the outcomes of the learning experience. It is further advised that the performance of international education courses given in various colleges and universities in Taiwan should be assessed in detail, and international students' obtainment of cross-cultural adaptability and cross-cultural communication skills should be put into practice to attract more high-quality international students to Taiwan for long-term or short-term study. To increase the interactions between students in Taiwan and international students, as well as to increase international students' social circles, it is also advised that more relevant social activities, international student club activities, and group learning opportunities be arranged. In addition, the compilation and printing of international student handbooks and the provision of relevant information on learning, courses, life, and contact are also beneficial to international students' cross-cultural adaptation and improvements in the cultural integration of in-campus international education. Furthermore, higher education institutions in Taiwan should open more cross-cultural courses to help local Taiwanese students understand other cultures, cultivate an international perspective, and increase foreign social experiences to respond to the constantly changing and developing international education environment of diversified cultures. On the other hand, the establishment of Chinese language courses also enables international students in Taiwan to learn background knowledge of Mandarin Chinese and understand the unique attractiveness of Chinese culture. In this increasingly global society, it is more important than ever to learn how to communicate with others in an adaptable and sensitive manner.

The international students in this study were mainly aged 21–30 years, followed by the age group of 31–40 years. The international students' cross-cultural adaptability in the aspects of "interpersonal relationships" and "local culture" varied with age. The international students' needs and ideas about friendship varied with age as well. Therefore, the level of interaction in their interpersonal relationships also varied with their age. Pedersen (1999) mentioned that when international students leave someone important and the country where they live, they experience both the loss of emotions and the loss of social support. They need to establish a connection with people and classmates from a host country to obtain physiological and psychological support. International students' attitudes towards intercultural interactions may be affected by the quality of close peers' experiences in culturally diverse groups. According to the research results, approximately 9% of the international students suggested that they did not have appropriate methods to release the stress of cross-cultural adaptation, and thus, experienced unstable emotions. Therefore, international students need psychological care to help them solve problems and release stress. It is advised that colleges and universities in Taiwan distribute questionnaires concerning cross-cultural adaptation soon after the beginning of a new semester, conduct a ques-

tionnaire survey, and provide the international students with life and culture-related guidance and assistance based on it. In addition, to respond to the increasing problems and needs of international students, the development of current international education policies should be completely reviewed, professional cross-cultural communication-related administrative authorities should be established, and the training and assessment of professional managers and personnel of international affairs should be strengthened. This will enable international students studying in Taiwan to seek for solutions or suggestions, as well as to complete the overall development of internationalized environments in colleges and universities in Taiwan. At present, the personnel at the international affairs centers in most colleges and universities mainly speak English. However, in response to the number of international students of diversified nationalities studying in Taiwan, professional personnel who can speak various languages should be provided; otherwise, the students of non-English nationalities cannot be assisted properly. Furthermore, besides solving the problems encountered by international students, the professional personnel at international affairs centers should share their experiences. Therefore, in order to maintain good service quality, the turnover rate of personnel should be reduced.

According to the results of this study, the monthly allowance of most of the international students was NTD$5,000 to 9,999. The level of cross-cultural adaptability of the international students whose monthly allowance was more than NTD$25,000 was higher than that of those whose monthly allowance was NTD$5,000 to 9,999 and NTD$10,000 to 14,999, suggesting that international students may be more satisfied with local life in Taiwan if they have better monetary conditions. Therefore, it was found that the provision of various scholarships was beneficial to international students' cross-cultural adaptation. In addition, higher education institutions can promote academy-industry cooperation to provide international students in Taiwan with more practical and professional internship opportunities and experiences that focus on cross-cultural communication learning and development, which are also beneficial to cross-cultural adaptability promotion.

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Using Accounting Reform to Stimulate Sustainability Practices in Higher Education: A Sociological Analysis of Financial Storytelling

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ABSTRACT

University communities are interested in adopting sustainable practices; however, sustainable values often come into conflict with financial reports. In fact, sometimes financial reports show that sustainable values are inefficient. This paper explores financial reports as an economic language based upon the agency relationship that exists between investors and organizational managers. We give specific examples that illustrate how sustainable values fall outside of the historic boundaries of that relationship. The efforts to create more sustainable institutions of higher learning are held back because of these boundaries. Several suggestions are given as to how sustainable values can be integrated into the process of financial processes and reporting. A goal of a sustainable community can be more easily achieved if it works with, rather than against, the underlying relationship that forms the basis of the current systems that are used to tell our financial stories.

INTRODUCTION

Universities, colleges and other institutions of higher education are under pressure to amend their curriculum, administration, and managerial practices to model globally sensitive, sustainable values. UNESCO has declared 2005-2014 as the Decade of Education for Sustainable Development (ESD). As UNESCO Director-General Federico Mayor (1997) has asserted:

> "the key to sustainable, self-reliant development is education...We must be ready, in all countries, to reshape education so as to promote attitudes and behavior conducive to a culture of sustainability." (p. 4)

In this article, we argue that achieving sustainability within institutions of higher learning will require a significant shift in accounting practices so that the financial story reflects the principles and practices of sustainability. Given the power of accounting to shape institutional behavior, we argue that the components of sustainability would receive more attention if true environmental, social, and economic costs were reflected in financial reports.

The inclusion of additional information in financial reports to accommodate a framework of sustainability values will require a shift in some underlying theories that guide accounting processes. So the first purpose of this paper is sociological—to examine the historical role of accounting in organizational life and the economic assumptions that underlie that role. The second purpose of this paper is to examine current barriers to sustainability posed by accounting practices adopted by institutions of higher learning. A greater understanding of the challenge posed

by sustainability principles to the professional practice of accounting may create a more empathetic discourse. When the process of financial story telling is left out of the discourse about sustainable values, there is a risk that the financial process will impede, rather than encourage, the adoption of those values.

HISTORIC AND SOCIOLOGICAL ROLE OF ACCOUNTING

A balance sheet is the primary financial report for most organizations. It is also a deeply imbedded social metaphor. The balance sheet is rooted in a simple economic formulation. All assets of an organization must balance with the amount of capital provided through liabilities and stockholder equity. The goal of the accounting statement is to disclose the organizational stewardship of the resources it was given. It is a social process that is far more flexible than is generally realized. Economic and social pressures have changed (and will continue to change) what is considered to be an asset and how the assets should be valued.

Agency theory is used to explain the complex control structures that develop in organizations between the managers who control assets and the stockholders who supply the capital for those assets. Christensen and Feltham (2003) used agency theory to trace the main themes in the development of policies that govern disclosure of information through accounting reports. Accounting is a language that has grown through the relationship between those who own capital and those who manage it. The historic progression of this relationship has not given much regard to third parties. Society is a third party to the primary agency relationship and so the wider priorities of society – such as sustainability – will only impact the financial story to the extent it is a part of the stockholder-management relationship.

The limited purpose of the balance sheet provides a good reason to conduct a critical review of accounting practice. Financial reports provide and shape an understanding of society from an economic perspective. The economic story is predicated on an agency relationship that can be easily misunderstood or overlooked when dealing with broader societal concerns. Accounting practice is dynamic and is more flexible than is widely understood due to the nature of the agency relationships. Vibrant debate about accounting processes is often (sadly) left exclusively to accountants. However, the emerging environmental challenges will require the boundaries of economic activity to be redefined within sustainable parameters, and the critical review has to be carefully managed. One would not say the Model-T is a bad car because it lacks power steering. In the context of its time, the Model-T was a brilliant product. The challenge we address is similar. Our economic story telling has to adapt to meet the current needs of society.

Accounting is the financial language of society. Historically, that language has been limited to a description of the capital provided by stockholders and controlled by managers. This relationship is well defined. It is also a limited view of accounting practice because this view does not draw attention to what is excluded from that relationship. For example, accounting reports exclude many of the environmental costs that are caused by organizational activities. Economic decisions are therefore made with information that excludes environmental costs that are of interest to the wider society. These exclusions are not an accounting error because of the nature of the relationships involved. However, the exclusions create an incentive for managers to ignore sustainable values—especially when adoption of those values may be expensive because liabilities are added to an organizations balance sheet! That incentive can only be changed if the broader community takes steps to change the historically exclusive nature of the agency relationship underlying accounting processes. So the challenge is how to bring that value into the existing relationship between management and investors.

ACCOUNTING THEORY AND SUSTAINABILITY REPORTING

We use social theory to explain and understand the social world. Agency theory has long been used to form and understand financial reporting standards. Societal demands for sustainable decision-making are also increasing. In this section of the paper we explore how the deeply embedded structure of agency theory impedes the adoption of sustainable values throughout the accounting process.

Over the last 25 years agency theory has become one of the most important theoretical paradigms in accounting research (Lambert, 2007). The goal is to contextually explain the behavior of contracting parties. Relationships that exist in the employer-employee and retailer-supplier relationship are common examples of an agency situation. This theory has its roots in literature regarding the economics of information. Information is a valuable commodity because it facilitates optimal decision-making for the principal and the agent. As a result, agency theory has developed a "revelations principle" to explore the rationale behind the extent of truth-telling.

The agency theory is used to explore how principals can optimize their decision-making, subject to the utility their agent gains from the relationship. Solving for optimization is difficult because the parties' incentives will always be somewhat divergent. Financial story telling is an important information exchange between investors (principals) and boards of directors (agents). Financial reporting is also time-consuming for the agents and the results are factored into their incentive payments. The rules governing financial reporting are continually refined as economic events reveal the utility to be gained by disclosing new types of information. As societal concerns for a sustainable environment increase, the desire for related economic data for decision making will also increase.

Agency theory presumes there is an economic exchange between the parties in a relationship. However, there are many things (such as the air we breathe) that cannot be isolated so as to create market for them. Items with this characteristic are referred to as "public goods" to acknowledge the absence of a market-based pricing mechanism. The serious difficulties associated with public goods were first described by Hardin (1968) in the essay entitled the "Tragedy of the Commons." Hardin describes the economics of a shared pasture (commons) in a medieval community. Each herdsman had an incentive to increase the size of his herd as much as possible. The herdsman then received the full benefit of each additional animal he gets onto the commons. He can largely ignore the environmental stress his additional animal places on the commons because the reduced productivity is spread to all the herdsmen. So a rational, individual-decision, creates an incentive for the herdsmen to collectively overuse the commons. Tragedy occurs when the degrading commons reach a point of collapse. Once the commons has collapsed, the level of sustainable activity on the commons is greatly diminished and everyone suffers.

The economics of public goods provides an explanation of the social dynamic underlying personal decisions that contribute to environmental degradation. The competitive pricing mechanism we use to regulate consumption decisions does not exist for public goods—they appear to be free at the level of individual decision making. A society must then use political processes to regulate consumption of public goods so that all the consequences or benefits that accrue from successful regulation will be shared. Although the scale is larger, the dynamic is the same as it was for the small medieval towns regulating their commons. Society has to address the total cost arising from the multitude of private decisions to pollute or deplete resources. The collapse of the Atlantic Cod Fishery in the 1990s illustrates the difficulties (Harris, 1998). Individual firms were under pressure to maintain volumes which created an incentive to down play the degradation of the fishery. These actions delayed meaningful political intervention until after the fishery collapsed and was consequently permanently lost. The cost to families and the regional economy was enormous.

We can now explore, at an abstract level how the use of agency theory impedes the adoption of sustainable principles. The process of financial story telling concerns the relationship between managers and investors. Any costs associated with the use of public goods are outside of that relationship. There is plenty of evidence that companies (management and investors) wish to be responsible with public goods. For example, one of the largest companies in the world, Caterpillar, sought LEED® accreditation for its corporate visitor center (Lee, 2008). They promote the long run savings and environmental benefits of the certification. Wolseley, PLC, which is a global manufacturer of plumbing and construction materials for housing developments, does

something similar. Its annual report (Wolseley, 2007, October) includes five pages of information about their corporate social responsibility and an impressive disclosure concerning their progress in energy and water conservation. These disclosures are in addition to - not a part of - their financial story. The concern for global sustainability is leading to examples like these, where additional expressions of accountability to society are made. Expressions of responsibility are made in separate, non-financial statements because external costs of public goods are outside of the primary agency relationship that forms the basis of financial reporting.

Regulatory reporting forms another type of agency relationship. A good example of this is the International Aviation Transportation Association (IATA). The IATA regulates international aviation and has set progressively higher standards for airline fuel efficiency (Wall, 2007). In addition, they are setting requirements for participation in bio-fuel development. As an international regulator they are able to preclude non-compliant airlines from international service and connectivity with member airlines. In so doing, the IATA is forcing the costs of developing a sustainable aviation industry onto all participants. The old argument against multinational firms was that they would compete in a race to the lowest common standards. Yet, global airlines must reach to the highest common denominator to avoid the risk of critical business interruptions. Airspace is still a public good. However, the airlines have to report their story to the IATA. The cost of compliance is at least built into their financial story. It is not the same as identifying and recording the cost of air quality degradation caused by individual airlines. If the IATA sets responsible standards, the compliance costs might be a simple and effective surrogate disclosure of the environmental costs.

Agency theory has provided us with a way to find a deeper and empathetic understanding as to why it is so difficult to incorporate social responsibility into the financial reporting process. The IATA has taken a practical step that is moving an entire industry towards sustainable values. It may be that this is an example of how the financial story will change. New definitions of the agency relationship would enable accountants to report on costs that fall outside of the parameters of the current boundaries of the financial relationship. Institutions of higher education need to assess their commitment to sustainable values in terms of specific challenges they could collectively address through their financial procedures.

PRACTICAL ACCOUNTING BARRIERS TO SUSTAINABILITY WITHIN HIGHER EDUCATION INSTITUTIONS

Colleges and universities play a special role in setting public policy, and university administrators are expected to lead by example. The proximity of researchers and young people who are seeking to understand the world creates an opportunity for intense discussion about policy. When Al Gore received the Nobel Peace Prize in 2007, he emphasized the role of university research and activism in his acceptance speech (Byrne & Monastersky, 2007). Given these expectations, the nature of campus communities justify that they be held to a higher level of scrutiny than other types of organizations.

University administrations face financial constraints and so their financial stories are closely scrutinized. The educational administration literature is filled with examples of public demands for accountability. Monastersky (2007) provides an example of such literature and he shows the positive effect that close scrutiny and the pressure to be sustainable can have on colleges and universities. However many of these examples also show that sustainable investments were made even though they had a negative impact on the institution's financial story. Why do we tolerate a situation where a positive sustainable investment creates a negative financial story? We have included five common scenarios to explore this phenomenon.

Our first scenario will be familiar to almost every academic. Conference travel is a career-building necessity. Merit pay increases and rank promotions often require faculty participation in distant academic meetings, and grant-funded research often includes an expectation of funded travel. Travel budgets that are not used are lost. Pedelty (2008) found that medical researchers, for example, consider travel to be a job perk and a career necessity. This aspect of his study explored how difficult it is for researchers to resist the financial incentives that promote travel.

Our second scenario originates at Carleton College in Minnesota. Carleton installed a wind turbine to create its own clean energy and to provide access to this technology for research and engineering students. Carlson (2007b) explains the financial consequences the Carleton College experienced when the turbine needed an unexpected repair. The outlay and the lost revenues were immediately factored into the Colleges financial story. However, the financial story excludes the value of the carbon credits they were generating that could finance the repairs. So this "enlightened" investment in a wind turbine gave the College a financial black eye (Carlson, 2007a). The resulting stigma from the negative (but limited) financial story telling is seen as a warning to other schools considering similar investments.

Our third scenario is provided from one of the author's experience with a campaign promoting efficient lighting to reduce energy use on campus. Participating academic and administrative units were asked to fund new lighting from their budgets. The author wanted to understand the current power consumption to better support the decision within the academic unit. Power metering and cost information was centralized. Consequently, the information could not be provided. As a result, the savings from the specific unit's decision could not be attributed to them. In accordance with accepted financial reporting practices, utility costs were treated as a centralized overhead cost. To implement the new lighting, the academic unit had to overcome the disincentive of bearing the full cost within their already tight operating budget. Under current accounting practices the gains from sustainable decision-making were not included in the unit's financial story.

Our fourth scenario takes the previous case to the level of an entire facility. LEED® certification of a building shows a commitment to sustainable technologies and helps institutions attract funding according to Carlson (2008). Certification requires that the building meet 70 tough environmental standards that are divided into five categories: sustainable sites; water efficiency; energy and atmosphere; materials and resources; and indoor environmental quality. The LEED® criteria rewards design features that minimize environmental costs over a structure's entire life cycle. However the process requires financial details that are not normally gathered. Standard financial reports do not disclose the long-term value of the environmental savings. As a result, the financial story will show that a LEED® building has higher operating costs per square foot. The reporting, again, diminishes the value of long-term environmental savings.

The fifth scenario also reveals that the phenomenon is not restricted to front-line operating departments. Many central services can be transformed into more sustainable processes. Hermes (2008) reported the case of an administrator who ended a paper-intensive payment system by transitioning his institution to an online bill payment process. In this case, his incentive was the reduction of processing costs. Tremendous environmental and financial savings were achieved. The manager wanted to understand where the savings could be directed. His inquire resulted in a decrease to his operating budget for the savings and – as a consequence – less operational scope. So the sustainable effort left the administrator in an awkward position and with an obvious disincentive.

These scenarios reveal cognitive dissonance between sustainable values and the process of financial story telling. The sustainability discourse is weakened because financial story telling is ignored or left to those who are deeply invested in existing procedures and processes.

ACCOUNTING OPPORTUNITIES FOR SUSTAINABILITY WITHIN HIGHER EDUCATION INSTITUTIONS

In the previous section we set out five administrative situations where a sustainable agenda was thwarted by administrative policy associated with financial reporting processes. These scenarios are familiar to those with administrative duties in institutions of higher learning. The accounting profession creates and preserves information needed to help managers make decisions for the good of their organizations. Good stewardship, in the broader sense, is not evident in the situations we found. It will be easier to advance the sustainable agenda if accounting practices en-

courage and reward responsible decision-making that is consistent with sustainable values. We need to generalize the problems illustrated in the scenarios. What aspects of the financial stewardship system need to be transformed so that they encourage, rather than frustrate, progress towards sustainable organizations?

Former President Clinton (2008) called for universities to play a transformative role in leading the United States into a more prosperous, global community. He was thinking globally and acknowledging that universities are social workshops where the details of the next generation's values are being formulated. Sustainable values will not gain social traction until the details evolve to form a consistent framework. The accounting story has to resonate with the economic story, the environmental story, and the social justice story. When the stories align the level of cognitive dissonance will diminish. While it is ethically noble to act with a global conscience, it is also irrational to expect this from an administrator whose career progression is, in part, determined by results of the financial reporting system. The financial reporting story does not have to stand in the way of manifesting sustainability on university campuses.

As previously discussed, accounting practice reflects a need for accountability between managers and investors. The historic role of the accountant is, therefore, grounded in financial stewardship. That historic role is imbedded into the regular routines of the accounting cycle. However routine, those accounting systems and procedures are costly. Funding the redesign and implementation of a new system is hard to obtain from general management and so there is a great deal of resistance to proposed change. Therefore, managers interested in advancing a sustainable agenda need to consider how their plans should be reflected in the financial records. We see at least three immediate opportunities for administrators to engage in the financial story telling process that will advance the sustainability agenda.

First, an opportunity exists to redefine future costs in a capital budgeting model. Adjusting campus systems and infrastructure to sustainable technology is costly. The cost of many of these investments is treated as a current expense, and the long-term savings are reflected in a budget reduction. In both cases, this treatment creates a financial disincentive for operational administrators. It is possible to treat these costs in a more enlightened fashion. Expenditures used to create a more sustainable process or infrastructure that are recorded as investments will not burden operating budgets. Future cost reductions, for example due to a reduction in energy use, can be captured in the system and made available to managers to pay for sustainable investments. Such simple changes transform the financial story into a source of incentive for managers to seek out ways to implement sustainable infrastructure.

Secondly, universities and colleges can transform their financial story by recording the environmental costs and liabilities that are excluded from their current balance sheets. One of many such costing opportunities is that of carbon gas emissions. Both the US and the EU are in the early stages of restricting carbon gases by requiring the purchase of carbon credits. It will take a lot of experimentation and effort to work out the systems for this new "market." Universities and colleges should lead the way by increasing market activity and their experience will make wider adoption possible. Sustainable investments can be justified in terms of reduced environmental liabilities associated with carbon credits. The inclusion of carbon costs in the financial story will thereby create a transformational incentive. Once the process is started, the formation of accounting policy and practice will imbed sustainable values into the financial story. One can imagine a naturally arising competition between responsible organizations to create the most carbon credit assets!

