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TABLE OF CONTENTS

FACULTY MENTORING IN COMMUNICATION SCIENCES AND DISORDERS: CASE STUDY OF A DOCTORAL TEACHING PRACTICUM

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ABSTRACT

Developing effective teaching strategies in higher education is essentially accomplished by way of on-the-job learning. At present, there is no clear mechanism for mentoring individuals into faculty positions. This paper introduces a structured model of a mentor-mentee experience between a faculty member and doctoral student during a clinical practicum in teaching in communication sciences and disorders. During this interaction, both psychosocial development and career development were observed. Outcomes of the mentee's work were positive, as measured by student surveys and descriptive self-report by the mentee. The author hopes this approach to learning to teach, and teaching a teacher, may inspire other faculty mentors in higher education in the area of communication sciences and disorders.

Keywords: *communication sciences and disorders, doctoral program, mentoring, faculty teaching*

INTRODUCTION

Though the term "mentor" has a long history with varied meanings, it has evolved to represent an individual who dedicates his or her time to help other individuals learn and progress toward maturity and the development of their identity (Gopee, 2011). Over time, there have been a number of paradigm shifts related to the process of mentoring, with mentorship now largely characterized as a form of reciprocal learning. This developmental relationship between mentor and mentee has evolved to represent an interaction in which goal attainment is achieved through reflective experiences resulting in personal growth and mutual gain for all involved (i.e., mentee and mentor; Campbell, Smith, Dugan, & Komives, 2012).

Two common mentorship processes identified in the literature are in the areas of psychosocial development and career development (Campbell et al., 2012). Psychosocial aspects of mentorship involve providing guidance, role modeling, and counseling. Career mentorship often involves coaching, networking, and development of the mentee in the professional world. This is also true of mentorship in higher education. Mentorship, specifically in the area of health care professional education, has been shown to have a central role in the development of student behaviors when students enter clinical practice (Gopee, 2011).

Undergraduate medical students who participated in a formal mentorship program reported developing a strong sense of support and security and the feeling of having a space alongside the educational program where they could discuss issues not able to be discussed elsewhere (Kalen, Ponzer, & Silen, 2012). Mentors and mentees had the ability to develop an open dialogue that facilitated reflection on experiences and personal growth, and mentees reported an increased feeling of hope about the future and increased motivation to complete their

studies. In all, students reported that mentorship assisted in the transition from student to practitioner (Kalen et al., 2012).

Mentoring has also been significantly correlated with favorable mentee outcomes (Eby, Allen, Evans, Ng, & DuBois, 2008). Students engaging in positive mentoring relationships frequently reported and exhibited a wide range of behavioral, attitudinal, relational, motivational, and professional benefits in comparison to students who did not (Eby et al., 2008). Mentorship in graduate education often led to enduring relationships that provided career assistance, emotional support, and role modeling for future professional behaviors (Eby et al., 2008).

The transition from doctoral student to independent scholar has also been investigated (Baker & Pifer, 2011). Surveying doctoral students who had completed coursework and were preparing to embark on their dissertation, Baker and Pifer (2011) found that the transition toward independent scholar and academician required not only acquisition of new skills and developing new levels of competencies, but also socialization to the process. In their work, socialization was essentially the development of a professional identity. Positive socialization experiences required relationship building with other professionals both within and external to the academic community, including, but not limited to, faculty superiors, peers at the same point in the program, and peers who were more advanced in the program. For purposes of this work, developing relationships with peers and superiors may be considered a form of mentorship.

Campbell and colleagues (2012) highlighted the importance of academic mentorship in developing leadership qualities in students. This concept can be easily applied to learning how to become an academician in higher education. A faculty member must lead the class, lead discussions, lead critical thinking processes, and lead the way for students. In effect, facilitating an effective class throughout an entire semester, where students are motivated, actively engaged, and ultimately learning the content, requires emerging leadership.