A third opportunity is to include accounting scholarship, as the language of our economic life, into the liberal arts curriculum. It is difficult to have a societal discourse about environmental costs when most members of society do not understand the basic assumptions that underlie our financial story telling. It is hard to talk about undisclosed costs associated with environmental degradation when there is a general lack of understanding about what costs are included in our financial story. There is a parallel here to the transformation that was achieved when health

education was mandated. Until health education was more or less universal, it was mostly a waste of time to disclose fat or sodium levels on packaged food labels. The accounting story will become a vehicle for discourse about issues associated with sustainability when the contents of the financial reports are more universally understood.

In tandem with providing general education, universities and colleges can ensure that professional accounting education has a liberal arts base. They should resist the temptation to let the professional curriculum be a series of technical courses for those pursuing a business career. Those courses should include material that provides a social context for critical thinking. Fleischman and Schule (2006) found that accounting education has failed to produce accounting graduates who recognize environmentalism as an ethical issue. It is, however, irrational to expect professors who are evaluated on the basis of their students' technical competence to sacrifice contact hours to deal with sustainability reporting. A deep understanding of the interface between the public interest and the well being of clients and stockholders does not get one's students through an examination for professional license. Universities can use their control over curriculum to transform those incentives. Consider the result for an administrator with a practical proposal to improve sustainability. It is more likely to succeed when that administrator is working with a professional accountant who is able to find ways to disclose the proposals' advantages within the financial story telling process.

These suggestions align accounting with the societal move towards sustainability. In other words, the financial story comes into line with the stories being told from the perspective of social justice and sustainability.

CONCLUSION

There is a moral hazard for professional accountants. Any one accountant could identify his or her daily efforts as small and inconsequential compared to the political and scientific voices participating in the sustainability discourse. Taking comfort in that rationale does not fully reflect the pervasive impact accounting policy has on our financial language. Accountants can play a role in shaping responsible public policy as valued members of the business community. Their employers and clients will benefit from being able to avoid a crisis caused by a lack of financial preparation. We only have to examine consequences arising from the passive role of the accounting community that allowed the subprime mortgage crisis to occur. The financial effects of global, environmental degradation are more significant and so how we tell our financial and economic story requires attention.

The financial reporting process is limited by the very narrow relationship between investors and management. Sustainability can be addressed in financial reporting if sustainability can be incorporated in the agency relationship that exists between these parties. Financial processes are deeply imbedded into organizational life. Consequently, the story telling process provides incentives for managers to ignore opportunities to make decisions that have long term environmental benefits. Opportunities exist whereby those incentives can be changed to create a financial story telling process that supports sustainable values. Institutions of higher education can lead in this process. They are the ideal forum to explore ways in which the financial process can be transformed so as to reward sustainable decision-making. We have presented several areas were practical changes can be made. We hope this paper will inspire change and reduce the degree of moral hazard.

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Ethical Inclinations of Accounting and Marketing Students: Revisiting the Differences Decades and Scandals Later

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ABSTRACT

In response to real world scandals and based on AACSB recommendations, many business schools have included ethics as part of their core curriculums. Yet their effectiveness seems mixed at best. The study compares two groups of business students whose professions seem to be at the forefront of many ethical lapses. The study, a replication of a similar study from 1992, provides hope for the future of business in that both accounting and marketing are not only similar in their perceptions but also have a heightened awareness of ethics.

INTRODUCTION

> *"We do not act rightly because we have virtue or excellence, but we rather have those because we have acted rightly"* Aristotle, 384 B.C.–322 B.C.

Since the introduction of ethics courses or components in business school curriculums, there has been an explosion of scandals in the world outside. It would seem that ethics education in business schools have not mitigated the likelihood of the scandal epidemic. The recent recession and housing crisis in the United States and other nations exposed the extent of unethical decision making within sections of the business world. Whether it was at the mortgage consumer level or at the level of big banks and investment houses or governments, there seems to have been "lapses in judgment" among those involved that ultimately lead to significant losses both for individuals and societies. Notwithstanding the National Bureau of Economic Research pronouncement that the 18-month recession officially ended in June 2009 (NBER 2010), the economic effects are still being felt throughout the nation.

It is clear that many variables contributed to the recession and it is important to study the relative importance of each of the factors. For instance, did a lack of ethical decision making on the part of consumers, brokers, banks, investment funds, etc. contribute to the current recession? Are the regulators and the auditors equally culpable in this situation? Answers to these questions can provide a greater understanding of the role of ethics (or lack thereof) and its contribution to the recession, and facilitate proper training in order to potential avoid it in the future.

Revelations of massive ethical misdeeds often result in self-reflection by society, philosophers,

politicians, businesspersons, and academicians. The usual knee jerk reaction is to increase the dosage of ethics training and education at various levels especially in business schools. Yet, ethical lapses continue to happen at an alarming frequency. One would be hard pressed to find a business or a business school that does not have a formalized ethics program in place. Therefore, the question is probably not whether there is sufficient ethics training but are business students and professionals hardwired to recognize the expediency of transactions at the expense of ethical concerns. Although, no attempt is being made to discount the value of ethical training, the questions remain about whether or not they make a difference in perceptions and/or behaviors. Can an unethical person be trained to change or should students or trainees have a certain level or critical mass of ethical values or perceptions in order for the ethics programs to be effective? With or without ethical training, can they recognize ethical traits that are important in their careers? How do they perceive these traits, important or not?

During the past decades, there have been calls for enhancing ethical rigor in both business and academics. Yet, ethical problems and scandals continue to percolate to the top and there seems to be no end in sight. Ever since AACSB required the inclusion of business ethics in the core curriculum, there have been many attempts by schools to comply. Unfortunately, AACSB did not specify how ethics should be taught and that set the schools scrambling to find the right balance of ethics in their core. The Wharton business school is one of the earliest institutions to introduce ethics modules in the MBA core (Dunfee, 1986). Many schools followed suit at both Bachelors and Masters levels. Yet, one issue seems unresolved. Should ethics be a stand-alone course or incorporated throughout the curriculum or both? Given the support for each school of thought, there is little consistency in how business schools are approaching the integration of business ethics in their curriculum (Solberg, Strong, and McGuire, 1995).

Notwithstanding how ethical thinking is delivered in business schools, it seems apparent that the literature regarding the effectiveness of ethics instruction is at best inconclusive (Bodkin and Stevenson 2007). Ethics problems exposed in the media point to the fact that there is still a lot of work to be done (Sims and Felton 2006). In some situations, the faculty themselves might not be sure about the value of ethics. In a study of what the authors called, 'expectations gap,' it was found that accounting students considered both business ethics and the goal of accounting ethics to be more important than the faculty members in accounting (Adkins and Radtke 2004). May be not all faculty are convinced that ethics can be taught or they are qualified to do so. Adkins and Radtke (2004) suggested possible roles accounting faculty could adopt in order to teach ethics—as an active or a passive teacher or simply being an ethics resource for students.

Finally, there have been suggestions that when ethics becomes secular devoid of its religious roots and traditions, it gets applied in a narrow way (Calkins 2000). Taking it beyond the realm of philosophy and social science, practitioners and instructors should incorporate religious thinking into training. According to the author, both philosophical 'world of ideas' and religious 'world of ideals' need to be meshed into the ethics education for it to have a lasting impact. Podolny (2009) opines that business schools have ignored the teaching of values and ethics that don't fit the norms of traditional inquiry and do not lend themselves to quantitative approaches. According to the author, "unless America's business schools make radical changes, society will become convinced that MBAs work to serve only their own selfish interests." (Podolny 2009).

The purpose of the study is to assess how business students perceive common ethical traits and if there exists a difference between accounting and marketing students in their perceptions. An examination about how these business students perceive the traits related to ethics is a good first step in determining whether or not these students have the requisite level of sensitivity to ethical issues and secondly, the effectiveness of the ethics education they are exposed to. In other words, the study proposes to examine the whether or not there are differences between accounting and marketing students with respect to their ethical inclinations using Maccoby's (1976) Head-Heart traits scale

LITERATURE REVIEW

Although Machiavellian tendencies seem common amongst business students and business types, researchers feel that such characteristics are detrimental to the accounting profession, given its fiduciary role in the society. Manipulative tactics might seem to fit the management or marketing types but for an accountant it might spell doom. George May, the head of Price Waterhouse remarked,

> "The high-minded accountant who undertakes to practice in this field assumes high ethical obligations, and it is the assumption of such obligations that makes what might otherwise be a business, a profession. Of all the groups of professions which are closely allied with business, there is none in which the practitioner is under greater ethical obligation to persons who are not his immediate clients" (May 1911).

May might not recognize what has become of his company that was implicated in a few scandals including Tyco and Satyam. In the larger society, the attitude toward businesses and their leaders have been influenced by news coverage of ethical misdeeds. A 2010 Harris Interactive survey indicated that 70 percent of the adults disagreed with the statement, 'people on Wall Street are as honest and as moral as other people' (USA Today 2010). Continued media exposure of perceived unethical practices undermines the fabric of U.S. business environment (Egodiqwe, John, Long, and Warfield 2003). The natural assumption to draw from the USA Today poll is that business people do not necessarily have the same ethical standards or behaviors in comparison to those in other spheres of life. Companies and trade organization have been responding to the charge of ethical lapses with a renewed focus on ethical codes of conduct and ethical training. Yet, the effectiveness of training in reducing the incidence of known ethical violations is at best mixed. Every so often, a new scandal unfolds one again leading thinkers to ask the same basic ethical questions.

THE BUSINESS SCHOOL RESPONSE

During the past decades, there have been calls for an increased focus on ethics in business and other areas of education. The American Assembly of Collegiate Schools of Business (AASCB) had called for the inclusion of ethics in the business curriculum (1987-88). Indeed, one of the most significant trends in the past decades is the inclusion of ethics in the curriculum in U.S. colleges of business (Kochunny, Rogers, Ogbuehi 1992). This tradition has continued into the new millennium with a slew of newer formats for ethics courses and programs ranging from the usual case studies to simulations and immersion exercises. Although there is a general consensus that future business professionals have a lot to gain by being exposed to ethics, there is less agreement on how to impart the "wisdom". Some say business ethics wisdom is difficult to teach to undergraduate students since they have little knowledge of either business or its ethics (Jones and Ottaway, 2001).

Colleges and universities continue respond in ways they know best – adding courses, programs, journals and reaching out to businesses with training modules in ethics (Loe and Ferrell 2001; Burnette, Keith, and Pettijohn 2003). After over two decades of trying to teach ethics to future businesspersons, scandals continue to evolve and develop. An interesting question to explore is whether people are born or made ethical.

Although it is impossible to unearth all the factors that lead to unethical behaviors, there is evidence that underlying personality dispositions might be one of the causes. Research has shown that various antecedents such as narcissism, exploitative attitudes, lack of empathy, anti-intellectualism, academic self-efficacy, etc. might influence students in high schools and colleges to cheat on exams and projects (Menon and Sharland, 2011; Sautter, et al. 2008; Elias 2009). Recently, ABC News reported an instance of mass scale cheating in a senior level business course at the University of Florida (ABC News, 2010). The report indicated that fully one-third of the students in the class of 600 cheated on the midterm which in turn could delay their graduation.

A recent survey of 220,000 first-time, full-time freshman from 297 four-year colleges/universities over a four-year period reveals that most

(78.1 percent) of them rated being financially well off as being the most important objective in life. This factor trumped raising a family (74.7 percent) and helping others in difficulty (69.1 percent) (USA Today 2010). According to the author of the study, concern for money permeated everything yet fewer students in the study were reporting "business" as a major of interest. If students enrolling in educational institutions are less ethical by nature, can courses and programs transform them? Students have been caught violating ethical principles (cheating, plagiarism, etc.). Moreover, student cheating in the course work is very common (Broeckelman-Post 2008) and business students, in particular, seem to cheat more often and act in less cooperative ways compared to those from other fields (Frank 2004). A comparative study of MBA and MPA students found that the former are less critical and rely on egoism, and other factors that impact their ethical outlook in a negative manner (Richards, Gilbert, and Harris 2002). Other studies indicate that even though business students are comparable to students from other professional colleges with respect to cheating, the formers' attitudes on what constitutes cheating were more lax than those in the latter group (Klien, Levenburg, McKendall, and Mothersell 2007).

Studies have shown that students who cheat at the university level are more likely to demonstrate professional misconduct in their future (Atmeh and Al-Khadash 2008; Harding, Carpenter, Finelli, and Passow 2004). On the optimistic side of this issue, there is some indication that business students believe that businesses should have certain ethical standards (Crane 2004; Power and Lundsten 2001) and that they are interested in having significant discussion on the subject as part of their education (Adkins and Radtke 2004).

There have been many studies that found accounting students to exhibit lower level of ethical reasoning compared to other business disciplines (Jeffrey 1993; Ponemon and Glazer 1990). Another study found that CPAs from smaller firms tended to exhibit lower Moral Reasoning Abilities compared to other similarly situated professionals (Eynon, Hill, and Stevens 1997).

Ethical dilemmas and situations abound in the business classrooms across the country. A study by Davis and Welton (1991) found that business courses do not influence ethical behavior but integration of ethics into accounting courses seemed to improve reliance on ethical standards among accounting students (Hiltebeitel and Jones 1992). Enyon, Hill, and Stevens found that an ethics course seemed to have a significant impact on attitudes toward ethical issues (1997). In another study of accounting majors, the authors found that requiring an ethics course does make an immediate, but short-term, difference in ethical decision-making or in assessing potential ethical/unethical behavior (Rogers and Smith 2008). Other studies seem to confirm the effectiveness of ethics programs or courses on accounting students (Dellaportas 2006).

Although the entire business community might be concerned with such generalized perceptions that paints all functions of business with the same brush stroke, marketing seems particularly vulnerable on a day-to-day basis (Lacznaik 1999). This might be due to marketing's role in people's every day life.

A 1991 study in a basic marketing course found that how ethics was taught had an impact on attitudes of the students (Burton, Johnson and Wilson 1991). But, discussions regarding the ethicality of business scenarios were less effective compared to a lecture format that focused on ethical philosophies and framework for decision-making.

In another case, marketing students were found to be less likely to have unethical behavior intentions after being exposed to ethics in an advertising course (Burnette, Keith, and Pettijohn 2003) and or that the ethical weightings of students' individual values improved after the course even though the ethical decision making behaviors were below par (Wu 2003). Other studies of marketing students have indicated that they are either less ethical (Pratt and James 1994) or more ethical (Yoo and Donthu 2002) or about the same as the other majors (Burnette, Keith, and Pettijohn 2003). For instance, Peppas and Duskin (2000) in a study of 300 undergraduate students in business found that marketing majors who had taken a course in ethics were not different in their ethical perspectives than those who had not completed the same course.

Head and Heart Traits

Some of the earliest studies using Maccoby's head-heart traits scale were in the 1980s (Krietner and Rier 1980; Stevens 1985) and most of them involved one business major or the other. The 1990s witnessed a few studies that compared head-heart traits across majors (Patten, 1990, Kochunny, Rogers, and Ogbuehi 1992). Studies have utilized not only the Maccoby scale but also the MACH IV and DIT (Defining Issues Test) scales to measure ethical propensities. In one particular instance, accounting students high in Machiavellianism were more likely to view questionable ethical behavior as being acceptable (Pope 2005). The study also found that the MACH IV scale was a better predictor of ethical tendencies when compared to the DIT measure.

Studies utilizing the Head-Heart scale have examined perceptions of students from specific majors or in some cases compared amongst them. One study in particular that compared the differences between accounting and marketing students found that marketing students are no less ethically inclined than their accounting counterparts (Kochunny, Rogers, and Ogbuehi 1992). In that instance, with the exception of the honesty trait, mostly head-oriented traits were rated as more important in their chosen career field than heart-oriented traits.

In a way, this current study can be seen as a longitudinal replication of the 1992 study in that the comparison is between current students in the same business majors using the same Head-Heart construct. Are things different now compared to the early 1990s? Within about two decades, there have been numerous ethical lapses in business, politics, entertainment, and education. During the same period, business schools have also reacted by strengthening their ethics curriculums.

METHODOLOGY

The items for the study are replicated from the prior Kochunny, Rogers, and Ogbuehi (1992) study which also utilized the Maccoby scale. That is 19 items focusing on the Head/Heart concepts were included in a self-administered survey format. In the current study demographic data was included at the end of the survey identifying age, gender, major, and job aspirations in terms of size of employer. The responses to the Head/Heart items were "Highly Important", "Somewhat Important", and "Not Important". The study authors recognize that with this response format there are limitations to statistical tests, even when such tests are used for establishing patterns in the data.

The respondents were all participants in the Management Strategy capstone course at a medium sized university in the Southeastern United States. This course is required for all business students in the College of Business and therefore has the greatest diversity of majors in all business upper-division courses. Multiple sections of the same course were involved in the study. The surveys were not administered by any of the study authors.

The responses were collected and collated. The data was coded and subjected to a preliminary analysis to test for differences across the different sections. The tests indicate that there are no significant differences across the sections and the data were combined. A total of 314 usable responses were included in the data analysis reported below.

RESULTS

The responses came from 175 Males and 164 Females. Table 1 depicts the distribution by major.

Table 1
Cross Tabs, Major by Gender

	Accounting	Economics/Finance	Management	Marketing	General Business
Male	31	22	60	35	14
Female	46	17	44	34	10

Comparison Across Studies (1992 to 2010)

The results, shown in Table 2, focus on the differences in responses across time. The original study included 1,000 students at three institutions. This second study focuses on a smaller number of respondents at one institution. However, the results show a remarkable similarity. In 1992, both Accounting and Marketing majors considered Self Confidence, Pride in Performance, and Honesty to be high-ranking traits. These were closely followed by Coolness under Stress, Cooperativeness, and Taking the Initiative. These are still the traits that show strongly in the 2010 sample. One natural conclusion to draw from these results is that, in general, business students have not changed many of their priorities over the 17 years.

A more nuanced analysis does indicate some interesting changes in specific rankings. For instance, there is one item that clearly has changed its order of importance; Critical Attitude toward Authority. In 1992, this item was low in both the Marketing and Accounting rankings. In 2010, all students considered this to be much more important. Despite the increase in ranking, there is a difference in how important it is perceived to be now. That is, 68% of marketing students considered a Critical Attitude toward Authority to be "Somewhat" or "Very Important". However, only 45% of Accounting students considered the same. This difference is statistically significant at the 0.05 level of probability.

While a Critical Attitude was moving up in the rankings, there was a decrease in the relative importance of Open Mindedness for both Marketing and Accounting students. In both cases the 2010 data shows this trait to slip 5 places in the rankings; for Marketing from 3rd to 8th, and for Accounting from 7th to 12th place.

Apart from these two items (Critical Attitude and Open Mindedness), the other changes are relatively minor. If we cluster the rankings into

Table 2
Accounting & Marketing Students Trait Rankings 2009 versus 1992

Item*	2009		1992	
	Marketing	Accounting	Marketing	Accounting
Self Confidence	2	2	1	2
Pride in Performance	2	5	2	3
Open Mindedness	8 (-5)	12 (-5)	3	7
Honesty	1 (+3)	1	4	1
Take the Initiative	2 (+3)	6	5	6
Flexibility	5	7	5	9
Cooperativeness	7	3	7	5
Coolness Under Stress	6	3	8	4
Friendliness	12 (-3)	11	9	10
Loyalty to fellow workers	13 (-3)	8	10	8
Openness/Spontaneity	11	16 (-3)	11	13
Pleasure learning new	10	9	11	11
Satisfaction creating new	15	13	13	15
Sense of Humor	14	19 (-5)	14	14
Independence (vs. dependence)	16	10	15	12
Idealism	19 (-3)	14	16	16
Compassion	17	18	17	18
Generosity	18	17	18	19
Critical Attitude (toward authority)	9 (+10)	14 (+3)	19	17

* Items bold and italicized are "Head" items
** parentheses include items that moved more than 3 places between the survey administrations

3 groups, we find that the bottom ranked items are Heart traits. These traits were ranked lowest in both the1992 and the 2010 data sets. For instance, Sense of Humor, Independence (versus Dependence), Idealism, and Generosity fit this clustering. In contrast, as noted earlier, Honesty, Self Confidence, Pride in Performance, Taking the Initiative, and Coolness under Stress are ranked highest in both data sets.

Expanding the Analysis to Other Majors

Table 3 includes an expanded data set that includes a broader range of majors than was included in the 1992 study. The number of majors is increased to five, with Accounting combined with Finance/Economics, and Marketing joined by Management and General Business. The table sorts the items into the "Head" and "Heart" categories rather than a specific rank ordering for easier comparison. The percentage of students who considered the item to be "Very important" or "Somewhat Important" is shown with the rank ordering of the item in this Table. The following analysis first looks at the differences across the major "types" using straight statistical comparisons and then uses a more 'textured' approach to analyze similarities and differences.