The focus of this paper is on mentoring doctoral students in the health professions into teaching positions in higher education. The aforementioned small body of literature indicates that this is an area which is under-researched. Perhaps the reason for this noted dearth in the literature is the challenge of designing and implementing mentoring programs, particularly at the doctoral level. Holley and Caldwell (2012) noted that implementation of a successful doctoral program, as defined by student success and retention, includes mentorship of students and faculty, inherent motivation of doctoral students, and administrative support. This triad is essentially a requirement for a prosperous doctoral program, and requires good mentorship.

While mentorship at the doctoral level is an emerging area of interest, a parallel interest is the shortage of educators and clinicians who hold a doctor of philosophy (PhD) degree in the area of Communication Sciences and Disorders (CSD). In 2008, a joint ad hoc committee was formed by the American Speech-Language-Hearing Association (ASHA) to address the issue of doctoral-level shortages in the area of CSD (American Speech-Language-Hearing Association, 2008). At that time, a shortage of 150 teacher-scholars was projected. Issues with recruitment, visibility, and retention were identified, with corresponding items noted in an action plan. Ultimately, desired outcomes of this committee were to increase the number of doctoral students by minimally 25%, in an effort to address this shortage.

During this same time, the Doctor of Philosophy program was proposed at Luke University (pseudonym), a private institution. The first graduate of this program earned a PhD in 2013. As part of the curriculum of this program, students are required to complete a course titled, "Clinical Practice in College Teaching." This course involves pairing a doctoral student with a full-time faculty member for a semester, with the purpose of developing skills required for

teaching in higher education. The approach to supervision and mentorship during this required practicum is unstructured and essentially left to the faculty mentor.

While there is a wealth of literature in the area of mentoring in speech-language pathology *clinical* practice (Geller, 2002; Geller & Foley, 2009; Horner & Minifie, 2011), there is an apparent dearth in the literature with respect to mentoring at the faculty level in the area of CSD. The purpose of this paper is to describe a mutual experience between a full-time faculty member (hereafter termed "mentor") and a doctoral-level student (hereafter termed "mentee") at Luke University (pseudonym), in the context of required coursework at the doctoral level (i.e., Clinical Practice in College Teaching).

More specifically, the purpose of this paper is to investigate how a faculty member can mentor a doctoral student, thereby maximizing graduate student outcomes in CSD. The following question is explicitly addressed: Can a doctoral-level student in CSD engage in a meaningful mentor-mentee experience while embarking upon teaching in higher education?

The authors here hypothesize that, when structured experiences are implemented in an environment with mutual respect and openness to learning, the mentor-mentee experience will result in positive outcomes for the mentor, mentee, and students of the mentee. Therefore, a doctoral-level student in CSD *can* engage in a meaningful mentor-mentee experience when beginning a career in teaching in higher education.

METHOD

Clinical Practice in College Teaching is a required course in the PhD program at Luke University. During this practicum, a doctoral student teaches a course under the mentorship of a member of the faculty. The mentee student is paired with a full-time faculty member as a mentor, who is teaching a graduate-level course in the Sunday program on the main campus. The graduate program in CSD is a "cycles" program. That is, graduate-level students attend courses for eight consecutive Sundays per cycle, completing four hours per course meeting.

The course selected for this practicum was graduate-level Speech Science (SPE 600). This course was offered as a face-to-face model, with the use of "moodle" as a supplemental online course management system. The term *moodle* is an acronym to describe a popular e-learning platform (i.e., Modular Object-Oriented Dynamic Learning Environment; Hargadon, 2008), and is the platform of choice at the university. Twenty-one students were enrolled in the course. The mentor previously taught this course for three cycles prior to inviting a doctoral student to participate as a mentee. The mentor had therefore become acclimated to the advanced timeline of the cycles program, the content, and piloted activities, and was able to expand upon her own pedagogical practices. The structure of the course included both graded and ungraded activities. The ungraded activities included review sheets at the beginning of class, lectures delivered orally with the aid of PowerPoint, as well as in-class participation. Graded assignments included six laboratory activities, and one cumulative final examination. The laboratory assignments were a requirement within the three-credit course. The mentee's role during the laboratory is described below.