Honesty, Self Confidence, Taking the Initiative, and Pride in Performance are ranked highly by all majors. There are some differences in terms of percentage, but at least 75% of all students rated these "Important". At the other end of the spectrum we find that Idealism, Sense of Humor, Generosity, and Compassion are all rated very low, with none of them scoring above 48% in any major. Between these clusters is a group of traits that are apparently of intermediate "importance" across the majors. This group includes Flexibility (63% - 74%), Pleasure in Creating Something New (65%-74%), Open Mindedness (54%-75%), and Loyalty (58%-79%).

As with the Table 2 and its focus on the comparison across time, Table 3 seems to indicate that business students across majors are not that dif-

Table 3
Head/Heart Trait Rankings By Business Major

Item	2009 Study				
HEART	Accounting (77)	Finance/ Economics (39)	Management (105)	Marketing (69)	General Business (24)
Honesty (279)	1 95%	1 95%	3 88%	1 80%	1 92%
Loyalty (214)	8 70%	9 67%	9 71%	13 58%	4 79%
Friendliness (183)	11 62%	13 46%	12 59%	12 61%	13 54%
Openness (180)	16 43%	13 46%	11 66%	11 64%	9 67%
Independence (177)	10 64%	10 62%	13 57%	16 45%	13 54%
Idealism (130)	14 45%	12 49%	14 42%	19 30%	15 46%
Sense of Humor (118)	19 32%	18 33%	15 38%	14 48%	19 29%
Generosity (116)	17 38%	16 36%	16 37%	18 35%	16 42%
Critical Attitude (112)	14 45%	9 67%	12 59%	9 68%	4 79%
Compassion (110)	18 35%	16 36%	19 34%	17 36%	18 33%
HEAD					
Self Confidence (270)	2 91%	2 90%	2 89%	2 78%	6 75%
Initiative (263)	6 75%	2 90%	1 91%	2 78%	2 83%
Cooperative	3 84%	5 77%	4 86%	7 72%	6 75%
Pride (247)	5 79%	4 82%	5 78%	2 78%	6 75%
Coolness (239)	3 84%	6 74%	10 70%	5 74%	2 83%
Flexibility (231)	7 74%	7 72%	6 76%	5 74%	12 63%
Pleasure (something new) (219)	9 69%	8 69%	8 74%	10 65%	9 67%
Open Minded (212)	12 61%	11 54%	7 75%	8 71%	9 67%
Satisfaction (135)	13 56%	15 38%	19 34%	15 46%	17 38%

ferent in terms of their general traits. As a generalization, the Head dominates over the Heart. This further reinforces the point that business students are very similar whatever the program of study.

Quantitative versus Qualitative 'Perspective'

Very often, administrative expedience requires the business functional areas to be grouped together. It is not uncommon for Marketing and Management to be combined in a single department. It is not unusual for Finance and Economics to be similarly grouped. Accounting is very often a separate department, especially when it is offered as a degree. However, the curriculum of the Finance/Economics and Accounting majors (outside their major) is often similar. Therefore, it is not unusual for people to consider there to be two general types of business major; a Quantitative oriented option and a Qualitative option. This is a stereotype and there are several areas of Accounting/Finance/Economics that are qualitative and areas of Marketing/Management that are quantitative in nature.

Table 4 combines the responses of the Accounting and Finance/Economics students in one group and the Marketing, Management, and General Business students in another. For the sake of ease, these groups are labeled "Quantitative" and "Qualitative". There is much similarity between the Quantitative group and the Accounting group in Table 3, as would be expected given that it is the dominant group. The Qualitative responses bear a significant resemblance to the Marketing group reported in Table 3.

Statistical Differences

The majors were coded into Quantitative and Qualitative categories and then tested across the top three and bottom three ranked traits. The results of the comparison indicate virtually no differences. This suggests that business majors consider these traits in a similar fashion whatever their major. To put it more bluntly, suggestions that students from Accounting, Finance or Economics backgrounds are more prone to hard-headedness (because of their quantitative orientation) are not supported by the results of this study.

CONCLUSIONS & IMPLICATIONS

The current study is a part replication and part extension of a prior study from 1992. The replication component identified certain changes in the way specific head/heart traits are perceived by business students. In particular, modern students rank a Critical Attitude toward Authority as much more important now than in 1992.

The extension component of the study established a perspective over a wider range of major subjects than the original study and found very similar results. That is, the results of the Accounting students can be extrapolated to the "Quantitative" major category and the Marketing student results can be extrapolated to the "Qualitative" major category. In general, all modern business students are likely to rank the head/heart traits in a very similar fashion whatever their major.

The contribution of the study is to refute the perspective that quantitatively oriented students are harder-headed than qualitatively oriented students. This view is often expressed when a major ethical scandal emerges. Commentators and observers sometimes question how accountants and bankers could miss "obvious" flaws in business practices and attribute (at least) some of the problem to the business education process.

Results from this study seem consistent with that of the previous study. The 1992 examination of accounting and marketing students concluded that they "do not have markedly different perceptions of Maccoby's head/heart traits (Kochunny, Rogers, Ogbuehi 1992). The finding that there were no significant differences exits between accounting and marketing students with respect to most of the traits examined is also consistent with a study by Kahlas, Groves, and Bonham (1977).

It is just possible that marketing students may be as ethical as accounting majors. Contradictory to societal perceptions, marketing students seem closer to being "company men" than being "gamesmen." In this regard, Maccoby seemed concerned about with the human side of the enterprise, interested in peoples' feelings and committed to the development and maintenance of corporate integrity in a stimulating and cooperative atmosphere. Years of tweaking business curriculum with a varying doses of ethics and general awareness of ethics among today's students might have bridged the gap between accounting and marketing students between the two studies.

Table 4
'Quantitative' Student Rankings versus 'Qualitative' Student Rankings

Item	2009 Study			
HEART	**QUANTITATIVE (116)**		**QUALITATIVE (198)**	
Honesty (279)	1	94.8%	2	85.3%
Loyalty (214)	8	70.0%	10	67.7%
Friendliness (183)	12	56.9%	13	59.1%
Openness (180)	16	44.0%	11	65.1%
Independence (177)	10	62.9%	14	52.5%
Idealism (130)	15	46.5%	17	38.4%
Sense of Humor (118)	19	32.7%	15	40.4%
Generosity (116)	17	37.0%	18	36.7%
Critical Attitude (112)	13	52.6%	12	64.6%
Compassion (110)	18	35.3%	19	34.8%
HEAD				
Self Confidence (270)	2	90.5%	3	83.3%
Initiative (263)	5	80.1%	1	85.8%
Cooperative	3	81.9%	4	79.8%
Pride (247)	5	80.1%	5	77.8%
Coolness (239)	4	81.0%	7	73.2%
Flexibility (231)	7	73.3%	6	73.7%
Pleasure (something new) (219)	9	68.9%	9	70.2%
Open Minded (212)	11	58.6%	8	72.7%
Satisfaction (135)	14	50.0%	16	38.9%

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Finding the Industrial Side of Therapy: Workers First Therapy

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A 16-year-old soccer player was finally getting his shot to play for his high school's varsity team. He worked, practiced, and trained for eight years just to get a chance to play junior varsity in high school. He spent the last two fall seasons on the JV team and worked through the winter, spring and summer on his own time to get into shape to become one of his school's top athletes. On the weekends he played with a local club team to get even more practice. Now, at the start of his junior year, he was at his peak condition and was watching as the ball was finally sent flying in his direction. He gained control of the ball and started heading toward the other team's goal, cutting around defenders and getting ready to take his shot. But as he headed toward the final player, he planted his foot wrong and as he turned, he felt a pop and his knee gave out sending him falling to the ground. The next day his doctor told him that the pop he felt was his ACL tearing and he would need surgery. But as the doctor told him that, he said "Don't worry. With rehab and training we'll get you in top shape for your senior season." And true to the doctor's word, physical therapy began soon after surgery. Not only did they work to build up his strength in that leg, the therapists also took into consideration his needs as a soccer player. They even went to a field near the therapy office where the therapists showed the student how to properly plant his feet and what he needed to consider when pivoting around a defender. The player for years had been shown how to get around a defender and how to dribble a ball, but never how to avoid getting hurt. And that next season the training paid off. He again was given a chance to head for the goal, except this time his steps were deliberate. Thanks to his work with his physical therapist, he paid attention every time he placed his foot down and finally got the chance to wind up his kick as he faced off one-on-one with the goalie.

That player's father was soon put into a similar experience. His father was a 50-year-old mechanical engineer at a local steel plant where he had worked for nearly 25 years. He also played high school sports but in the decades since school, had not spent as much time taking care of his body. As his focus shifted to work and family, he spent less time in the gym and more time with his wife and kids. That day he went to work repairing one of his plants machines and reached around

the equipment to pick up his toolbox. He too felt a pop as he twisted and lifted the heavy box, and soon felt pain radiating across his back. He went home for the afternoon and the next day, he too visited his doctor. Having just seen his son go through a similar situation, he knew what to expect. But the doctor said, "You pulled a muscle in your back, but good news. No surgery. I just want you to go to physical therapy to get back in shape." So just one year after his son started treatment, he found himself in the same offices. But that's where the comparisons end. The therapy office had worked so well getting his son back to playing condition, but it didn't do so well with occupational injuries. The work focused on building back the muscle in his back and as soon as the pain started to stop, he was declared ready to go back to work.

That is a common situation for therapy providers. When there is not someone that needs specific training, the therapy tends to focus on general well-being and rehabilitation. And that is something that Workers First Therapy identified as a weak spot in the therapy industry. Workers First Therapy saw a need within the market for services geared specifically toward work related injuries. Instead of just strengthening the muscles, Workers First Therapy wanted to do job-specific training. They wanted to talk with the father and see exactly what his job requirements were to see exactly how to train his body. The father has had a lot of on-the-job training to fix the machines, but the therapists could provide more. They could go to work with the father and show him how he should be lifting that toolbox and how to tailor his work routines so he would never have to come visit their clinic again.

COMPANY BACKGROUND

Workers First Therapy was founded by Pamela Jones in 1992. Ms. Jones had extensive experience in rehabilitation, both on the research side and through clinical work. She was a member of a team of researchers at a large area university who worked to evaluate what were called "functional capacity evaluations," normally shortened to FCE. An FCE is a measure of a worker's physical ability to do a certain job. For example, does a client have the strength or range of motion to be constantly lifting and moving for a job as a UPS driver? The team decided that it could come up with a better model and developed a new FCE which Jones used to found Workers First Therapy. Its stated goal was to provide a research-based FCE for companies to use nationally and internationally.

Workers First Therapy grew into a Memphis-based workplace injury therapy and injury prevention company. But its main line of business continued to be its FCE which was administered worldwide through a network of clinics. When patients would come to a doctor or an insurance company with an injury, they would contact Workers First Therapy and would be referred to the nearest member clinic. Each clinic was trained by Workers First Therapy to administer the FCE and paid a fee to Workers First Therapy to be a part of the network of 800+ clinics. Jones and her staff also operated locally by administering their own FCE's. Other lines of business for Workers First Therapy included job demand analysis, pre-hire screenings, programs to help companies and workers avoid injuries, and return-to-work programs. Finally, Workers First Therapy ran an on-site clinic for a large Memphis factory, American Industrial, where it provided occupational health and therapy programs to American Industrial employees.

Workers First Therapy's commitment to American Industrial left the staff stretched thin and with little room for expansion outside of their current service line offering. Because of the size of the client, Workers First Therapy dedicated a large portion its available resources to it and left it without the capacity to expand into other business lines. But that situation improved when a new staff member was hired and Workers First Therapy moved to a new office which included increased office space.

THE PROBLEM

According to Emily Thompson, the Workers First Therapy On-Site Coordinator, "the industrial side of therapy is lost." As the 50-year-old steel worker realized, when someone is injured on the job in Memphis, and the doctor determines they need therapy, the worker is sent to a standard clinic for therapy. The employer, the insurance company, another third-party administrator, or

the doctor decided where the employee was sent. Most patients were treated at a typical physical therapy clinic using traditional physical therapy techniques. Workers First Therapy believed it could provide a better service. Jones and Thompson also noted that workers' compensation injuries also paid the therapy providers more than other therapy services. Those two realizations led the Workers First Therapy management team to begin exploring how best to expand their business model to make its therapy center a reality. Their goal was to tap into a market to potentially treat some of the 21,798 workers in the Memphis market who are injured on the job every year. With more than 10,650 of those injuries resulting in time off or job restrictions, employers had a strong interest in making sure that the employees returned to work quickly and didn't repeat the same steps that led to their injury (Appendix 4).

Workers First Therapy had an established presence on a large industrial campus within the Memphis market. The experience and results from this on-going, on-site program led the management team to believe that workman's compensation (industrial therapy) could be serviced in a different manner for smaller companies and individuals that would not require an on-going, on-site program. After careful consideration the management team faced the decision of how best to go about offering these services within their current business model. The question became "should the management team provide therapy within the Workers First Therapy offices or not pursue this specific line of business?"

Workers First Therapy had not offered any therapy services within its offices and Jones realized that she would have to spend some of her company's capital in order to secure the worker's business. She would have to undertake a physical expansion as well as an expansion of staffing and business practices. The former was accomplished as it moved offices into an office suite that included the space needed for the therapy sessions, but they had yet to purchase the equipment needed to perform the actual therapy. Also Jones realized that to get the worker's business, she couldn't just appeal to him and his co-workers, she would have to target his bosses or even people outside his company. Workers' compensation therapy business was typically distributed based on relationships, so face time with insurance providers, third-party administrators and other decision-makers was key to gaining market share within the industrial therapy sector. And simply offering a quality product would not be enough. As with many business decisions, cost would be king. Workers First Therapy would need to provide the best service at the best price.

The new office space had the potential to house two therapists and treat 20-22 patients each day. The company employed 15 people and several contract workers and felt it would have both the space and support staff needed to initiate an on-site industrial therapy clinic. But simply having the resources available wouldn't be enough for Jones's expansion to be a success, she and her co-workers needed to consider marketing costs and strategies, equipment costs, defensive strategies, pricing, as well as competitors. But Jones and Thompson had to consider more than just that option, they could expand without adding these new services. Memphis was home to many industrial and commercial parks that are each home to hundreds of employees. Their expansion could target other local employers as large as American Industrial and try to build on-site clinics for those companies, or even build centers near industrial parks to offer services close to several employers or factories. Or at the end of the day, Jones could decide her company was moving forward and enjoying enough success already that spending the time and money to expand wasn't worth it, and simply enjoy the larger office space without bringing the therapy services into its space.

COMPETITIVE ENVIRONMENT

Workers First Therapy was considering venturing into a field dominated by larger therapy providers affiliated with large hospitals. According to Emily Thompson, the "big three" hospitals in Memphis, the University Health Systems, Hillside Medical Center and St. Anthony's Health System, would be the clinic's biggest challenge. They all offered services similar to the therapy Workers First Therapy was considering offering. St. Anthony's Health System offered the most extensive array of work-related injury services that could have conflicted with Workers First Therapy's vision (see Appendix 1). Pamela Jones

and Thompson both believed, however, that the services they wanted to develop would better treat the needs of the hypothetical steel worker than any of the service lines the three hospitals offered. But they realized they could not afford to simply ignore that threat posed by the hospitals because they all could provide economies of scale that Workers First Therapy would lack. They also offered networks of doctors that could provide referrals in-house that Workers First Therapy would struggle to match. Smaller clinics such as Premiere, Select and Memphis Physical Therapy were also in the competitive sphere of Workers First Therapy. These clinics will be similar in size, but did not offer the specialization in work-related injuries and therapy services. These clinics were focused on the athlete, a field that drew more attention and thus had a more saturated market.

ADDITIONAL CONSIDERATIONS

As Jones considers expanding her business, she needed to keep pricing at the front of her mind. The bottom line was a significant driver for business in the medical industry. Insurance companies and third-party administrators determined what they would pay the therapy providers, and many providers were left to decide if they wanted to take the price or miss out on the business. Therefore the management team must constantly keep abreast of the going rate and keep a fee structure for the insurance companies and third-party administrators that is competitive. Thompson said the company planned to dictate its own prices, but use the fee structure for workers' compensation services provided by the Tennessee Department of Industrial Relations as a baseline. Typical workers' compensation carriers are able to negotiate a 15 to 20 percent discount from those baseline prices.

Workers First Therapy budgeted approximately $60,000 for marketing, of which $4,175 was earmarked for its local services such as the possible workers' compensation clinic. Much of that budget was spent attending trade shows aimed at attracting new customers for all of its business lines. These trade shows were avenues for networking with large companies, insurance providers and third party administrators. One such trade show was the summer conference held every year at a nearby resort destination. Jones and Thompson used the conference as a way to meet and greet with large, self-insured employers such as Tennessee Electrical Power, Western Mining, and Center Construction. Jones identified these companies as near-ideal clients because they managed and paid their own benefits. Thompson explained that this way there is less money taken out by middle-men and they can secure more money for their services. Workers First Therapy will pay $750 to $1,000 just to get a spot at the tradeshow, plus any costs for promotional materials, lodging, and food. The show also afforded other promotional opportunities such as ads in the newsletters distributed by the group. Thompson and Jones realized they would have to spend more time at events such as this in order to build up their business.

Workers First Therapy could also take advantage of more personal marketing strategies targeted at case managers for insurance companies, third-party administrators, human resources officers from those self-insured companies, and doctors. Finding those potential customers and winning their business was a barrier to entry that Workers First Therapy would have to face. Workers First Therapy could possibly designate one of its employees to take on the role of a salesperson in marketing to these different individuals or could potentially hire someone with sales experience. In fact they had considered that, and planned to capitalize on contacts that Thompson had made through years in the industry. But, if they decided the work was best done with a full-time employee, Jones could hire a salesperson and offer a compensation package based mostly on commission to maximize its return on the investment.

One key consideration for Workers First Therapy in any expansion move was the hiring of additional therapists. Worker's compensation was not an attractive field to pursue for physical therapists. This was due to reasons such as the opinion by many that worker's compensation patients just simply did not want to work. Therapists found it difficult and frustrating to work with someone who did not put forth the proper effort in their therapy training. Another reason for worker's compensation not being very attractive to therapists was the fact that this line of business did not have the appeal that other areas

such as sports related therapy provided. Workers First Therapy spent nearly a year searching for an additional therapist to work at American Industrial. If the company was going to expand they would have consider the fact that they might not be able to handle additional patients due to the lack of therapists to provide worker's compensation therapy.

Another barrier to entry for Workers First Therapy would have been the cost of new equipment needed to even offer the basic therapy needs. Among the list of equipment the staff needed to purchase were an ultrasound machine for almost $2,400, a treadmill for $3,295, a stationary bike for $2,295, and weights for $700. The total price of its equipment list exceeded $10,000. Workers First Therapy would need to consider the amount it was willing to spend just to enter the field. These purchases would require Workers First Therapy to either set aside funds or secure financing for the initial upfront costs of the equipment.

DEFENSIVE STRATEGIES

If management decided to pursue this service line, Workers First Therapy had to find a way to defend its position within the market. Relationship management was an effective way to defend their position, keep the phones ringing and the therapy rooms full. Once those initial clients were secured, through networking, trade shows, chance meetings, or any other methods, they still would have work to do as far as keeping those clients. Workers First Therapy needed to formalize a strategy to keep contacts up with the representatives from those efforts. But the most important defensive strategies related to results and price. Price was a fairly straightforward situation yet would depend on each case. The lower the price, the more likely a company was to return to Workers First Therapy for treatment of its next patient. However, as with any business, too low of a price could be detrimental to the company's profit margin. Results were the best way to counter any price argument and using results might have been the best defensive strategy. Workers First Therapy had results it could offer to potential clients and companies. Through its work at the on-site industrial facility, Workers First Therapy's staff members treated 122 patients in the first three months of 2010. Of the patients completing their therapy programs, Workers First Therapy enabled more than 92% of patients to return to work, and 87.5% of those patients were able to perform their full duties. Workers First Therapy could attempt to show employers that the less time it takes to fully rehabilitate a patient, the less time that employee is off the job.

Workers First Therapy's other business lines could also become a defensive strategy. As it contracts with new clients, the company's services don't have to be limited to treating patients after an injury occurs. Workers First Therapy was also able to help prevent future employee injuries. Workers First Therapy billed itself as "The Injury Prevention Experts," demonstrating a level of experience with occupational injuries that traditional therapy centers couldn't offer. Staff members regularly visited worksites and identified areas that stood out as risks for injuries. They watched for practices that could lead to worker injuries and evaluated employees before they were hired so an employer could be confident that their candidate could safely perform the job requirements. Their "Expert" label also extended to helping other clinics make sure their therapists were fully trained on how best to treat workplace injuries.

IS WORKERS FIRST THERAPY READY FOR A WORKERS' COMPENSATION CLINIC?

Pamela Jones determined that her company had the potential to expand into the industrial side of therapy. Workers' compensation could potentially become a very lucrative endeavor for her growing company and it was an area it already operated in on a small level through its contract with its industrial on-site clinic. In order for Workers First Therapy to obtain smaller companies as clients, they would have to utilize their new office space to service the new clients. Jones and Emily Thompson would also need to rationalize the new costs they will be taking on in context of what they hoped to gain through the expansion. But they both needed to realize their considerations should have also considered long-term implications and concerns, ones that existed even after an initial success. They needed to consider how other companies would have responded to the clinic, and developed ways to defend

their business from competitors. Work would have to be done to protect against threats from the "big three" hospitals as well as any new competitors that might have come along. Jones and Thompson had decided that offering industrial therapy at their office could be very profitable for the company, but they still needed to make decisions about the steps needed to capitalize on that vision. It was up to Workers First's management team to either pull the trigger on worker's compensation expansion or pull the plug.

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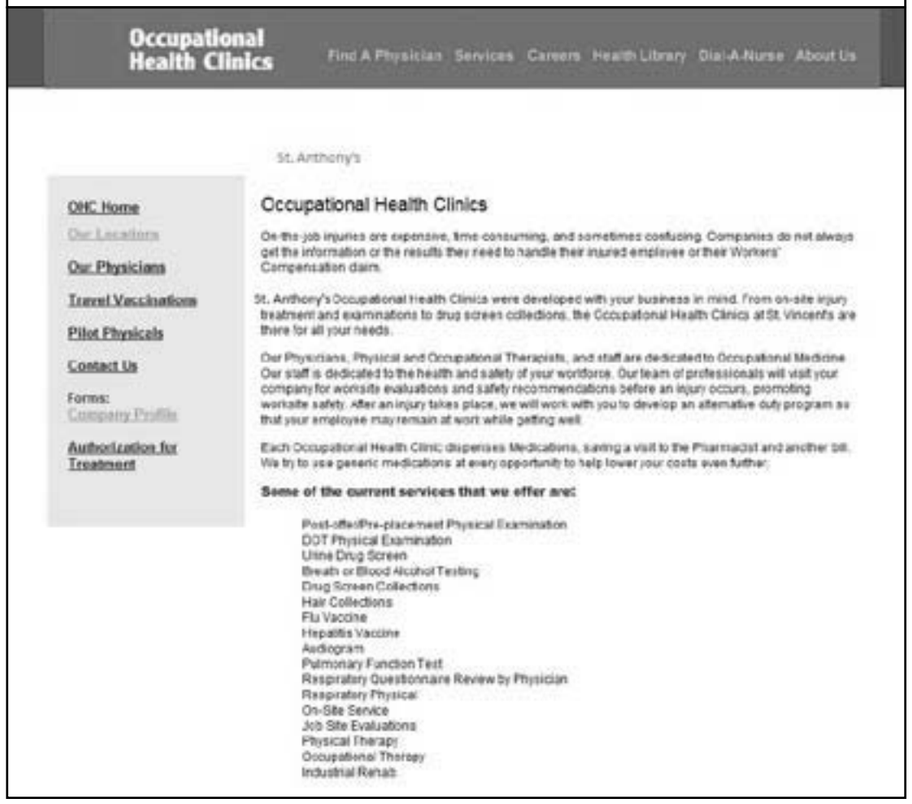
APPENDIX 1
RATE SCHEDULE FOR WORKERS' COMPENSATION THERAPY
(PARTIAL LIST OF RATES/PROCEDURES)
SOURCE: DEPARTMENT OF INDUSTRIAL RELATIONS

PREVAILING RATE/MAXIMUM
PHYSICAL THERAPY/REHABILITATION FEE SCHEDULE

CODE	DESCRIPTION	FEE
97001	Physical therapy evaluation	$122.39
97002	Physical therapy re-evaluation	$47.91
97003	Occupational therapy evaluation	$122.39
97004	Occupational therapy re-evaluation	$47.91
SUPERVISED: The application of a modality that does not require direct (one-on-one) patient contact by the provider.		
97012	Traction, mechanical	$33.90
97014	Electrical stimulation (unattended)	$29.51
97026	Infrared	$23.58
97028	Ultraviolet	$29.51
CONSTANT ATTENDANCE:		
97032	Electrical stimulation (manual), each 15 minutes	$29.51
97033	Lontophoresis, each 15 minutes	$30.96
97035	Ultrasound, each 15 minutes	$24.33
THERAPEUTIC PROCEDURES:		
97110	Therapeutic procedure, one or more areas, each 15 minutes, therapeutic exercises to develop strength and endurance, range of motion and flexibility	$44.22
97112	Neuromuscular reeducation of movement, balance, Coordination kinesthetic sense, posture, and/or proprioception for sitting and/or standing activities	$44.82
97116	Gait training (includes stair climbing)	$38.33
97124	Massage, including effleurage, petrissage and/or tapotement (stroking, compression, percussion)	$34.65
97140	Manual therapy techniques (eg, mobilization/manipulation, manual lymphatic drainage, manual traction), one or more regions, each 15 minutes	$31.69
97545	Work hardening/conditioning; initial 2 hours	$158.28
97546	Each additional hour	$79.15
TEST AND MEASUREMENTS:		
97760	Orthotic(s) management and training (including assessment and fitting when not otherwise reported), upper extremity(s), lower extremity(s) and/or trunk, each 15 minutes	$48.99
97750	Physical performance test or measurement (eg, musculoskeletal functional capacity), with written report, each 15 minutes	$53.07
97755	Assistive technology assessment (eg, to restore, augment or compensate for existing function, optimize functional tasks and/or maximize environmental accessibility), direct one-on-one contact by provider, each 15 minutes	$64.30

Appendix 2
Offerings from a key competitor's website



Occupational Health Clinics

Find A Physician Services Careers Health Library Dial-A-Nurse About Us

St. Anthony's

OHC Home
Our Locations
Our Physicians
Travel Vaccinations
Pilot Physicals
Contact Us
Forms:
Company Profile
Authorization for Treatment

Occupational Health Clinics

On-the-job injuries are expensive, time consuming, and sometimes confusing. Companies do not always get the information or the results they need to handle their injured employee or their Workers' Compensation claim.

St. Anthony's Occupational Health Clinics were developed with your business in mind. From on-site injury treatment and examinations to drug screen collections, the Occupational Health Clinics at St. Vincent's are there for all your needs.

Our Physicians, Physical and Occupational Therapists, and staff are dedicated to Occupational Medicine. Our staff is dedicated to the health and safety of your workforce. Our team of professionals will visit your company for worksite evaluations and safety recommendations before an injury occurs, promoting worksite safety. After an injury takes place, we will work with you to develop an alternative duty program so that your employee may remain at work while getting well.

Each Occupational Health Clinic dispenses Medications, saving a visit to the Pharmacist and another bill. We try to use generic medications at every opportunity to help lower your costs even further.

Some of the current services that we offer are:

Post-offer/Pre-placement Physical Examination
DOT Physical Examination
Urine Drug Screen
Breath or Blood Alcohol Testing
Drug Screen Collections
Hair Collections
Flu Vaccine
Hepatitis Vaccine
Audiogram
Pulmonary Function Test
Respiratory Questionnaire Review by Physician
Respiratory Physical
On-Site Service
Job Site Evaluations
Physical Therapy
Occupational Therapy
Industrial Rehab

Appendix 3
Results from Workers First Therapy work at a large industrial client. Data from January-March 2010.
(Financial results have been disguised to protect confidentiality)

	January	February	March	YTD
Therapeutic Activity				
Total # Patients Seen	32	40	50	122
Evaluations				0
Evaluations (new patients)	18	9	17	44
Re-Evaluations	5	6	3	14
Total # Visits	136	148	233	
Average # Visits per Patient	4.25	3.7	4.66	0
Preventative Activity				
Job Site Visits	2	5	1	8
Post DC Follow-ups	0	0	0	0
Symptom Surveys Collected	0	0	0	0
Symptom Survey Follow Up	0	0	0	0
Total Prevention	2	5	1	8
Assessment's				
FCEs	0	0	1	1
Impairment Ratings	0	0	2	2
Total Assessments	0	0	3	3
Injury Information				
Total # of Cases	20	22	24	66
First Aid	4 20.0%	4 18.2%	11 45.8%	19 28.8%
Medical Only	3 15.0%	6 27.3%	5 20.8%	14 21.2%
Restricted Duty	10 50.0%	10 45.5%	6 25.0%	26 39.4%
Lost Time	3 15.0%	2 9.1%	2 8.3%	7 10.6%
Total Restricted Duty Days	278	283	150	711
Total Lost Days	58	68	29	155
Average # Restricted Days/Case	27.8	28.3	25	27.3
Average # Lost Days/Case	19.3	34.0	14.5	22.1
Outcomes				
Unable to Return to Work	2 (12.5%)	2 (8.7%)	1 (4.0%)	5 (7.8%)
Returning to Restricted Duty	2 (13%)	0 (0%)	1 (4%)	3 (4.7%)
Returning to Full Duty	12 (75%)	21 (91%)	23 (92%)	56 (87.5%)
Total Outcomes	16	23	25	64
Service Hours				
# Therapy Hours for Patient Treatment	163.83	122.08	151.00	436.91
# Therapy Hours for Prevention	2.00	5.25	1.00	8.25
Total # Miscellaneous Hours Provided	0.00	3.50	5.00	8.50
Total # Hours	183.83	130.83	157.00	471.66
Total Cost for Therapy Services[1]	$35,938.77	$25,577.27	$30,693.50	$ 92,209.54

Source: Workers First Therapy management

Appendix 4
Estimated number of workplace injuries
Incidence rates of nonfatal occupational injuries and illnesses by industry and case types in state, 2007

Industry	2007 Average annual employment (thousands)	Total recordable cases	Cases with days away from work, job transfer, or restriction			Other recordable cases
			Total	Cases with days away from work	Cases with job transfer or restriction	
Manufacturing	298.8	6.0	3.2	1.2	2.0	2.9
Educational and health services	201.6	5.3	2.3	1.0	1.3	3.0
Trade, transportation, and utilities	392.2	4.9	2.7	1.4	1.3	2.2
Construction	113.1	4.6	2.3	1.6	0.6	2.3
Leisure and hospitality	175.4	3.9	1.3	1.0	0.3	2.7
Natural resources and mining	20.5	3.4	2.2	1.7	0.5	1.2
Other services	48.7	3.0	0.6	0.5	0.1	2.4
Financial activities	97.2	2.6	0.8	0.7	-	1.9
Professional and business services	219.5	2.5	1.1	0.7	0.4	1.4
Information	28.6	1.5	0.6	-	0.3	1.0
- Total	1595.6	4.5	2.2	1.1	1.0	2.3

Cases per 100 employees
Source: US Bureau of Labor Statistics

INSTRUCTOR'S MANUAL

Case Summary:

Workers First Therapy, a Memphis-based workplace injury therapy and injury prevention company, was considering adding a new business line that would provide physical therapy within the Workers First Therapy offices for work-related injuries. The new business line would add extra costs due to staffing needs, equipment, management and marketing. The company must decide if the profit gained from the new work-related physical therapy venture would be sustainable as well as feasible for the Workers First Therapy business model.

Case Intended Uses:

This case is designed for study within undergraduate Entrepreneurship, Management or Strategy classes. Students should recognize the decision making pitfalls of which entrepreneurs, managers and strategists should be aware. Also, the students should identify the competitive strategies that are important for decision making. This case should be used in conjunction with text book reading assignments covering Decision Making and the Competitive Strategy section of strategy development. This case is best if used at the end of the semester as a way to bring together material learned over the course of the class and reinforce the connection between strategy and decision making.

Research Method:

This case was developed based on interviews with Workers First Therapy management and Internet research. Any financial information has been disguised to protect competitive information.

Teaching objectives:

1. To identify decision making pitfalls that many entrepreneurs and managers encounter and how to avoid these pitfalls
2. To explore how decision making is related to competitive strategy
3. To explore how the competitive strategy should be defined based on the business environment
4. To examine how business decisions can unintentionally impact other business lines within a multi-faceted company

Suggested Teaching Plan

This case is suggested to be used after students have covered Decision Making (Questions 1-5) and Competitive Strategy (Questions 6-7) in both class lecture and individual student reading. The case can be used twice within the semester if preferred—focusing first on decision making, which is generally covered in broad terms in lower level business courses then more in depth in courses such as Entrepreneurship, Management or Strategy. After covering Decision Making, the case can be used again to reinforce how decision making impacts Competitive Strategy. Both approaches allow the instructor to assess student retention of Decision Making and Competitive Strategy. We suggest discussing the assignment based on the order of questions listed below due to numerous advantages:

- Question 1 allows a diligent student to recognize that entrepreneurs and managers face decision making pitfalls that can lead to detrimental decisions.
- Question 2 requires the students to narrowly define the specific decision making pitfalls that are applicable to the case. Our Instructor's Manual will focus on Confirmation Bias, but students may list the Anchoring Trap, Over-Confidence Trap or the Recent Event Trap. Although these are sufficient applications, we feel that students should be directed toward the Confirmation Bias due to the fact patterns outlined within the case.
- Questions 3 and 4 explore the intricacies of Confirmation Bias. These questions are an indicator between students with an in-depth understanding of decision making and those who have simply read the material.

- Question 5 helps students understand how to present solutions to the problem after recognizing that Confirmation Bias can be a problem. This question is designed to illustrate problem solving ability, which is imperative in business decision making.
- Questions 6 and 7 require that students examine how decision making impacts the company's competitive strategy, and vice-versa. These questions should highlight the student's ability to break down the decision point by recognizing how the company strategy will be impacted.
- Question 8 – 10 operate as conclusion topics that highlight how decision making and competitive strategy influence other areas of the business. These questions integrate decision making and strategy with ethics, current events as well as issues that may arise after decisions are made within a business.

Summary List of Discussion Questions

Decision Making Questions:

1. Which decision making pitfalls should Workers First Therapy stay aware of as the management considers adding the new therapy program?
2. Which decision making pitfalls would most directly be related to the decision point for the new work-related injury physical therapy business line?
3. Which decision making inputs have the most potential to lead the management to fall victim to Confirmation Bias?
4. How could the management team avoid the Confirmation Bias?
5. What decision making models could Workers First Therapy management use to avoid decision making pitfalls?

Competitive Strategy Questions:

6. What advantage do the competitors have over Workers First Therapy? What advantage does Workers First Therapy have?
7. How should Workers First Therapy define their competitive strategy within the market?

General Questions:

8. What are other factors the management team should consider while evaluating the possibility of a new business line? (i.e. unintended consequences, etc.)
9. What do you recommend Workers First Therapy should do? Justify your decision and discuss why this is the "best" option.

Questions

1. Which decision-making pitfalls should Workers First Therapy stay aware of as the management considers adding the new therapy program?

   Students should point to pitfalls such as the confirmation trap, hindsight trap, and escalation of commitments. Students may discuss ways that the management correctly views the new venture as the next logical step; however, it bases its decision not on all information, but on only supporting evidence. Also the discussion may turn to traps where business is not developing as expected and "good money" goes after "bad money." Students should discuss how management needs to constantly evaluate its investment and commitment to the project to make sure it remains comfortable with the results.

   The "A" student should recognize that the company could fall victim to more than one decision-making pitfall. One pitfall can lead to another or can follow another.

   (Decision-making Problems and Pitfalls)

2. Which decision-making pitfalls would most directly be related to the decision point for the new work-related injury therapy program?

   The confirmation trap, recent event trap, and anchoring trap, also known as hindsight trap, are all decision-making pitfalls that could come up in the decision to move forward with the workers' compensation clinic. Business owners need to be aware of these pitfalls as they make the decision to move forward so they can make sure to avoid them. Without a constant evaluation of the business environment and position, these problems can be easily overlooked.

   The "A" students should discuss how confirming evidence may be collected in mass, leading to the confirmation trap that puts opposing evidence in a lower category. Also, the impact of recent events on a business may weigh heavily on the decision-making process, at the expense of alternative past experiences. Those situations could include the decision to hire a new employee and the increased availability of staff resources on a new venture. The initial information that is discovered is often weighted more heavily and leads to the anchoring/hindsight trap. This information overshadows later discoveries and can lead to decreased evaluation of later information.

   (Report #9: Decision Making Theories)

3. Which decision making inputs have the most potential to lead the management to fall victim to Confirmation Bias?

   Students should look at factors that reinforced the idea to proceed with the workers' compensation clinic. Confirmation bias is defined as when people focus on ideas and evidence which supports their aspirations while ignoring data which undermines them. Did the Workers First Therapy management team focus too much on the potential for new revenues without looking at the realistic evidence? The background of staff members with similar previous experiences may also have played into the decision to go ahead with the expansion. The company's own history is also one input that could lead to a confirmation bias. It has extensive experience in industrial injuries, both in preventing injuries and teaching people how to treat them, but its own practical recent experience is limited to a clinic at a large industrial complex. Students should provide evidence either way to show any evidence why those experiences would or would not help this new business line.

   A quality answer should also touch on the idea that confirmation bias is also an important way people make tough decisions and can be critical to realizing significant gains.

   (How Confirmation Bias Shapes Venture Investment Decisions)

4. How could the management team avoid the Confirmation Bias?

   Students should discuss how Workers First Therapy needs to actively seek out negative evidence about its business plan, looking for reasons why it might fail. This process should take place before the decision point and consistently after the venture begins, if that is the decision made. Another way to avoid a confirmation bias is to have an outside review of business successes and failures. Having a person removed from the experience analyze if a business line is succeeding could

give a better indication than the business managers. The same idea works when approaching the decision point by having an outside party give feedback on the presumed results. Students could also discuss how setting specific goals ahead of time could lead to help avoid biases. By clearly defining objectives to be met along the way gives the decision-makers a chance to closely examine their goals and make sure they seem likely.

Also, as mentioned in the previous question, students should acknowledge that not every case of confirmation bias is a problem. The biggest decision revolves around risk tolerance.

5. What decision making models could Workers First Therapy management use to avoid decision making pitfalls?

Answers to this question should include references to SWOT analyses and a decision matrix. A SWOT (Strength, Weaknesses, Opportunities, and Threats) analysis would force the decision-makers to look at all areas, both good and bad, and the management team would make a decision based off of positive and negative information in front of them. The "A" student will point out that a SWOT analysis would allow the company to internally evaluate how all factors available will impact the business model. This evaluation should be a perpetual decision making tool. As "big" decisions arise, the company looks at the internal and external factors that can impact how the decision will interplay with the current business model.

A decision matrix includes a listing of all possible options, not just a look at the preferred one. That is arguably one of the most thorough ways to evaluate options, especially if the business wants a quantitative measure for the possible success or failure of the new plan. The "A" student should recognize that the decision matrix looks at the possible solutions from both an internal and external perspective. The risks and returns for each option is evaluated to determine the compatibility of the different options within the current business model.

(Decision Making Models / Types of Decision Making)

6. What advantage do the competitors have over Workers First Therapy? What advantage does Workers First Therapy have?

The obvious and most easily recognizable advantage of the "big three" hospitals is the size of their companies as compared to Workers First Therapy. The "big three" have more funds and larger workforces to tap if they decide to tackle the industrial therapy market (economies of scale). The "A" student should recognize that economies of scale provide a natural monopoly. Economies of scale provide marketing, financing and managerial advantages that are not available for Workers First Therapy.

Workers First Therapy has an experience advantage that comes from its work with American Industrial. Through their work with American Industrial, they also have an arsenal of positive results that they can use in their marketing efforts. Pamela Jones's extensive experience in both research and clinical rehabilitation, as well as her time spent with the University of Alabama at Birmingham developing a new functional capacity evaluations protocol offer another advantage for Workers First Therapy over their competitors. The "A" student should point out that the lack of size (the opposite of economies of scale) can provide a competitive advantage for Workers First Therapy. The firm will have more flexibility in decision making than larger firms and has the potential to provide more personalized care.

7. How should Workers First Therapy define their competitive strategy within the market?

Workers First Therapy will need to provide a best cost, best value product (therapy services) to the market. Students should recognize that this strategy has potential to outperform the economies of scale that the larger providers have. A lower to medium cost, plus the best service fulfills the needs to the insurance companies, third party administrators and other price-concerned parties. An astute student will recognize that this strategy is loosely outlined within the case.