The mentor initiated the process with the mentee by an initial interview one semester prior to the semester of mentored teaching (i.e., mentor and mentee met in the spring semester to initiate the process for teaching in the following fall semester). During this interview, the mentee and mentor mutually established five goals to monitor throughout the session. These goals were to:

1. Develop presentation style/pacing/timing
2. Facilitate clarity of PowerPoints
3. Develop the ability to answer questions through improved knowledge of topic matter
4. Anticipate and facilitate interactions during laboratory activities
5. Connect content knowledge with clinical application.

These five objectives were directly measured in two ways. First, progress on these objectives was measured by way of student survey (Appendix A) by the graduate students in the class. Second, progress toward these goals was measured through self-reflection by the doctoral student herself. A third, and indirect measure, was by final grades of students in the class.

The mentor subsequently provided the mentee with all materials, which had already been used in the class, including but not limited to PowerPoint presentations, video clips, prior laboratory assignments, supplementary materials, and a previous version of the final examination. The mentee reviewed these documents and revised them in accordance with her own personal teaching style. The mentor and mentee had a follow-up meeting three weeks prior to the start of class. This meeting was dedicated to finalizing the syllabus and corresponding content, becoming familiar with hardware and software in the speech science laboratory (e.g., Multispeech, Visi-Pitch, and Computerized Speech Lab [CSL]), as well as establishing the fade-in process for lecture and laboratory interactions between the mentee and students (Table 1).

Table 1
SYSTEMATIC FADE-IN PROCESS FOR DOCTORAL MENTEE IN HIGHER EDUCATION TEACHING PRACTICUM

Week	**Review Sheet**	**Lecture**	**Lab**
1	n/a	Mentor*	n/a
		Mentee	
2	Mentor*	Mentor*	Mentor*
	Mentee	Mentee	Mentee
3	Mentor	Mentor*	Mentor*
	Mentee*	Mentee	Mentee
4	Mentor	Mentor*	Mentor
	Mentee*	Mentee	Mentee*
5	Mentor	Mentor	Mentor
	Mentee*	Mentee*	Mentee*
6	Mentor	Mentor	Mentor
	Mentee*	Mentee*	Mentee*
7	Mentor	Mentor	Mentor
	Mentee*	Mentee*	Mentee*
8	n/a	Mentor	n/a
		Mentee*	

Note. *Lead Instructor. n/a = not applicable, as this activity was not conducted during this weekly meeting.

As can be seen in Table 1, the course started with introductory material and initial laboratory exercises led by the mentor. While the mentee was not the "lead" on either the Review Sheet, Lecture, or Laboratory Activity, she was present, actively engaged, and prepared to interact with students. The mentee's disposition and presence were further helpful in initially creating a collaborative learning environment. That is, the mentee's eagerness to actively

participate in the program facilitated both in psychosocial development and career development during mentor/mentee engagement.

Once the aforementioned was finalized, the mentor and mentee established a weekly schedule for review of course content and materials prior to the designated class meeting, with deadlines midweek for all materials from the mentee for the mentor to review and provide feedback. Once the class was actively in session, the mentor and mentee met after every class meeting.

An example of the teaching approach to the course in general is highlighted in Table 2, incorporating critical elements of Bloom's Taxonomy. In 1956, Benjamin Bloom, along with David Krathwol, introduced a classification system describing methods in the area of education; specifically for teaching, learning, and assessing. This system included considerations in the following (sequential) cognitive domains: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. Since its first introduction, this taxonomy has become colloquially termed, 'Bloom's Taxonomy,' and has been widely applied to the principles of teaching and learning. The underlying foundation of this taxonomy is that appropriate consideration to each element should result in exemplary teaching.