8. What are other factors the management team should consider while evaluating the possibility of a new business line? (i.e. unintended consequences, etc.)

There is a possibility that an industrial company might make a move to offer one of Workers First Therapy's employees a position at their company as an onsite therapist. This hypothetical company could potential offer the Workers First Therapy employee a significant pay raise while still keeping their costs below what they would be paying Workers First Therapy for the same therapy services.

Maintenance costs on the new equipment that would have to be purchased should also be considered. With a larger clientele Workers First Therapy's equipment would be receiving more use which would result in downtime for the equipment and related costs to repair the equipment and make it usable again.

Expanding the company business line would bring about the consequence of Workers First Therapy's employees likely working extended hours. With the additional work hours comes more stress and job dissatisfaction for employees. These factors could potentially lead to Workers First Therapy losing some good employees to competitors. The additional work hours would also result in overtime pay for the company as well.

9. What do you recommend Workers First Therapy should do? Justify your decision and discuss why this is the "best" option.

Students will have varied answers. Answers are provided for two options:

Workers First Therapy should open the new business line. The company has the competitive advantage to excel within the industry. The clinic is poised to offer a unique service within the marketplace that is currently underserved. Workers First Therapy has proven results with their work at the American Industrial clinics. These therapy methods can be translated into the Workers First Therapy office therapy programs. The "A" student will point out that Workers First Therapy has the resources to now launch this business line. The expanded office space as well as the new staff members provide the resources that are needed to begin therapy within the Workers First Therapy offices.

Workers First Therapy should NOT open the new business line. The company could not compete with the large competitors. Although the clinic provides a unique service, this is not enough recognizable enough within the marketplace to add the extra value needed to gain business. The clinic is poised for growth, but the cost of new equipment provides a significant

barrier to entry. The "A" student will highlight that growth within the other business lines within the Workers First Therapy business model could impact the viability of providing therapy services within the office space. The other business lines provide a defense to complete failure of the entire company, but the focusing on the growth of the new business line could detract from lucrative growth in other areas of the business.

REFERENCES FOR FURTHER RESEARCH

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Learning Style Preferences of Nigerian University Undergraduates: Implications for New Faculty Development Model

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ABSTRACT

Learners' preferences for particular learning styles continues to interest scholars. Every learning community attempts to provide the structure and process that will lead to the emergence of successful students and quality faculty. Learners preferentiality take in and process information in diverse ways whilst faculty instructional methods also vary presenting the possibility for mismatching instructional methods with learners' preferences leading to ineffective learning and overall achievement underperformance. New faculty professional development will become more effective if it presents strategies that meet the learning needs and style of students in the teacher education faculties in Nigerian universities. The purpose of this study is to identify the learning style preferences of Nigerian undergraduates, which will be used for new faculty professional development models in faculties of education in Nigerian universities. A modified version of Honey and Mumford Learning Styles Questionnaire containing 80 items was administered to three hundred and ninety-one (391) Nigerian university undergraduates of the Faculty of Education, to identify their learning using the percentage of those who checked the items. The variables studied are the students' entry mode, gender and area of specialization. Data collected were analyzed based on, areas of specialization and the students' gender, entry mode (UME) and (DE), using frequency and percentages. Honey and Mumford Learning Style Questionnaire have been used in the past to assess student learning styles in different disciplines. The Honey and Mumford Learning Style Questionnaire was chosen for the student empirical survey while another instrument was used for faculty to determine their professional development needs. The results among others showed that many university teachers never had any orientation at the beginning of their employment. They also indicated that they need training in all the domains contained in the instrument The results were discussed and recommendations made regarding the application of learning instruments and the lessons that can be learnt regarding meeting students' learning needs and its implication for effective professional development models for new faculty, pointing to areas for further research.

INTRODUCTION

Scholars continue to research on how an understanding of student learning style can enhance faculty teaching efficacy and institutional professional development funding focus and plan. Wratcher et al (1997) as cited in Heffernan, Morrison, Basu and Sweeney (2010) opined that as far back as ancient Greece it was noted that students have different approaches to learning. These individualistic learning approaches are referred to as learning styles, which are often defined as 'characteristic cognitive, affective, and physiological behaviours that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment' (Ladd & Ruby, 1999, p. 363). Faculty is faced with the challenging question of which teaching strategy or instructional method would best accomplish a variety of goals and objectives.

Institutions that understand the relationship between student learning style and academic achievement are also conflicted on the profes-

sional development topics they need to recommend for new faculty. Research indicated that there is no simple answer regarding understanding student learning styles, rather when implementing strategies or instructional methods, there must be different approaches (Good & Brophy, 2000). Good and Brophy also wrote that specific teaching methods were useful for accomplishing certain purposes in certain situations and that no one method was optimal for all purposes in all situations.

Li et al., (2008) as cited in Penger, Tekavcic, and Dimovski, (2008), explained that researchers have pointed out that students learn effectively in a harmonic environment and by using instructional materials which match their learning style preferences, faculty will enhance their teaching efficacy. Learning styles have been heavily researched (Duff & Duffy, 2002; Coffield et al., 2004; Herbert & Stenfors, 2007; Garcia et al., 2007; Armstrong & Mahmud, 2008; Li et al., 2008), but little is known about Nigerian higher education students' learning styles, especially in the field of teacher education. Consequently, the aim of this pilot study is to explore and compare, the learning styles of students enrolled in teacher education courses in the Faculty of Education of a university in one of the six geopolitical regions of Nigeria.

Measuring Learning Styles

Learning styles have been defined in different ways because researchers provide many different definitions in their bid to present an encompassing definition that builds on the years of research done in learning styles. One such definitions of learning styles, known as VAK (visual, auditory, and kinaesthetic), includes individual differences that affect classroom learning and can include preferences for learning via visual materials versus text or auditory materials and kinaesthetic activities. Over the years, several instruments have been developed to evaluate a person's learning style, and some have shared in popularity. Three such instruments are the Myers- Briggs Type Indicator (MBTI), which is one of the oldest instruments measuring learning styles. The MBTI uses Carl Jung's' theory of psychological types as the theoretical foundation. The instrument identifies individuals' preferences on eight characteristics: extraversion, introversion, sensing, intuition, thinking, feeling, judging, and perceiving (Briggs, Myers, McCaulley, Quenck, & Hammer, 2001). One of the better-known instruments includes the Honey-Mumford Learning Styles Questionnaire (1982, 1992), which measured learning preferences relative to the learning cycle. Honey and Mumford (1992) identified four learning styles: activists, reflectors, theorists, and pragmatists. Their questionnaire had some similarity to the Kolb LSI (Kolb & Kolb, 2005).

The third is David Kolb (1984) learning style instrument, which has generated a lot of research over the years. While teaching management students he noticed that some students preferred learning through experiences whereas others preferred the traditional classroom lecture. His subsequent theory of experiential learning proposed that, while learning, people resolved conflicts between a) active experimentation and b) reflective observation along one axis and between c) concrete experience and d) abstract conceptualization along another axis. His model yielded four quadrants and he stated that, over time, people developed learning style preferences that can be categorized into one of the four quadrants (Kappe, Boekholt, Rooyen, & Van der Flier, (2009). Kappe et al further explains that Kolb developed the Learning Style Inventory (LSI) to measure peoples' individual learning styles. By knowing the learning styles of their students and by creating learning environments matched to those learning styles, educators could enhance learning. Whereas commercially popular pedagogical tools have been generated by Kolb's work, empirical support for construct and predictive validity have been lacking (Coffield et al., 2004).

Difficulty with some of Kolb's theoretical ideas and low face validity for the LSI prompted Honey and Mumford (1986) to develop their own learning style theory as well as a new measure, namely, the Learning Style Questionnaire (LSQ). Honey and Mumford's Learning Style Questionnaire (LSQ) has been proposed as an alternative for Kolb's Learning Style Inventory (LSI) and a later refined version (LSI-1985). The LSQ has been widely applied in the fields of management, training and education. Limited evidence exists concerning the psychometric properties of the LSQ (Duff and Duffy, 2002).

Faculty Professional Development

A diverse learner population characterises educational provision in Nigerian higher education across all educational levels. Learners from a previously disadvantaged background in particular, are often under-prepared and at risk of failing or dropping out. Some educators in higher education have found themselves ill equipped to educate learners with these varying degrees of academic readiness and educational backgrounds (Gauss, 2002). For the last 20 years practising teachers in higher education have made use of models of the student learning process as part of their continuing professional development (Cuthbert, 2005) but empirical data is not currently available at the National Universities Commission, (NUC), (the organ in-charge of higher education) stating that Nigerian universities use this knowledge in designing their faculty professional development plan. Higher education faculty as is the case with other levels of teachers in the profession must not have only a mastery of the content and curriculum, an appreciation of the various forms of standards within their disciplinary focus, an awareness of assessment, and the ability to organize lessons, but also be able to engage students-- to know them well enough to make appropriate instructional decisions. It is through pedagogy, the science of teaching, that the skilful teacher ties these elements together (Khan & Sarwar, 2011). They further opined and supported the statement in the Nigerian National Policy on Education (FGN, 2004) that:

> The quality of higher education largely depends upon the quality of staff in higher educational institutions which is in support of the aspect of national policy which states that
>
> no educational system can rise above the quality of its teachers. The role of staff is pivotal for the achievement of goals of an institution or an organization. A high quality and well-motivated teaching staff is essential in building the excellence in education. Staff development is the sum of activities that enhance the knowledge, skills, performance, vision and understanding of the staff. In educational institutions staff development programmes improve the communication skills, classroom behaviour, teaching methods and thinking of the teacher. The purpose of staff development is to promote the quality of pupils' learning by different teaching strategies.

Purpose

The main purpose of this study was to investigate the perception of teacher education students in Nigerian universities of their learning style and how the information of student learning styles can influence university faculty development plan. Specifically, the objectives of this study are:

a. To determine the learning styles of teacher education students in Nigerian universities.

b. To identify the learning styles of teacher education students in Nigerian universities by area of specialisation.

c. To compare the learning styles of teacher education students by gender.

d. To compare the learning styles of teacher education students who were admitted through Direct Entry (DE) and those admitted through University Matriculation Examination (UME).

e. To identify the extent to which universities in Nigeria use this information in enhancing faculty professional growth.

The following research questions guided the study:

1. What learning styles do teacher education Science and Arts students exhibit?

2. Is there any difference in the learning styles of male and female teacher education students?

3. Is there any difference in the learning styles of teacher education DE and UME students?
4. To what extent is student's learning style used for institutional faculty professional development plan?

METHODOLOGY

This research is a survey and quantitative in nature because numerical data were collected. The descriptive design was used to identify and describe the learning styles of teacher education university learners and Faculty development needs. Three hundred and ninety-one (391) university education second year undergraduates and ninety (180) faculty were used for the study. This level of undergraduates were used because they have experienced one year university education (UME) while the DE respondents had already spent three years in higher education level; and if their learning styles are identified they will still benefit from the result of this study before graduation as the findings will be implemented in teaching them. More importantly, the findings will impact faculty quality in higher education in the six geopolitical zones of Nigeria.

Stratified random sampling was used to sample the undergraduates so as to take care of the variables of gender, area of specialisation and entry mode. One hundred and eighty relatively new staff (0–5 years experience) were purposively selected to identify their development and training needs. The instrument for data collection was the Learning Style Questionnaire (LSQ) by Honey and Mumford (1992). The LSQ consists of 80 items that probe behavioral preferences in four learning style subscales: Activist, Reflector, Theorist, and Pragmatist; each of the four scales contains 20 items. Every item is presented as a single statement for the respondents to check. The scores were determined by summing positive responses to the equivalent items. This scoring procedure leads to a frequency and percentage of the respondents that checked the items. Honey and Mumford (1992) reported differential responding on the scales and have published statistics and norm tables, which allow standardization of the scores.

In this research, data were analyzed using the Statistical Package for the Social Sciences (SPSS 16.0). An alpha level of 0.05 was used as a margin of statistical significance (Coakes & Steed, 2003). An exploratory research approach aims to gain familiarity with a phenomenon. The conclusions drawn are tentative and the value of this type of research lies in the fact that it provides further research topics within the field of the present research (Babbie, 1990). This study was descriptive and exploratory in nature.

Instruments

The LSQ (Honey and Mumford, 1992) consists of 80 items that probe behavioral preferences. The items are categorized into four (4) Learning Styles: Activist, Reflector, Theorist and Pragmatist. Each of the four scales contains 20 items already arranged accordingly. Every item is presented as a single statement with which the respondent agrees or not. Scale scores are determined by summing positive responses to the equivalent items falling into the four categories. A Professional Development questionnaire containing 32 items grouped under Needs Assessment, Fields of training, Training in Instructional Development, Test Construction, Technology usage was developed to collect information on the professional training needs of the faculty. The instrument was developed on a five-point Likert type scale to test the extent of their agreement with the statements on professional development needs. Honey and Mumford (1992) reported differential responding on the scales and have published statistics and norm tables, which allow standardization of the scores.

Predictors

Validity is important for any research study (Cook & Campbell, 1979). The Honey and Mumford Learning Style Questionnaire (LSQ) was chosen as a measure of learning style because it, a) has shown face validity, b) has been popular commercially, c) originally designed for management and education students (Duff & Duffy, 2002; Coffield et al., 2004; Allinson & Hayes, 1990). All students completed the LSQ once as part of the study. The LSQ (1992) consists of four learning style subscales: Activist, Reflector, Theorist, and Pragmatist; each containing 20 items for a total of 80 items. Respondents either agreed or disagreed with the statements and subscale scores were determined by summing the positive responses.

For the faculty needs professional assessment instrument, seven sections were developed, with sections A, B, C, D, E, F and G containing, 3,16, 4, 5, 4, and 1 item(s) respectively. Demographic data were collected to identify faculty and professional experience.

Sampling Method and Size

The study employed a convenience, non-probability sampling technique to obtain a sample of second year teacher education university students. Convenience sampling is the process whereby the researcher selects a sample primarily because it is accessible and reasonably reflective of the population of interest (Harris, 1998). The sample of Nigerian students consists of second year students studying education at a university in one of the universities in the six geopolitical zones. All students were completing the same undergraduate degree, and they were surveyed in class using a non-probabilistic (purposive) sampling procedure. The sample size was 391, made up of 235 females and 156 males; 256 UME and 135 DE; 242 Arts and 149 Science students. Again 180 relatively (0 – 5 years of experience) new faculty, 20 from each faculty, (10 females and 10 males), were purposively selected to determine their professional development needs.

Data Collection

The questionnaire was personally administered to the students by the researchers with the aid of the research students in the Faculty of Education of the university used in the study. Teacher Education students completed the Honey and Mumford (1999) learning styles index. As part of this index, students completed 80 discrete-choice questions that, when calculated, determined their learning styles on a four-continuum, as noted earlier in the study. The researchers distributed the questionnaire to 391 student respondents and 180 faculty respondents and the researchers were able to get responses from all respondents because they returned the instruments on–the-point.

RESULTS

The following tables below portray the data used in addressing the research questions.

RQ1: What learning styles do teacher education Science and Arts students' exhibit?

Table 1 shows the responses of activists from two groups based on the administered instruments. Activists are open-minded and prefer tackling problems by brainstorming. 76% and 82% of students in Arts area of specialization indicated positive response to items 6 and 10 while 43% and 37% of science counterparts responded positively to the same item statements. Most of the respondents from both areas of specialization (Arts and Science) responded positively to Item 32. Therefore, it falls into the excitement to new learning descriptor accorded students with this learning style. Respondents from both areas of specialization scored less than 50% in items 40, 48, 72, and 74. However, 67% of both areas of specialization responded positively to item 64, which states, "when things go wrong I am happy to shrug off and put it down to experience." On the average based on the percentage frequency of response to the statement items, more 51.2 % of Arts students responded positively to all the items in this learning style as compared to 45.7 % of Science student respondents.

Table 2 shows the responds of reflectors from two groups based on the administered instruments. Reflectors like to stand and ponder experiences and observe them from many perspectives. This is the case as reflected in Items 7, 13, 15, 25, 28, 29, 31, 41, 60, 66, and 76 where more than 80% of students responded positively to these item statements. The only exception to this pattern was found in item 13 where 61.7% of Science students responded positively as against 88% of the Arts students' respondents. Both Art and Science students on the other hand responded uniformly to item 52, which state that, "I tend to discuss specific things with people rather than engaging in social discussion." The highest positive response for both areas of specialization was recorded in item 66, which states, "It's best to

Table 1
Percentage Responses on Learning Style Questionnaire
Activists

S/N	Item Statement	Arts Science			
		Yes		Yes	
		f	%	f	%
2	I often act without considering the possible consequences.	71	29.3	15	10.1
4	I believe that formal procedures and policies restrict people.	93	38.4	64	43.0
6	I often find that actions based on feelings are as sound as those based on careful thought and analysis.	184	76.0	64	43.0
10	I often find that actions based on feelings are as sound as those based on careful thought and analysis.	199	82.2	121	37.8
17	I'm attracted more to novel, unusual ideas than to practical ones.	63	26.0	49	32.9
23	I thrive on the challenge of tackling something new and different.	185	76.23	121	81.2
24	I enjoy fun-loving, spontaneous people.	170	70.2	99	66.4
32	I tend to be open about how I'm feeling.	206	85.1	128	85.9
34	I prefer to respond to events on a spontaneous, flexible basis rather than plan things out in advance.	100	41.3	57	38.3
38	Quiet, thoughtful people tend to make me feel uneasy.	121	50.0	78	52.3
40	It is more important to enjoy the present moment than to think about the past or future.	107	44.2	42	28.2
43	In discussions I usually produce lots of spontaneous ideas.	114	47.1	92	61.7
45	More often than not, rules are there to be broken.	142	58.7	50	33.6
48	On balance I talk more than I listen.	86	35.5	36	24.2
58	I enjoy being the one that talks a lot.	64	26.4	36	24.2
64	When things go wrong I am happy to shrug it off and "put it down to experience".	164	67.8	100	67.1
71	I find the formality of having specific objectives and plans stifling.	100	58.7	100	67.1
72	I'm usually one of the people who puts life into a party.	93	38.4	49	32.9
74	I quickly get bored with methodical, detailed work.	92	38.0	77	51.7
79	I enjoy the drama and excitement of a crisis situation.	86	35.0	49	32.9

think carefully before taking action." On the average based on the percentage frequency of response, more 79.5% of Arts students responded positively to all the items in this learning style as compared to 81.17% of Science student respondents.

Table 3 shows the responds of two groups of theorists based on the administered instruments. Theorists adapt and integrate observations into complex but logically sound theories. Item statements 1, 2, 18, and 20 show that over 80% of respondents from both groups (Arts and Science students) responded positively. In addition, statements that deal with logical thinking and approach show a high response from both groups. However, both groups seem to respond marginally (below 50%) to items 42,22, and 26, which states, "I tend to be a perfectionists," " I tend to have distant, rather formal relationships with people at work," and, "I find it difficult to produce ideas on impulse." In all, the frequency percentage shows that 67.8% of all Art students' responded positively while, 66.1% of the Science students responded positively to item statements under this learning style.

Table 4 shows the responds of two groups of pragmatists based on the administered instruments. Pragmatists are keen on trying out ideas, theories, and techniques to ascertain if they work in practice. Item statements 5, 19, 44, 50, and 53 show that over 75% of respondents from both groups (Arts and Science students) responded

Table 2
Percentage Responses on Learning Style Questionnaire
Reflectors

S/N	Item Statement	Arts Science			
		Yes		Yes	
		f	%	f	%
7	I like the sort of work where I have time for thorough preparation and implementation.	214	88.4	136	91.3
13	I take pride in doing a thorough job.	213	88.0	92	61.7
15	I take care over the interpretation of data available to me and avoid jumping to conclusions.	206	85.1	142	95.3
16	I like to reach a decision carefully after weighing up many alternatives.	206	85.1	135	90.6
25	I pay meticulous attention to detail before coming to a conclusion.	220	90.9	143	96.0
28	I am careful not to jump to conclusions too quickly.	208	86.0	142	95.3
29	I prefer to have as many sources of information as possible -the more data to mull over the better.	236	97.5	128	85.9
31	I listen to other people's point of view In discussions	199	82.2	149	100
33	I enjoy watching the maneuverings of the other participants. before putting my own forward.	170	70.2	107	71.8
36	It worries me if I have to rush out a piece of work to meet a tight deadline.	215	88.8	113	75.8
39	I often get irritated by people who want to rush things.	192	79.3	121	81.2
41	I think that decisions based on a thorough analysis of all the information are sounder than those based on intuition.	214	88.4	121	81.2
46	I prefer to stand back from a situation and consider all the perspectives.	157	64.9	128	85.9
52	I tend to discuss specific things with people rather than engaging in social discussion.	114	47.1	71	47.7
55	I am keen to reach answers via a logical approach.	156	64.5	122	81.9
60	I like to ponder many alternatives before making up my mind.	199	82.2	142	95.3
62	In discussions I'm more likely to adopt a "low profile" than to take the lead and do most of the talking.	106	43.8	58	38.9
66	It's best to think carefully before taking action.	235	97.1	135	90.6
67	On balance I do the listening rather than the talking.	171	70.7	121	81.2
76	I'm always interested to find out what people think.	220	90.9	113	75.8

positively to these statement items. However, item 27 showed a sharp contrast in the responses of the groups to the statement, "I believe in coming straight to the point immediately." Hundred percent of Arts students responded positively to this statement as against 42.3% of Science students who responded positively to item statement 27. In all, the frequency percentage shows that 75.94 % of all Art students' responded positively while, 62.6 % of the Science students responded positively to the statements under this learning style.

RQ2: Is there any difference in the learning styles of male and female teacher education students?

Table 5 shows the responds of two groups of students considered as activists based on gender difference. The most significant difference was identified in the response to item 2 where 100% of male respondents indicate that they often act without considering the possible consequences as compared with 21.3% of the female respondents. However, both gender respondents seem to have the same positive response rate to items 17, 34, 48, 72, 74, and 79. The female respondents in this learning style as evidence in item 32 tend to be

Table 3
Percentage Responses on Learning Style Questionnaire
Theorists

S/N	Item Statement	Arts Science			
		Yes		Yes	
		f	%	f	%
1	I have strong beliefs about what is right and wrong, good and bad.	242	100	142	95.3
3	I tend to solve problems using a step-by-step approach.	199	82.2	142	95.3
8	I regularly question people about their basic assumptions.	156	64.5	100	67.1
12	I am keen on self-discipline such as watching my diet, taking regular exercise, sticking to a fixed routine etc.	171	70.7	107	71.8
14	I get on best with logical, analytical people and less well with spontaneous, "irrational" people.	179	74.0	91	61.1
18	I don't like disorganised things and prefer to fit things into a coherent pattern.	221	91.3	135	90.6
20	I like to relate my actions to a general principle.	214	88.4	142	95.3
22	I tend to have distant, rather formal relationships with people at work.	64	26.4	42	28.2
26	I find it difficult to produce ideas on impulse.	106	43.8	49	32.9
30	Flippant people who don't take things seriously enough usually irritate me.	192	79.3	114	76.5
42	I tend to be a perfectionist.	107	44.2	42	28.2
47	I can often see inconsistencies and weaknesses in other people's arguments.	157	64.9	85	57.0
51	I believe that rational, logical thinking should win the day.	185	76.4	128	85.9
57	I am keen to reach answers via a logical approach.	192	79.3	121	81.2
61	In discussions with people I often find I am the most dispassionate and objective.	78	32.2	78	52.3
63	I like to be able to relate current actions to a longer-term bigger picture.	171	70.7	106	71.1
68	I tend to be tough on people who find it difficult to adopt a logical approach.	136	56.2	57	38.3
75	I am keen on exploring the basic assumptions, principles and theories underpinning things and events.	178	73.6	113	75.8
77	I like meetings to be run on methodical lines, sticking to laid down agenda, etc.	185	76.4	113	75.8
78	I steer clear of subjective or ambiguous topics.	149	61.6	64	43.0

open to about their feelings compared to 76% of the male respondents. . In all, the frequency percentage of shows that 47.02 % of all female students responded positively while, 56.5 % of the male students responded positively to the statements under this learning style.

Table 6 shows the response of two groups of students considered as reflectors based on gender difference. Items 7, 15, 16, 25, 28, 29, 31, 41, 60, 66 and 76 show a consistency in pattern of positive response. In order words, frequency of positive response to these items for both group (male and female) ranges from 80% to 100%. Item 52, which states, "I tend to discuss specific things with people rather than engaging in social discussion," shows 36.6% of female responding positively as against 64.1% of males. In all, the frequency percentage shows that 75.39 % of all female students responded positively while, 85.51% of the male students responded positively to the statements under this learning style.

Table 7 shows the response of two groups of students considered as theorists based on gender difference. Items 1, 18 and 57 had a high frequency percentage of positive response from both gender to the instrument, specifically response

Table 4
Percentage Responses on Learning Style Questionnaire
Pragmatist

S/N	Item Statement	Arts Science			
		Yes		Yes	
		f	%	f	%
5	I have a reputation for saying what I think, simply and directly.	184	76.0	121	81.2
9	What matters most is whether something works in practice.	192	79.3	78	52.3
11	When I hear about a new idea or approach I immediately start working out how to apply it in practice	192	79.3	99	66.4
19	I accept and stick to laid down procedures and policies so long as I regard them as an efficient way of getting the job done.	213	88.0	143	96.0
21	In discussions I like to get straight to the point.	199	82.2	100	67.1
27	I believe in coming to the point immediately.	242	100	63	42.3
35	I tend to be attracted to techniques such as network analysis, flow charts, branching programmes, contingency planning, etc.	142	58.7	78	52.3
37	I tend to judge people's ideas on their practical merits.	178	73.6	78	52.3
44	In meetings I put forward practical realistic ideas.	206	85.1	128	83.9
49	I can often see better, more practical ways to get things done.	206	85.1	100	67.1
50	I think written reports should be short and to the point.	214	88.4	122	81.9
53	I like people who approach things realistically rather than theoretically.	206	85.1	121	81.2
54	In discussions I get impatient with irrelevancies and digressions.	171	70.7	78	52.3
56	I am keen to try things out to see if they work in practice.	192	79.3	92	61.7
59	In discussions I often find I am the realist, keeping people to the point and avoiding wild speculations.	192	79.3	85	57.0
65	I tend to reject wild, spontaneous ideas as being impractical.	164	67.8	78	52.3
69	Most times I believe the end justifies the means.	185	76.4	100	67.1
70	I don't mind hurting people's feelings so long as the job gets done.	128	52.9	64	43.0
73	I do whatever is expedient to get the job done.	164	67.8	57	38.3
80	People often find me insensitive to their feelings.	106	43.8	84	56.4

percentage range from 80 to 100. The only difference to this pattern was identified in item 51 where 72.8% of female responses were positive as against 100% for the male respondents. Both male and female respondents indicate that they are keen on exploring the basic assumptions, principles and theories underpinning things and events. This pattern is also identified in the low response of the two groups to item 61. In all, the frequency percentage shows that 66.79% of all female students responded positively while, 70.05 % of the male students responded positively to the statements under this learning style.

Table 8 shows the response of two groups of students considered as theorists based on gender difference. Items 19 and 44 revealed the highest frequency in positive responses of male and female respondents. In addition, there seems to be similarities in the response of the group to items 11, 21, 37, and 80. However, items 53and 70 were 30% difference in frequency of positive response between male and female respondents, specifically, seventy two percent of female respondents as against 100% of male respondents and 36.2% (females) and 67.9% (males). In all, the frequency percentage shows that 65.5% of all female students responded positively while, 74.01 % of the male students responded positively to the statements under this learning style.

RQ3: Is there any difference in the learning styles of teacher education UME and DE students?

Table 9 shows the response of two groups of students considered as activists based on entry

Table 5
Percentage Responses on Learning Style Questionnaire
Activist

S/N	Item Statement	Female Male			
		Yes		Yes	
		f	%	f	%
2	I often act without considering the possible consequences.	50	21.3	156	100
4	I believe that formal procedures and policies restrict people.	121	51.5	114	73.1
6	I often find that actions based on feelings are as sound as those based on careful thought and analysis.	93	39.6	78	60
10	I actively seek out new experiences	172	73.2	149	95.5
17	I'm attracted more to novel, unusual ideas than to practical ones.	72	30.6	42	29.9
23	I thrive on the challenge of tackling something new and different.	177	75.3	128	82.1
24	I enjoy fun-loving, spontaneous people.	170	72.3	100	64.1
32	I tend to be open about how I'm feeling.	192	81.7	113	72.4
34	I prefer to respond to events on a spontaneous, flexible basis rather than plan things out in advance.	86	36.6	72	46.2
38	Quiet, thoughtful people tend to make me feel uneasy.	107	45.5	85	54.5
40	It is more important to enjoy the present moment than to think about the past or future.	86	36.6	64	41.0
43	In discussions I usually produce lots of spontaneous ideas.	107	45.5	100	64.1
45	More often than not, rules are there to be broken.	135	57.4	56	35.9
48	On balance I talk more than I listen.	78	33.2	48	30.8
58	I enjoy being the one that talks a lot.	50	21.3	50	32.1
64	When things go wrong I am happy to shrug it off and "put it down to experience".	143	60.9	120	76.9
71	I find the formality of having specific objectives and plans stifling.	113	48.1	85	54.5
72	I'm usually one of the people who puts life into a party.	86	36.6	56	35.9
74	I quickly get bored with methodical, detailed work.	100	42.6	64	41.0
79	I enjoy the drama and excitement of a crisis situation.	72	30.6	62	39.7

mode into the study institution. Items 2, 4,17, 34, 38,40, 43, 71, 72, 74 and 97 show a significant difference in the positive response of UME students as compared to DE students. Items 2, 34, 40, 72, 72, and 79 show a 0% response rate. In general, there is a difference in learning style of UME (University Matriculation Examination) and DE (Direct Entry) respondents based on their positive response to the item statements, specifically, 45.72% of UME in this learning style showed positive response to the 20 item statements as compared to 17.81% of the DE students. Therefore, there is a difference in the learning style of teacher education students in the activist category based on their entry mode results.

Table 10 shows the responds of two groups of students considered as reflectors based on entry mode into the study institution. Items 2, 37, 13, 15, 16, 25, 28, 29, 31, 33, 36, 39, 41, 55, 60, and 66 show a response rate ranging from 50% to 100%. However, items 52 and 62 show a significant difference in the positive response rate to the item for UME and DE students. In general, there is a difference in learning style of UME and DE respondents based on their positive response to the item statements, specifically, 79.6 % of UME in this learning style showed positive response to the 20 item statements as compared to 59.6% of the DE students. Therefore, there is a difference in the learning style of teacher education students in the reflector category based on their entry mode results.

Table 11 shows the responds of two groups of students considered as theorists based on entry mode into the study institution. Items 1, 3, 12, 14, 18, 30, 42, 51, and 75 show a response rate

Table 6
Percentage Responses on Learning Style Questionnaire
Reflector

S/N	Item Statement	Female Male			
		Yes		Yes	
		f	%	f	%
7	I like the sort of work where I have time for thorough preparation and implementation.	199	84.7	149	95.5
13	I take pride in doing a thorough job.	183	77.9	106	67.9
15	I take care over the interpretation of data available to me and avoid jumping to conclusions.	199	84.7	149	95.5
16	I like to reach a decision carefully after weighing up many alternatives.	192	81.7	149	95.5
25	I pay meticulous attention to detail before coming to a conclusion.	206	87.7	156	100
28	I am careful not to jump to conclusions too quickly.	199	84.7	149	95.5
29	I prefer to have as many sources of information as possible -the more data to mull over the better.	213	90.6	149	95.5
31	I listen to other people's point of view In discussions	199	84.7	149	95.5
33	I enjoy watching the maneuverings of the other participants. before putting my own forward.	192	61.7	106	67.9
36	It worries me if I have to rush out a piece of work to meet a tight deadline.	170	72.3	142	91.0
39	I often get irritated by people who want to rush things.	171	72.8	124	91.0
41	I think that decisions based on a thorough analysis of all the information are sounder than those based on intuition.	192	81.7	142	91.0
46	I prefer to stand back from a situation and consider all the perspectives.	149	63.4	120	76.9
52	I tend to discuss specific things with people rather than engaging in social discussion.	86	36.6	100	64.1
55	I am keen to reach answers via a logical approach.	171	72.8	121	77.6
60	I like to ponder many alternatives before making up my mind.	192	81.7	148	94.9
62	In discussions I'm more likely to adopt a "low profile" than to take the lead and do most of the talking.	86	36.6	72	46.2
66	It's best to think carefully before taking action.	221	94.0	149	95.5
67	On balance I do the listening rather than the talking.	164	69.8	128	82.1
76	I'm always interested to find out what people think.	206	87.7	142	91.0

ranging from 50% to 100%. However, items 26, 47, 61, 68, and 78 show a significant difference in the positive response rate to the item for UME and DE students. In general, there is a difference in learning style of UME and DE respondents based on their positive response to the item statements, specifically, 65.08 % of UME students in this learning style showed positive response to the 20 item statements as compared to 44.51% of DE students. Therefore, there is a difference in the learning style of teacher education students in the theorist category based on their entry mode results.

Table 12 shows the responds of two groups of students considered as pragmatists based on entry mode into the study institution. Items 9, 11, 19, 21, 44, 50, 53, and 69 show a positive response rate ranging from 50% to 100%. However, items 5, 35, 59, 65 and 80 show a significant difference in the positive response rate to the item for UME and DE students. In general, there is a difference in learning style of UME and DE respondents based on their positive response to the item statements, specifically, 64.05 % of UME in this learning style showed positive response to the 20 item statements as compared to 42.1% of the DE students. Therefore, there is a difference in the learning style of teacher education students in the pragmatist category based on their entry mode into the study institution.

Table 7
Percentage Responses on Learning Style Questionnaire
Theorist

S/N	Item Statement	Female Male			
		Yes		Yes	
		f	%	f	%
1	I have strong beliefs about what is right and wrong, good and bad.	227	96.6	156	100
3	I tend to solve problems using a step-by-step approach.	206	87.7	120	76.9
8	I regularly question people about their basic assumptions.	164	69.8	92	59.0
12	I am keen on self-discipline such as watching my diet, taking regular exercise, sticking to a fixed routine etc.	171	72.8	107	68.6
14	I get on best with logical, analytical people and less well with spontaneous, "irrational" people.	178	75.7	105	67.3
18	I don't like disorganised things and prefer to fit things into a coherent pattern.	213	90.6	142	91.0
20	I like to relate my actions to a general principle.	165	70.2	106	67.9
22	I tend to have distant, rather formal relationships with people at work.	92	39.1	50	32.1
26	I find it difficult to produce ideas on impulse.	93	39.6	64	41.0
30	Flippant people who don't take things seriously enough usually irritate me.	185	78.7	121	77.6
42	I tend to be a perfectionist.	128	54.5	115	73.7
47	I can often see inconsistencies and weaknesses in other people's arguments.	170	72.3	107	68.6
51	I believe that rational, logical thinking should win the day.	171	72.8	156	100
57	I am keen to reach answers via a logical approach.	192	81.7	121	77.6
61	In discussions with people I often find I am the most dispassionate and objective.	85	36.2	50	32.1
63	I like to be able to relate current actions to a longer-term bigger picture.	149	63.4	129	82.7
68	I tend to be tough on people who find it difficult to adopt a logical approach.	122	51.9	72	46.2
75	I am keen on exploring the basic assumptions, principles and theories underpinning things and events.	172	73.2	120	76.9
77	I like meetings to be run on methodical lines, sticking to laid down agenda, etc.	156	66.4	142	91.0
78	I steer clear of subjective or ambiguous topics.	100	42.6	109	69.9

RQ3: To what extent is student's learning style used for institutional faculty professional development plan?

Tables 13, 14 and 15 present data for responses to survey instrument administered to faculty to identify their professional development needs and prior mentoring attendance. The result addressed research question 3, which seeks to find out "To what extent is student's learning style used for institutional faculty professional development plan?"

Based on the data from Table 15, all one hundred and eighty faculty who participated in the study indicate that they did not attend any new faculty orientation when hired into their universities. In addition, Table 13 and 14 shows a significant difference from the pattern of response in item 13 as compared to other items in the instruments, specifically, the mean score on a 5 point likert scale was 1.5 on this item statement which varied from the average 4.5 responds rate recorded in other item statements. In addition, a discrepancy was identified between the responses of faculty in

Table 8
Percentage Responses on Learning Style Questionnaire
Pragmatist

S/N	Item Statement	Female Male			
		Yes		Yes	
		f	%	f	%
5	I have a reputation for saying what I think, simply and directly.	164	69.8	142	91.0
9	What matters most is whether something works in practice.	149	63.4	120	76.9
11	When I hear about a new idea or approach I immediately start working out how to apply it in practice.	178	75.7	114	73.1
19	I accept and stick to laid down procedures and policies so long as I regard them as an efficient way of getting the job done.	213	90.6	141	91.0
21	In discussions I like to get straight to the point.	185	78.7	113	72.4
27	I believe in coming to the point immediately.	129	54.5	84	45.1
35	I tend to be attracted to techniques such as network analysis, flow charts, branching programmes, contingency planning, etc.	122	51.9	99	63.5
37	I tend to judge people's ideas on their practical merits.	157	66.8	100	64.1
44	In meetings I put forward practical realistic ideas.	192	81.7	135	86.5
49	I can often see better, more practical ways to get things done.	164	69.8	142	91.0
50	I think written reports should be short and to the point.	213	90.6	120	76.9
53	I like people who approach things realistically rather than theoretically.	171	72.8	156	100
54	In discussions I get impatient with irrelevancies and digressions.	149	63.4	100	64.1
56	I am keen to try things out to see if they work in practice.	164	69.8	121	77.6
59	In discussions I often find I am the realist, keeping people to the point and avoiding wild speculations.	135	57.4	113	72.4
65	I tend to reject wild, spontaneous ideas as being impractical.	122	51.9	114	73.1
69	Most times I believe the end justifies the means.	178	75.7	106	67.9
70	I don't mind hurting people's feelings so long as the job gets done.	85	36.2	106	67.9
73	I do whatever is expedient to get the job done.	100	42.6	121	77.6
80	People often find me insensitive to their feelings.	113	48.1	75	48.1

technology usage in Section E and their response to item 13.

Table 15
Attendance to Faculty Orientation at Inception of the Job

Statement	Yes	%	No	%
Did you attend any new faculty orientation when you were hired into your current position?	0	0	180	100

DISCUSSION

Research question one, "What learning styles do teacher education Science and Arts students' exhibit?" was addressed using data from tables 1- 4. Based on the analysis of the data from the Honey and Mumford Learning Style Questionnaire (LSQ), 51.2% of Art and 45.7% of Science students who where purposively selected for this study were identified as Activist in there learning style. This means that these students involve themselves fully without bias in new experience. Therefore faculty should be able to present instruction with this understanding and intentionally include learning activities that allow for critical thinking activities as well as other challenging learning objectives.

Table 9
Percentage Responses on Learning Style Questionnaire
Activist

S/N	Item Statement	UME DE			
		Yes		Yes	
		f	%	f	%
2	I often act without considering the possible consequences.	102	42.2	0	0
4	I believe that formal procedures and policies restrict people.	156	60.9	21	15.6
6	I often find that actions based on feelings are as sound as those based on careful thought and analysis.	92	35.9	8	5.9
10	I often find that actions based on feelings are as sound as those based on careful thought and analysis.	199	77.7	72	53.3
17	I'm attracted more to novel, unusual ideas than to practical ones.	64	25.0	6	4.4
23	I thrive on the challenge of tackling something new and different.	178	69.5	77	57.0
24	I enjoy fun-loving, spontaneous people.	164	64.1	70	51.9
32	I tend to be open about how I'm feeling.	186	72.7	92	68.1
34	I prefer to respond to events on a spontaneous, flexible basis rather than plan things out in advance.	92	35.9	0	0
38	Quiet, thoughtful people tend to make me feel uneasy.	114	44.5	7	5.2
40	It is more important to enjoy the present moment than to think about the past or future.	78	30.5	0	0
43	In discussions I usually produce lots of spontaneous ideas.	114	44.5	7	5.2
45	More often than not, rules are there to be broken.	107	41.8	35	25.9
48	On balance I talk more than I listen.	72	28.1	15	11.1
58	I enjoy being the one that talks a lot.	100	39.1	15	11.1
64	When things go wrong I am happy to shrug it off and "put it down to experience".	185	72.3	43	31.9
71	I find the formality of having specific objectives and plans stifling.	106	41.1	13	9.6
72	I'm usually one of the people who puts life into a party.	64	25.0	0	0
74	I quickly get bored with methodical, detailed work.	92	35.9	0	0
79	I enjoy the drama and excitement of a crisis situation.	71	27.7	0	0

Seventy nine percent of Arts and 81% of Science students were identified as reflectors in their learning styles. Based on the response of 391 students who participated in this study, more Arts and Science students fall into this learning style compared to the other three learning style. It is important that faculty professional development integrate this understanding and more important faculty lesson plan should include activities that allow for collaboration and time to think through the learning task.