Table 2
APPLICATION OF BLOOM'S TAXONOMY (1956) TO PHD-LEVEL COURSE IN CSD, "CLINICAL PRACTICE IN COLLEGE TEACHING"

Level	Mentee Planning	Student Outcomes
KNOWLEDGE	Review and recall content for each lecture. Order and outline PowerPoints. Convey information to graduate students in an accessible manner.	Acquire new terms (e.g., waveforms, spectrograms).
COMPREHENSION	Communicate expectations through discussion and execution of laboratory assignments. Classify phonemes and formant structures.	Describe theories (e.g., Source-Filter).
APPLICATION	Ongoing modification of instruction (as needed). Generate demonstrations. Post follow-up links through moodle.	Compute fundamental frequency, harmonics, and wavelength in laboratory. Utilize Multispeech software.
ANALYSIS	Generate review sheets. Create activities comparing student findings to normative data. Create new questions on laboratory assignments.	Compare/contrast vowels based on formant structures provided.
SYNTHESIS	Modifying laboratory assignments to generate questions with multiple potential answers requiring a rationale.	Use of different tools in laboratory to provide a rationale for an acoustic principle (e.g., voice-onset-time).
EVALUATION	Grade laboratory assignments, assessing strength and accuracy of responses on final examination. Calculating final class grades.	Lab assignments. Final examination.

Note. "Mentee Planning" highlights planning process undertaken by mentee. "Student Outcomes" are aligned with sequential components of Bloom's Taxonomy.

RESULTS

The following analyses were conducted to measure outcomes of this mentor-mentee experience.

1. Student Survey (Appendix A)
2. Mentee narrative
3. Final grades for students in the course.

Student Survey

A student survey was presented to students at the end of the course. Outcomes of the student survey are depicted in Table 3.

Table 3
OUTCOMES OF SURVEY FOR GRADUATE STUDENTS IN SPEECH SCIENCE COURSEWORK

Question "Your Co-Instructor…"	**M**	**SD**
Demonstrates thorough knowledge of course content	1.21	.42
Provides clear examples for clinical application	1.26	.45
Paces material appropriately for given class	1.37	.5
Provides clear PowerPoint slides and use of multiple modalities during class lecture	1.32	.48
Adequately responds to questions and provides clarity to complex concepts	1.42	.5
Provides appropriate guidance during labs	1.32	.58
Note. Rating scale 1 = *Strongly Agree* to 4 = *Strongly Disagree*. M = means. SD = standard deviation.		

Ultimately, students either responded as "strongly agree" (75/108 = 69%) or "agree" (32/108 = 30%) with the integrity of the mentee's work during the semester (data collapsed across all six questions). In an effort to obtain more qualitative information from students regarding their overall experience of this course, a section was provided on the survey to indicate strongest and weakest features of the instructor (i.e., questions 7-9). The purpose of this section was threefold. First, the objective of this section was to obtain honest and confidential student feedback, so that the mentor can improve her own mentoring skills toward any mentee. Second, feedback provided in this section could inform the mentee in question (i.e., Professor Jaxson, a pseudonym) regarding her specific teaching skills. Third, this section could inform *both* the mentor *and* the mentee regarding any critical changes necessary in the future, so that overall course design could be improved.

When asked about the strongest features of the mentee, narrative feedback included the following comments. "Professor Jaxson was a great professor. It truly was a pleasure to learn from her." "Professor Jaxson demonstrates a great deal of clarity during lectures. She is mindful of the students and is always available to answer questions." "I think Professor Jaxson has done a marvelous job. She is extremely helpful and takes her students into consideration. She tries her best to explain things to us so that we can understand."

When asked about the weakest features of the mentee, narrative feedback included the following comments. "Sometimes moves a bit quickly through the lesson." "Needs a little more organization before class." "Relying on notes; But she is new so that is to be expected." "Transitions."

Finally, students were asked for explicit constructive suggestions. Narrative feedback included the following comments. "I believe I really benefited from all of her visuals and voice examples and think that incorporating even more of those would be beneficial." "Incorporate

lectures with better transitions from topic to topic." Positive comments were also included in this section, such as, "Great job!" and "Thank you! Tricky course - good job for your first time teaching."

Mentee Narrative

With respect to the predetermined objectives for the practicum experience, the mentee's self-reflection, as correlated with the student survey, may be viewed in Table 4. Questions in this reflection parallel the objectives mutually determined by the mentor-mentee, prior to onset of teaching the course.