Of the 391 students that participated, 67.8% and 66.1% of Arts and Science students fall into the theorist learning style category. This means that student with this learning style reflects qualities of logical thinking when given a learning task. They tend to be detached, analytical, and dedicated to rational objectivity rather than ambiguity and subjectivity. This information is important for faculty in the faculty of Education when planning for their instruction, especially when the traditional didactic teaching method used in most Nigerian higher education classrooms. The student learning style should be integrated when designing instruction and assessment instruments, especially projects or problem based learning.

Students that fall into the pragmatist category are keen on trying out ideas, ideas and theories to ascertain first hand if they really work. Seventy five percent of the Arts students fall into this category as compared with 62.6% of the

Table 10
Percentage Responses on Learning Style Questionnaire
Reflector

S/N	Item Statement	UME DE			
		Yes		Yes	
		f	%	f	%
7	I like the sort of work where I have time for thorough preparation and implementation.	235	91.8	99	73.3
13	I take pride in doing a thorough job.	185	72.3	83	61.5
15	I take care over the interpretation of data available to me and avoid jumping to conclusions.	228	89.1	99	73.3
16	I like to reach a decision carefully after weighing up many alternatives.	228	89.1	92	68.1
25	I pay meticulous attention to detail before coming to a conclusion.	242	94.5	106	78.5
28	I am careful not to jump to conclusions too quickly.	220	85.9	99	73.3
29	I prefer to have as many sources of information as possible -the more data to mull over the better.	235	91.8	113	83.7
31	I listen to other people's point of view In discussions	235	91.8	99	73.7
33	I enjoy watching the manoeuvrings of the other participants. before putting my own forward.	185	72.3	70	51.9
36	It worries me if I have to rush out a piece of work to meet a tight deadline.	206	80.5	85	63.0
39	I often get irritated by people who want to rush things.	164	64.1	71	52.6
41	I think that decisions based on a thorough analysis of all the information are sounder than those based on intuition.	242	94.5	91	67.4
46	I prefer to stand back from a situation and consider all the perspectives.	164	64.1	49	36.3
52	I tend to discuss specific things with people rather than engaging in social discussion.	128	50.0	1	0.7
55	I am keen to reach answers via a logical approach.	206	80.5	71	52.6
60	I like to ponder many alternatives before making up my mind.	220	85.9	92	68.1
62	In discussions I'm more likely to adopt a "low profile" than to take the lead and do most of the talking.	92	35.9	0	0
66	It's best to think carefully before taking action.	249	97.3	121	89.6
67	On balance I do the listening rather than the talking.	199	77.7	64	47.4
76	I'm always interested to find out what people think.	213	83.2	106	78.5

Science students who participated in this study. Therefore the study data revealed that a majority of Arts students fall into the reflector/pragmatist combination while a majority of Science student respondents fall into the reflector/theorist combination.

Research question two, "Is there any difference in the learning styles of male and female teacher education students?" was addressed using data from tables 5-12. Based on the analysis of data from these tables, most respondents fall into the reflector/theorist combination. This is consistent with studies done using Honey and Mumford (1982) Learning Style Questionnaire (LSQ). The second combination is the reflector/pragmatist combination. The study revealed that most of the teacher education male and female students that participated in this study, specifically, 85.5% and 75.3%; 70% and 66.7% fall into the reflectors and theorists learning style. Based on these data analysis, the researchers conclude that there is a difference between male and female students among teacher education students in the study university used. To this effect, faculty professional development should take into cognizance that most teacher educations students possess the qualities of reflectors and theorists in their learning style approach.

Research question three, "To what extent is student's learning style used for institutional

Table 11
Percentage Responses on Learning Style Questionnaire
Theorist

S/N	Item Statement	UME DE			
		Yes		Yes	
		f	%	f	%
1	I have strong beliefs about what is right and wrong, good and bad.	256	100	128	94.8
3	I tend to solve problems using a step-by-step approach.	206	80.5	105	77.8
8	I regularly question people about their basic assumptions.	142	55.5	64	47.4
12	I am keen on self-discipline such as watching my diet, taking regular exercise, sticking to a fixed routine etc.	156	60.9	71	52.6
14	I get on best with logical, analytical people and less well with spontaneous, "irrational" people.	192	75.0	78	57.8
18	I don't like disorganised things and prefer to fit things into a coherent pattern.	242	94.5	113	83.6
20	I like to relate my actions to a general principle.	185	72.3	65	48.1
22	I tend to have distant, rather formal relationships with people at work.	77	30.1	16	11.9
26	I find it difficult to produce ideas on impulse.	71	67.7	0	0
30	Flippant people who don't take things seriously enough usually irritate me.	220	85.9	85	63.0
42	I tend to be a perfectionist.	171	66.8	70	51.9
47	I can often see inconsistencies and weaknesses in other people's arguments.	157	61.3	28	20.7
51	I believe that rational, logical thinking should win the day.	199	77.7	71	52.6
57	I am keen to reach answers via a logical approach.	50	19.5	92	68.1
61	In discussions with people I often find I am the most dispassionate and objective.	71	27.7	0	0
63	I like to be able to relate current actions to a longer-term bigger picture.	185	72.3	49	36.3
68	I tend to be tough on people who find it difficult to adopt a logical approach.	134	54.3	22	16.3
75	I am keen on exploring the basic assumptions, principles and theories underpinning things and events.	199	77.7	72	53.3
77	I like meetings to be run on methodical lines, sticking to laid down agenda, etc.	192	75.0	56	41.5
78	I steer clear of subjective or ambiguous topics.	120	46.9	17	12.6

faculty professional development plan?" was addressed using data from tables 13-15. Based on the analysis of data from the faculty professional instrument, it was evident that there is a need for a systematic reform approach to new faculty orientation. These reform efforts will among other academic procedures issues address different learning difficulties new faculty will face teaching large classes in their institution. Also significant from the data analysis was the disconnect between faculty response to their ability to integrate technology into teaching and learning and their claim to technology competence in Section E of the instrument. This information reveals that although faculty, specifically, new faculty (0-5) can use technology for basic Microsoft processes and checking email, it was evident that they were not used to integrating these learning tools into their classroom instructional activities. It therefore presents a new opportunity for institutions and their administration in Nigeria to provide training and re-training opportunities that address this teaching gap in new faculties in Nigerian universities.

Table 12
Percentage Responses on Learning Style Questionnaire
Pragmatist

S/N	Item Statement	UME DE			
		Yes		Yes	
		f	%	f	%
5	I have a reputation for saying what I think, simply and directly.	192	75.0	64	47.4
9	What matters most is whether something works in practice.	171	66.8	49	66.3
11	When I hear about a new idea or approach I immediately start working out how to apply it in practice.	178	68.5	78	57.8
19	I accept and stick to laid down procedures and policies so long as I regard them as an efficient way of getting the job done.	235	91.8	113	83.7
21	In discussions I like to get straight to the point.	185	72.3	85	63.0
27	I believe in coming to the point immediately.	71	27.7	28	20.7
35	I tend to be attracted to techniques such as network analysis, flow charts, branching programmes, contingency planning, etc.	113	44.1	22	16.3
37	I tend to judge people's ideas on their practical merits.	115	60.5	57	42.2
44	In meetings I put forward practical realistic ideas.	213	83.2	92	68.1
49	I can often see better, more practical ways to get things done.	185	72.3	64	47.4
50	I think written reports should be short and to the point.	206	80.5	113	83.7
53	I like people who approach things realistically rather than theoretically.	206	80.5	71	52.6
54	In discussions I get impatient with irrelevancies and digressions.	148	57.8	49	36.3
56	I am keen to try things out to see if they work in practice.	178	69.5	64	47.4
59	In discussions I often find I am the realist, keeping people to the point and avoiding wild speculations.	156	60.9	35	25.9
65	I tend to reject wild, spontaneous ideas as being impractical.	142	55.5	22	16.3
69	Most times I believe the end justifies the means.	178	69.5	78	57.8
70	I don't mind hurting people's feelings so long as the job gets done.	121	47.3	0	0
73	I do whatever is expedient to get the job done.	143	55.9	0	0
80	People often find me insensitive to their feelings.	106	41.4	13	9.6

CONCLUSION AND RECOMMENDATIONS

The learning styles literature although researched significantly in the western part of the world, still needs further research in the Nigerian higher education context. Several studies have shown its revival the past few last years, especially in the

Table 13
Professional Development By Faculty-1

S/N	Statement	Agric			Arts			Bio			Educ			Eng
		N	Ø	SD	N	Ø	SD	N	Ø	SD	N	Ø	SD	N
A	1		4.90	0.30		4.80	0.41		4.85	0.50		4.75	0.79	
	2		4.30	0.80		4.20	0.77		4.35	0.74		4.35	0.75	
	3		4.35	0.67		4.55	0.69		4.35	0.67		4.45	0.69	
B	1		4.25	0.72		4.45	0.69		4.30	0.73		4.70	0.57	
	2		4.70	0.47		4.75	0.44		4.70	0.47		4.75	0.44	
	3		4.50	0.69		4.40	0.82		4.50	0.70		4.55	0.69	
	4		4.10	0.91		4.05	1.00		4.10	0.91		4.15	0.93	
	5		4.65	0.93		4.40	1.10		4.65	0.93		4.55	1.10	
	6		4.55	0.60		4.60	0.60		4.50	0.60		4.60	0.60	
	7		4.60	0.60		4.55	0.60		4.60	0.60		4.65	0.59	
	8		4.45	0.60		4.50	061		4.45	0.60		4.45	0.60	
	9		4.40	0.50		4.40	050		4.40	0.50		4.40	0.50	
	10		4.55	0.60		4.60	0.60		4.55	0.60		4.60	0.60	
	11		4.20	0.77		4.25	1.00		4.20	0.77		4.25	0.79	
	12		4.00	0.00		4.20	0.70		4.00	0.00		4.15	0.67	
	13		1.50	0.51		1.75	0.91		4.50	0.51		1.50	0.51	
	14				2	2.50	2.12				1	1.00		2
	15		5.00	0.00		4.95	0.22		5.00	0.00		5.00	0.00	
	16		4.55	0.51		4.60	0.50		4.55	0.51		4.55	0.51	
C	1		4.50	0.69		4.65	0.59		4.50	0.69		4.55	0.69	
	2		4.35	0.81		4.40	0.90		4.35	0.81		4.35	0.81	
	3		4.75	0.45		4.75	0.44		4.75	0.44		4,75	0.44	
D	1		4.55	0.69		4.45	0.83		4.55	0.69		4.55	0.69	
	2		4.15	0.93		3.90	1.00		4.15	0.93		4.15	0.93	
	3		4.55	1.09		4.40	1.10		4.50	1.10		4.15	0.93	
	4		4.60	0.59		4.50	0.70		4.60	0.60		4.50	1.10	
	5		4.65	0.59		4.45	0.60		4.65	0.59		4.60	0.60	
E	1		4.45	0.60		4.50	0.61		4.50	0.60		4.50	0.61	
	2		4.40	0.50		4.55	0.51		4.45	0.51		4.45	0.51	
	3		4.50	0.61		4.55	0.51		4.50	0.61		4.50	0.61	
	4		4.40	0.50		4.50	0.51		4.40	0.50		4.40	0.50	
	5		4.80	0.41		4.65	0,50		4.75	0.44		4.75	0.44	

first decade of 21st century (Duff & Duffy, 2002; Dunn & Griggs, 2003; Kayes, 2003; Loo, 2004). Upon reviewing the literature on learning styles, the intense rate and growing interest is evident (Penger, Tekavcic, & Dimovski.2008). The aim of this study was to present, compare, validate and explore the learning styles of students enrolled in the teacher education faculty of a higher education institution in South East geopolitical zone of Nigeria. The study also aimed to identify faculty, specifically, new faculty (Ø-5), professional development needs and its implication for university

Table 14
Professional Development By Faculty-2

S/N	Statement	Eng			Pharm			Phys Sc			Social Sc			Veterinary		
		N	Ø	SD	N	Ø	SD	N	Ø	SD	N	Ø	SD	N	Ø	SD
A	1		4.85	0.37		4.85	0.37		4.70	0.73		4.80	0.41		4.85	0.37
	2		4.55	0.69		4.10	0.64		4.25	0.64		4.30	0.73		4.50	0.76
	3		4.75	0.44		4.55	0.69		4.70	0.47		4.45	0.69		4.45	0.69
B	1		4.25	0.79		4.25	0.79		4.20	0.77		4.30	0.80		4.00	0.86
	2		4.65	0.30		4.65	0.49		4.80	0.41		4.70	0.47		4.75	0.44
	3		4.45	0.69		4.75	0.55		4.75	0.44		4.50	0.69		4.45	0.69
	4		4.20	0.95		4.00	1.00		4.15	1.00		4.10	0.91		4.05	0.83
	5		4.50	1.10		4.35	1.35		4.30	1.34		4.65	0.93		4.90	0.31
	6		4.75	0.55		4.50	0.61		4.65	0.59		4.55	0.60		4.60	0.68
	7		4.70	0.57		4.40	0.68		4.50	0.69		4.60	0.60		4.75	0.44
	8		4.50	0.61		4.35	0.49		4.40	0.50		4.45	0.60		4.65	0.59
	9		4.55	0.51		4.40	0.50		4.55	0.51		4.40	0.50		4.45	0.51
	10		4.65	0.59		4.60	0.60		4.60	0.68		4.55	0.60		4.50	0.61
	11		4.25	0.79		4.45	0.61		4.40	0.60		4.20	0.77		4.00	0.73
	12		4.15	0.70		4.20	0.70		4.25	0.72		4.00	0.00		4.00	0.00
	13		1.50	0.95		1.50	0.95		1.50	1.24		1.50	0.51		1.40	0.50
	14	2	2.50	2.12	2	2.50	2.12	3	3.00	1.73						
	15		4.50	0.22		4.95	0.22		4.90	031		5.00	0.00		5.00	0.00
	16		4.60	0.50		4.30	0.47		4.30	0.47		4.55	0.51		4.75	0.44
C	1		4.65	0.37		4.55	0.69		4.85	0.37		4.50	0.69		4.55	0.60
	2		4.45	0.76		4.30	0.80		4.50	0.69		4.35	0.81		4.15	0.88
	3		4.90	0.30		4.70	0.47		4.90	0.31		4.75	0.44		4.85	0.37
D	1		4.45	0.69		4.90	0.31		4.80	0.41		4.55	0.69		4.45	0.69
	2		4.20	0.95		4.25	0.85		4.25	1.00		4.15	0.93		4.05	0.94
	3		4.50	1.10		4.20	1.44		4.15	1.42		4.55	1.10		4.90	0.31
	4		4.75	0.55		4.45	0.60		4.70	0.47		4.60	0.60		4.75	0.55
	5		4.65	0.59		4.45	0.89		4.55	0.69		4.65	0.59		4.80	0.41
E	1		4.40	0.50		4.40	0.50		4.25	0.44		4.45	0.60		4.55	0.60
	2		4.45	0.51		4.45	0.51		4.50	0.51		4.40	0.50		4.45	0.51
	3		4.50	0.51		4.55	0.60		4.50	0.69		4.50	0.61		4.45	0.69
	4		4.40	0.68		4.45	0.51		4.45	0.51		4.40	0.50		4.35	0.49
	5		4.35	0.48		4.75	0.44		4.80	0.41		4.80	0.41		4.80	0.41

leadership decision making process. Although learning styles have been heavily researched, little is known about Nigerian students' learning styles, especially in the field of teacher education. The concept of learning style has a broad meaning, in this research it is proposed and defined as individual's preferential focus on different types of information, the different ways of perceiving the information, and understanding the information (Li et al., 2008).

The objective of this paper was to better understand the different learning styles among teacher education students enrolled in the Faculty of Education by gender, and mode of entry in order to develop appropriate teaching and pedagogical strategies for improving teacher education Faculty in Nigeria. In addition, the research was intended to help developing valid and reliable research questionnaire for further research processes. The adapted version of Honey and Mumford's (1986) Learning Style Questionnaire (LSQ) and faculty professional needs questionnaire were used as questionnaire instruments to determine students' learning style and faculty professional development needs.

The research generated the results through quantitative analysis using the Statistical Package for the Social Sciences (SPSS 16.0). An alpha level of 0.05 was used as a margin of statistical significance (Coakes & Steed, 2003). By analysing the data of students that entered the university through UME or DE entry modes, by gender; and areas of specialization (Arts and Science); students' learning approaches, and typical patterns have been confirmed. Analyses resulted in clear extraction of two theoretically expected learning styles dimensions according to Honey and Mumford learning style theory (factors – activists, reflectors, theorists, and pragmatists). This analysis confirmed the reflector/theorist combination of Honey and Mumford's learning styles theory as the main learning style of Arts and Science teacher education students who participated in the study. In addition, based on data analysed, researchers conclude that there is a difference between male and female students among teacher education students in the university used for the study. The study confirmed that most male respondents were in the reflector/theorist learning style combination. The same learning style combination was confirmed for the female respondents. Recent thinking in this area suggests that unlike cognitive personality styles, learning styles can be modified to a degree through learning and training strategies (Penger, Tekavcic, & Dimovski.2008). They further opined that:

> "Instead of matching training to the styles of the learners it could be more rewarding to expose learners to a mismatched learning environment in order to help them develop a wider repertoire of coping behaviours and learning strategies. Those that can learn to use a variety of problem-solving and learning strategies, and apply them in situations that do not match with their natural learning style, may be more able to perform effectively across a wider range of situations than those who have limited stylistic versatility" (p.41).

The implications regarding the learning strategies implementation in teacher education suggests that students who are aware of a range of learning strategies are more likely to select the correct one for a particular task. The implications for pedagogy indicate that instead of fixed learning styles strategies, adapting content to the learner, teacher education faculty would enhance teaching efficacy and students learning outcomes if adaption based on students learning styles are integrated into lesson design and learning strategies.

The researchers recommend:

1. further research in learning styles and faculty instructional strategies be conducted in the six geopolitical zones of Nigeria;
2. training of new faculty and re-training of older faculty on technology integration strategies that supporting teaching and learning;
3. a systematic institutional new faculty training every quarter or bi-annually to support new faculty in understanding institutional policies, mission and performance benchmarks; and
4. a new policy included in the statutory roles of the Nigerian Universities Commission (NUC) requiring this regulatory body to measure faculty quality as an indicator for getting university department accreditation.

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Assessment of CPA Candidates' Education: Part One

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ABSTRACT

This paper is the first of a two part study comparing The Sixth Edition of the Uniform Accountancy Act as prepared and adopted by the National Association of State Boards of Accountancy (NASBA) with the actual regulatory practice of the various jurisdictional boards of accountancy in place just prior to the release of the most recent NASBA guidelines. The purpose of this part is to examine the quality in the first "of the 'Three Es' – Education, Examination, and Experience – that constitute the requirement for Certified Public Accountant (CPA) licensure." (AICPA 2011) Each board of accountancy establishes the requirements for licensure within its jurisdiction. The requirements address which institutions' accounting, business, and general education course credits may be used to meet the educational requirements to sit for the Uniform CPA Exam. In all but five of the 55 boards of accounting, the educational institutions must be accredited by at least one accrediting agency. This study examines the type of accreditation institutions must possess in order for their students to qualify for both sitting for the CPA exam and licensure as a CPA. In addition, the study examines the suggested educational accreditation levels proposed by the National Association of State Boards of Accountancy.

INTRODUCTION

The Uniform CPA Examination is the product of collaboration among the 55 boards of accountancy, National Association of State Boards of Accountancy (NASBA), Prometric, and the American Institute of Certified Public Accountants (AICPA). To become a certified public accountant, a candidate must meet minimal educational and experience requirements, which are established by each state, district, or jurisdiction's board of accountancy. In addition, the Uniform CPA Examination must be successfully passed. The exam is the only commonality amongst all 55 jurisdictions. The exam's content, development, and grading are the responsibility of the AICPA. The exam is administered in authorized Prometric test centers. NASBA acts as the clearing house for the process. (AICPA 2011)

The purpose of the Uniform CPA Examination is to provide reasonable assurance to boards of accountancy (the jurisdictional entities that have statutory authority to issue licenses) that those

who pass the CPA Examination possess the level of technical knowledge and the skills necessary for licensure in protection of the public interest.