Table 4
REFLECTION FROM MENTEE REGARDING HAVING MET PREDETERMINED OBJECTIVES OF PRACTICUM EXPERIENCE

Objective	Yes/No	Reflection
Demonstrates thorough knowledge of course content	Yes	This skill improved as the semester progressed.
Provides clear examples for clinical application	Yes	This skill could be further developed, and became easier as the semester progressed, as a function of curriculum content (i.e., continuity from physics to speech production).
Paces material appropriately for given class	Yes	Perhaps because class material had already been planned by mentor. Continued development needed for more independent pacing.
Provides clear PowerPoint slides and use of multiple modalities during class lecture	Yes	Would like to become more familiar with technical features of Microsoft PowerPoint.
Adequately responds to questions and provides clarity to complex concepts	Yes	Would like to improve generating more diverse examples to highlight concepts and deliver concepts in timely manner.
Provides appropriate guidance during labs	Yes	This skill continued to improve with each laboratory activity. The challenge is to guide students without providing the absolute correct answer, so the students come to the answer through their own active processing.

When asked for critical reflection on the process of engagement, the mentee provided the following three comments. (1) "Even though the class was already outlined and assignments developed, felt like I had both a macro- and micro- contribution to the course and practicum. Open dialogues (the key toward successful mentorship) and the assignment given to outline my involvement over the semester allowed for an introspective evaluation of my teaching skills prior to the course and time to generate goals." (2) "The environment [the mentor] created for the practicum allowed fostering of my self-driven personality (or independent nature) while providing the mentoring, as needed." (3) Professor Jaxson "felt it was ok if things did not always go according to plan – that is the nature of a semester (e.g., first Lab Activity postponed to week two; technical issues with laboratory equipment; animations disjointed in PowerPoint slides)."

Final Grades for Students in the Course

In the fall of 2014, there were 21 students enrolled in the course. Four earned a final grade of A-. The remaining 17 earned a final grade of A. It is apparent that all students actively

learned the content in the course, when a structured mentor (faculty member)-mentee (doctoral student) environment was implemented.

DISCUSSION

This case study reported on a dynamic interaction between a mentor and mentee. The general objective of this work was to mentor a doctoral student into academia. It was the charge of the mentor to introduce the required content of the course to the mentee, and facilitate course design accordingly. Outcomes of this experience were positive for the graduate students and doctoral mentee, as noted by the student surveys, descriptive narrative provided by the mentee, and final grades.

With respect to the proposed research question, the hypothesis of the author was supported. That is, when a doctoral level student is mentored into faculty teaching in a manner that is both structured and collaborative, both psychosocial and career development occur. These two forms of development, when occurring simultaneously, lead to positive learning experiences for all parties involved. That is, the students in the speech science course were actively engaged, the doctoral mentee learned how to teach effectively while developing her own sense of self in the classroom, and the mentor benefited from a fresh perspective.

There is significant value in mentoring all new faculty entering into academia. These concepts are not only applicable to pedagogy in the area of speech-language pathology. Several health professions have found that the educational process does little for developing both teaching and learning behaviors in students (Beagan. 2003; Larin, Benson, Wessel, Martin, & Ploeg, 2014; Murphy, Jones, Edwards, James, & Mayer, 2009). The ideas put forth in this paper could potentially be utilized as a fundamental basis for training future academicians in both healthcare and education at large (e.g., Nursing, Physical Therapy, General Education, Occupational Therapy).

Further recommendations on the clinical practicum experience from the mentee were as follows. First, a collaborative agreement between the mentor and mentee should be discussed and agreed upon prior to the commencement of the actual teaching practicum (as reported here). Second, while each mentor has general latitude in mentorship, a progression toward independent lecturing of class should be a required. In such cases, a thorough review and approval of the lecture and corresponding materials/activities should be conducted prior to actual execution.