NASBA acts as a clearing house for exam information and through its mission is involved in enhancing effectiveness of the boards of accountancy. "NASBA's goals are to:

> Provide high quality, effective programs and services,
>
> Identify, research and analyze major current and emerging issues affecting state boards of accountancy,
>
> Strengthen and maintain communications with state boards to facilitate the exchange of ideas and opinions, and
>
> Develop and foster relationships with organizations that impact the regulation of public accounting." (http://www.nasba.org/nasbaweb/NASBAWeb.nsf/WPANP)

Through its Center for Public Trust, NASBA attempts to maintain and instill confidence in the accounting profession and U.S. Business. (http://www.nasba.org/about-us/) NASBA's Board of Directors approved the "Uniform Accountancy Act Model Rules" (Model Rules) in April 2009. In Section 5, this act provides guidelines for educational requirements to be considered by boards of accountancy in establishing their individual requirements to sit for the exam and/or for the granting of initial licensure. Suggestions for approved accreditation types of educational institutions used by candidates to meet the educational requirements can be traced back to NASBA's 2006 and 2007 exposure drafts on this topic.

Information on the 55 boards of accountancy's educational accreditation requirements for institutions has been collected from each board's web site. If there was not a link on the board's site to information for CPA exam candidates addressing required institutional accreditation of coursework, then the rules, statues, and laws of the state, district, or territorial board were examined to determine the needed accreditation as of May 6, 2011. While the Commonwealth of the Northern Mariana Islands Territorial Board of Accountancy has been approved to administer the CPA exam, it has not administered the exam and there are apparently no plans to do so in the near future. Therefore, the authors have decided to limit the study to the 54 boards administering the exam and licensing certified public accountants.

UNIVERSITY/COLLEGE ACCREDITATION

Model Rules article 5, sections 5-1 and 5-2, suggest that boards of accountancy should consider the accreditation status of the colleges and universities that awarded degrees or education credits to a CPA Exam candidate when deciding whether that candidate meets the educational requirements to sit for the CPA Exam. In brief, the Model Rules suggest a hierarchy, such that education credits or accounting degrees are accepted with the least review of course work from institutions with an accredited accounting program. Next in the hierarchy, credits from programs with only business and regional accreditation will receive a review with increased rigor focusing on the content of the accounting coursework. Finally, course work form institutions holding only regional accreditation as a whole will receive the most scrutiny, with increased rigor of both the accounting and business course work. Credits from non-accredited institutions are not accepted unless accepted as transfer credits by an institution with accounting, business or regional accreditation.1

Accreditation is a review process for colleges and universities performed by organizations considered to be reliable authorities on education quality. While the U.S. Secretary of Education publishes a list of accrediting agencies sufficient to establish eligibility for student financial aid

1 The Model Rules definition for the term "colleges and universities" in section 5-1 is given as "board-recognized institutions of higher learning accredited by generally recognized accrediting organizations", note that elsewhere the term is used without including the connotation of accreditation, as in section 5-2(c)(1): "degrees from colleges or universities without accreditation or with accreditation by an organization not recognized by the Board would generally not be acceptable." (NASBA, 2011)

(DOE 2011), the Model Rules do not reference this list. Instead, the Model Rules categorize three levels of accreditation: accreditation applying to the college or university as a whole (referred to as Level 3); accreditation of a college of business within a university (Level 2), or accreditation of the accounting program within the college of business (Level 1).

Given the large number of colleges and universities that teach accounting and business courses, and the wide variation of course work rigor, and qualifications of faculty teaching the courses, a standardized system for assessing coursework quality is a necessity. An alternative is for boards of accountancy to review transcripts of each applicant desiring to sit for the CPA exam in its jurisdiction, and this would be a monumental task for the Boards. In reviewing each transcript, evaluators could potentially develop their own 'rules of thumb' in determining which coursework is acceptable. Essentially, evaluators would make implicit, possibly unjustified assumptions concerning the quality of coursework at different schools. This would create more disparity among each board's requirements to become a CPA. If accreditations could be agreed upon among all Boards, then NASBA could evaluate all transcripts for eligibility.

Level 1 Accreditation

Basing the acceptance of academic coursework on levels of accreditation greatly reduces the chance of an educational credentials reviewer developing arbitrary rules for categorizing credits from different colleges and universities. Accreditation provides an external standard for jurisdictional boards to use in determining the appropriateness of a candidate's coursework. Coursework from an accounting program that has received specialized/professional accreditation should require little or no scrutiny by boards of accountancy, since the accreditation process involves a review of the entire accounting and business programs at the college/university.

Level 1 accreditation (separate accounting accreditation), as described in the NASBA Model Rules, implies that accounting and business coursework are of sufficient depth and rigor that little or no scrutiny of an applicant's transcript is necessary. To be nationally accredited in accounting requires a variety of thresholds be met by the program as set forth by an accrediting organization recognized by the Council for Higher Education Accreditation (CHEA), the Association to Advance Collegiate Schools of Business (AACSB) and the Accreditation Council for Business Schools and Programs (ACBSP) are currently the sole national accrediting agency in accounting.

Accreditation standards for accounting programs address three areas: mission and strategic management, participants (faculty and students), and assurance of learning. The standards regarding participants and assurance of learning are of particular importance to boards of accountancy. For example, the standards require that faculty be prepared academically, holding a terminal degree in accounting with evidence of continued currency in the field, or professionally, a master's degree with significant professional experience at the time of hire as well as noteworthy efforts to maintain currency in accounting. At least 90% of the faculty in the accounting program must be either academically or professionally qualified in order to receive AACSB accounting accreditation. Standards relating to assurance of learning require that the accounting curriculum have specific learning objectives, address a set of recommended topics and skills, demonstrate that students meet the learning objectives, and, if not, that curricular improvements have occurred as a result of the assurance of learning process. In addition, schools that have accounting accreditation must also have business accreditation through AACSB or ACBSP.

Level 2 Accreditation

In business accreditation, the same set of accreditation standards as detailed for accountants apply on a broader scale to the entire business program. Thus, at least 90% of the business faculty within each business discipline and across the entire school must be academically or professionally qualified to achieve accreditation. Curricula in business and in each major/concentration must address specific skills and learning objectives and the business school must demonstrate that curricula have been improved over time as a result of the assurance of learning process. With the

level of external scrutiny required to achieve and maintain accounting accreditation (review of the program every 5 years), boards of accountancy would be confident that coursework completed at schools of business with separate accounting accreditation meets the criteria for virtually immediate acceptance by the Board for degrees awarded or coursework earned while the school possessed accounting accreditation.

NASBA's Level 2 accreditation, national business accreditation by either of two business accrediting bodies, AACSB and ACBSP recognized by the Council for Higher Education Accreditation (CHEA) are similar to, but a step below having separate accounting accreditation. To achieve and maintain accreditation in business, external reviewers address the qualifications of faculty within the different business disciplines, review the curricula within the school, and scrutinize the school's efforts to continuously improve the business programs. The goal of accrediting agencies in business is to assure that students enrolled in the business school's programs receive a high quality education. Thus, while the accounting program is not singled out for special review in the accreditation process, the accounting program's quality is assured along with the other majors and concentrations by the review of the school's business program. Level 2 accreditation for a school virtually assures that coursework taken at the school in both accounting and business will be acceptable to a board of accountancy. However, the overall content of the accounting major has not been scrutinized by the accrediting body to the same extent as for Level 1 accreditation.

Level 3 Accreditation

Level 3 accreditation will be provided by a national or regional accrediting organization recognized by the Council for Higher Education Accreditation (CHEA.) Currently, CHEA has recognized the six regional accrediting organizations listed in Table 1. Level 3 accredited schools will have met general criteria for quality assurance across the entire college/university, without particular attention placed on any one program. While Level 1 and Level 2 accreditation require a specific, in depth review of accounting and/or business programs, respectively, within a college or university, Level 3 accreditation does not. Therefore, Level 3 accreditation has less rigorous standards for accounting or business programs than do the Level 1 or Level 2 accreditations. Transcripts from schools with only regional accreditation will require more analysis by boards of accountancy than transcripts from schools with business and/or accounting accreditation.

Table 1
Regional Accrediting Agencies Recognized by The Council for Higher Education Accreditation

Middle States Association of Colleges and Schools
New England Association of Schools and Colleges
North Central Association of Colleges and Schools
Northwest Commission on Colleges and Universities
Southern Association of Colleges and Universities
Western Association of Schools and Colleges

Summary of Level 1, 2, and 3 Accreditation

To summarize, the intent of the Model Rules' use of Levels of Accreditation is to streamline and standardize the review of student transcripts by boards of accountancy. Boards of accountancy could place significant reliance on the quality, content and delivery method of accounting and business courses included in accounting degrees from Level 1 colleges or universities and as such, transcripts from such colleges or universities would require minimal or no Board review. Colleges or universities with Level 2 accreditation would require little or no Board review of transcripts in terms of the business content, but the accounting content would require more review than Level 1. Transcripts from a Level 3 college or university would require more detailed review by the Board for compliance with the accounting and business content. Degrees from colleges or universities without accreditation or with accreditation by an organization not recognized by the Board would generally not be acceptable unless the coursework has been accepted in transfer by a college or university with Level 1, Level 2 or Level 3 accreditation. (NASBA, 2011)

BOARD-RECOGNIZED INSTITUTION(S) OF HIGHER EDUCATION

We compared NASBA's Model Rules concerning coursework acceptable for satisfying eligibility requirements to sit for the CPA exam with the actual practice of the boards of accountancy. We found little agreement between the Model Rules and actual practice. We also found little consistency between boards.

One commonality among board requirements is that for coursework to be acceptable in meeting educational requirements, it must appear on a transcript from an institution of higher learning. Beyond this, there is not a consensus on the accreditation possessed by a college or university for a candidate's educational credentials to meet the requirements for becoming a CPA.

Table 2 summarizes the required educational institution accreditation, if any, adopted by the 54 boards included in the study and described on their websites. Only four boards explicitly refer to the levels of accreditation as described in NASBA's Model Rules. One additional board uses NASBA's suggestion but does not consider special accounting accreditation (Level 1 accreditation) in evaluating a candidate's education. One board does not address the approval of colleges and universities and requires only a high school diploma to sit for the exam. There does not appear to have been much movement towards NASBA's suggestions since 2007 as only two states were using NASBA's suggestion in a previous study. (Griffin, 2007)

The remaining 49 boards have chosen not to use accounting or business accreditation as an educational quality indicator. While business accreditation or some type of regional accreditation is acceptable in 36 jurisdictions, it does not appear to be used as a means of evaluating an applicant's quality of business education. Twelve boards individually approve the institutions that are acceptable to gain educational knowledge and skills institution by institution. Therefore, in

Table 2
Type of Educational Institution Accreditation Required by the Boards of Accountancy

Type of Accreditation	Number	Percent
Level 1, 2, 3 accreditation as suggested by NASBA	4	7.41
Level 2, 3 accreditation part of NASBA's suggestion	1	1.85
Business or Regional accreditation	5	9.26
National or Regional accreditation	3	5.56
Regional accreditation	17	29.63
Regional accreditation or other board approved Colleges and Universities	3	5.56
Regional accreditation or other accreditation by regional agencies recognized by the Council for Higher Education Accreditation	3	5.56
Nationally accreditation by agency recognized by the United States Department of Education	1	1.85
Accreditation by agency listed by the United States Department of Education or approved by the board	1	1.85
Accreditation by agencies approved by the Council on Postsecondary Accreditation and the United States Department of Education	1	1.85
Accreditation by the Council on Postsecondary Accreditation or equivalent agency	1	1.85
Accreditation by an agency acceptable to the Board	1	1.85
Institutions approved by the Board	12	22.22
Accreditation not addressed in education requirements	1	7.41
Total	54	100.00

49 jurisdictions transcripts must be evaluated individually to determine if minimum accounting and business requirements are being met.

CONCLUSION

Although NASBA has encouraged boards of accountancy to use accounting and business specialized institution accreditation in determine the quality of a candidate's education, 49 boards or 90.7 percent have not moved in that direction. This approach was proposed in an exposure draft, "Framework for Revision – Rules 5-1 and 5-2 by a NASBA Education Task Force and the NASBA Education Committee as early as 2006. In 2007, the NASBA Education Committee, following feedback from boards and other constituents, made changes to the proposal of 2006 with little change to the section on accounting and business accreditation.

In April 2009, the "Uniform Accountancy Act Model Rules" was adopted by NASBA's board of directors. But as is evident, most boards of accountancy have ignored the portion of the suggestion that address the need for a quality education. While state legislatures often base a public university's funding on the special accreditations possessed by its programs, the legislatures have been slow in most cases to address accredited educational credentials as a requirement for candidates for CPA exams or licensure, a requirement that would probably increase public trust.

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Web Sites

Name of Organization	Web Site
National Association of State Boards of Accountancy	http://www.nasba.org/nasbaweb/NASBAWeb.nsf/WPHP?OpenForm
Prometric	http://www.prometric.com/CPA/default.htm
The Uniform CPA Examination	http://www.aicpa.org/BecomeACPA/Pages/BecomeaCPA.aspx
Alabama State Board of Public Accountancy	http://www.asbpa.state.al.us/
Alaska State Board of Public Accountancy	http://www.dced.state.ak.us/occ/pcpa.cfm
Arizona State Board of Accountancy	http://www.azaccountancy.gov/
Arkansas State Board of Public Accountancy	http://www.state.ar.us/asbpa/
California State Board of Accountancy	http://www.dca.ca.gov/cba/
Colorado State Board of Accountancy	http://www.dora.state.co.us/Accountants/
Connecticut State Board of Accountancy	http://www.ct.gov/sboa/site/default.asp
Delaware State Board of Accountancy	http://dpr.delaware.gov/boards/accountancy/index.shtml
Florida Board of Accountancy	http://www.myfloridalicense.com/dbpr/cpa/
Georgia State Board of Accountancy	http://www.sos.state.ga.us/plb/accountancy/
Hawaii Board of Public Accountancy	http://hawaii.gov/dcca/pvl/boards/accountancy
Idaho State Board of Accountancy	http://www.isba.idaho.gov/
The Illinois Board of Examiners	http://www.illinois-cpa-exam.com/
Indiana Board of Accountancy	http://www.in.gov/pla/accountancy.htm
Iowa Accountancy Examining Board	http://www.state.ia.us/government/com/prof/account/home.html
Kansas Board of Accountancy	http://www.ksboa.org/
Kentucky State Board of Accountancy	http://cpa.ky.gov/
State Board of CPAS of Louisiana	http://cpaboard.state.la.us/
Maine Board of Accountancy	http://www.maine.gov/pfr/professionallicensing/professions/accountants/index.htm
Maryland State Board of Public Accountancy	http://www.dllr.state.md.us/license/cpa/
Massachusetts Board of Registration in Public Accountancy	http://www.mass.gov/?pageID=ocasubtopic&L=4&L0=Home&L1=Licensee&L2=Division+of+Professional+Licensure+Boards&L3=Board+of+Public+Accountancy&sid=Eoca
Michigan Board of Accountancy	http://www.michigan.gov/dleg/0,1607,7-154-35299_35414_35451---,00.html
Minnesota State Board of Accountancy	http://www.boa.state.mn.us/Licensing/
Mississippi State Board of Public Accountancy	http://www.msbpa.ms.gov/
Missouri State Board of Accountancy	http://pr.mo.gov/accountancy.asp
Montana State Board of Public Accountants	http://bsd.dli.mt.gov/license/bsd_boards/pac_board/board_page.asp
Nebraska State Board of Public Accountancy	http://www.nbpa.ne.gov/
Nevada State Board of Accountancy	http://www.nvaccountancy.com/
New Hampshire Board of Accountancy	http://www.nh.gov/accountancy/
New Jersey State Board of Accountancy	http://www.state.nj.us/lps/ca/accountancy/index.htm
New Mexico State Board of Public Accountancy	http://www.rld.state.nm.us/accountancy/index.html
New York State Board of Public Accountancy	http://www.op.nysed.gov/prof/cpa/

Web Sites	
Name of Organization	**Web Site**
North Carolina State Board of CPA Examiners	http://www.nccpaboard.gov/Clients/NCBOA/Public/Static/index.html
North Dakota State Board of Accountancy	http://www.nd.gov/ndsba/
Accountancy Board of Ohio	http://acc.ohio.gov/
Oklahoma Accountancy Board	http://www.ok.gov/oab_web/
Oregon State Board of Accountancy	http://egov.oregon.gov/BOA/
Pennsylvania State Board of Accountancy	http://www.portal.state.pa.us/portal/server.pt/community/state_board_of_accounting/125Ø2
Rhode Island Board of Accountancy	http://www.dbr.state.ri.us/divisions/accountancy/
South Carolina Board of Accountancy	http://www.llr.state.sc.us/POL/Accountancy/
South Dakota Board of Accountancy	http://accountancy.sd.gov/
Tennessee State Board of Accountancy	http://tn.gov/commerce/boards/tnsba/index.shtml
Texas State Board of Public Accountancy	http://www.tsbpa.state.tx.us/
Utah Board of Accountancy	http://www.dopl.utah.gov/licensing/accountancy.html
Vermont Board of Public Accountancy	http://www.vtprofessionals.org/opr1/accountants/
Virginia Board for Accountancy	http://www.boa.virginia.gov/
Washington State Board of Accountancy	http://www.cpaboard.wa.gov/
West Virginia Board of Accountancy	http://www.boa.wv.gov/Pages/default.aspx
Wisconsin Accounting Examining Board	http://drl.wi.gov/profession.asp?profid=60&locid=Ø
Wyoming Board of Certified Public Accountants	http://cpaboard.state.wy.us/
District of Columbia Board of Accountancy	http://dcregs.dc.gov/Gateway/ChapterHome.aspx?ChapterNumber=17-25
Guam Board of Accountancy	http://www.guamboa.org/
Puerto Rico Board of Accountancy	http://www.estado.gobierno.pr/
Virgin Islands Board of Accountancy	http://dlca.vi.gov/businesslicense/steps/cparequirements/

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May 23th, 24th and 25th 2012 in Nashville, TN at the Holiday Inn Vanderbilt

Academic Business World International Conference (ABWIC.org)

The aim of Academic Business World is to promote inclusiveness in research by offering a forum for the discussion of research in early stages as well as research that may differ from 'traditional' paradigms. We wish our conferences to have a reputation for providing a peer-reviewed venue that is open to the full range of researchers in business as well as reference disciplines within the social sciences.

Business Disciplines

We encourage the submission of manuscripts, presentation outlines, and abstracts pertaining to any business or related discipline topic. We believe that all disciplines are interrelated and that looking at our disciplines and how they relate to each other is preferable to focusing only on our individual 'silos of knowledge'. The ideal presentation would cross discipline. borders so as to be more relevant than a topic only of interest to a small subset of a single discipline. Of course, single domain topics are needed as well.

Conferences

Academic Business World (ABW) sponsors an annual international conference for the exchange of research ideas and practices within the traditional business disciplines. The aim of each Academic Business World conference is to provide a forum for the discussion of research within business and reference disciplines in the social sciences. A secondary but important objective of the conference is to encourage the cross pollination of disciplines by bringing together professors, from multiple countries and disciplines, for social and intellectual interaction.

Prior to this year, the Academic Business World International Conference included a significant track in Learning and Administration. Because of increased interest in that Track, we have promoted Learning and Administration to a Conference in its own right. For the full call for papers and more information go to http://ABWIC.org and http://ICLAHE.org

International Conference on Learning and Administration in Higher Education (ICLAHE.org)

All too often learning takes a back seat to discipline related research. The International Conference on Learning and Administration in Higher Education seeks to focus exclusively on all aspects of learning and administration in higher education. We wish to bring together, a wide variety of individuals from all countries and all disciplines, for the purpose of exchanging experiences, ideas, and research findings in the processes involved in learning and administration in the academic environment of higher education.

We encourage the submission of manuscripts, presentation outlines, and abstracts in either of the following areas:

Learning

We encourage the submission of manuscripts pertaining to pedagogical topics. We believe that much of the learning process is not discipline specific and that we can all benefit from looking at research and practices outside our own discipline. The ideal submission would take a general focus on learning rather than a discipline-specific perspective. For example, instead of focusing on "Motivating Students in Group Projects in Marketing Management", you might broaden the perspective to "Motivating Students in Group Projects in Upper Division Courses" or simply "Motivating Students in Group Projects" The objective here is to share your work with the larger audience.

Academic Administration

We encourage the submission of manuscripts pertaining to the administration of academic units in colleges and universities. We believe that many of the challenges facing academic departments are not discipline specific and that learning how different departments address these challenges will be beneficial. The ideal paper would provide information that many administrators would find useful, regardless of their own disciplines

Conferences

Prior to this year, Learning and Administration was a primary track of the annual Academic Business World International Conference. Because of increased interest, we have promoted Learning and Administration from a Track to Conference in its own right. For the full call for papers and more information go to http://ICLAHE.org and http://ABWIC.org.