To further enhance the positive outcomes of this work, it should be noted that anecdotal discussion occurred between the mentor and mentee. The mentee reported a rekindled level of motivation to continue her progress in the PhD program. The mission of all PhD programs in CSD is ultimately to replenish the shortage of faculty in higher education, as well as to continue contribution of evidence in the profession. Accordingly, the level of engagement reported here, including course design within a collaborative framework should be a strong consideration for all PhD programs, training students to ultimately become independent academicians.

Conclusion

This experience provided the mentee with a preliminary structure of a graduate-level Speech Science course, while affording her the opportunity to develop her own teaching style, modify lectures, replace materials, and revise labs and the final examination, as appropriate. All elements within the course were framed within Bloom's Taxonomy. Preliminary outcomes of this case study are promising, in that structured programs for facilitating future academicians

afford opportunities for developing a personal teaching style, as well as how to interact with students, while deepening knowledge in a particular content area in CSD. By offering this clinical practicum experience at the doctoral level, Luke University not only attempts to address this shortage by way of having a PhD program, but further addresses the issue of faculty mentoring. It is the hope of this author that this approach may be generalized to other institutions when mentoring future academicians in CSD.

Implications

There are three implications of this work. First, adopting a systematic framework within the context of a clinical practicum provides guidance for both the mentor and mentee when shepherding a doctoral student into the academic environment. Second, this practicum experience may serve to motivate students in PhD programs to continue their studies during points where they may contemplate taking a leave of absence or discontinuing their studies altogether. Positive experiences in teaching in higher education may ultimately facilitate earning the terminal degree. Conversely, students with negative mentorship experiences teaching may decide to discontinue their studies. Third, once the PhD degree has been earned, students in the program will already have a preliminary experience at the higher education level, making them more competitive candidates for tenure-track positions. This process may assist in addressing the shortage of doctoral level speech-language pathologists and further advance the profession.

Limitations

There are four limitations to this work. The first and most apparent limitation is that this work is based on a single case study. Therefore, the generalization of these findings is limited. Future work should include data collection with several students over several semesters. Second, baseline measures were not obtained at the onset of the course. That is, students did not report on their knowledge base in the area of Speech Science, and the doctoral mentee did not report on her skills in the goals set forth at the onset of this work. The author proposes that, in both scenarios (i.e., student knowledge, mentee experience), the baseline would be at a theoretical near-zero point. However, without objective data to support this theory, this assumption is speculative. Third, while the final grades during this semester are promising, more explicit investigation is warranted. Absence of a bell curve, while common at the graduate-level, may be an indicator that assignments may not have been challenging enough to differentiate students. Finally, successful delivery of this course may have been due to the fact that the mentor shared all previously developed and piloted materials for teaching with the mentee. However, because the mentee adapted the content to meet her own teaching style, this may be speculative, and does not support the psychosocial or career development noted here.

Acknowledgements

The first author would like to thank her mentee for active engagement during her clinical practicum experience and wishes her continued progress in her doctoral studies.

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APPENDIX A

SPH 600: SPEECH AND HEARING SCIENCE
CO-INSTRUCTOR EVALUATION
FALL 2014

Co-Instructor End Semester Evaluation

Instructions: Please fill in the answer which most closely reflects your opinion about your co-instructor.

Your co-instructor…

1) demonstrates thorough knowledge of course content

Strongly agree	Agree	Disagree	Strongly Disagree
(1)	(2)	(3)	(4)

2) provides clear examples for clinical application

Strongly agree	Agree	Disagree	Strongly Disagree
(1)	(2)	(3)	(4)

3) paces material appropriately for given class

Strongly agree	Agree	Disagree	Strongly Disagree
(1)	(2)	(3)	(4)

4) provides clear Power Point slides and use of multiple modalities during lecture

Strongly agree	Agree	Disagree	Strongly Disagree
(1)	(2)	(3)	(4)

5) adequately responds to questions and provides clarity to complex concepts

Strongly agree	Agree	Disagree	Strongly Disagree
(1)	(2)	(3)	(4)

6) provides appropriate guidance during labs

Strongly agree	Agree	Disagree	Strongly Disagree
(1)	(2)	(3)	(4)

7) What are the strongest features of this course instructor?

_____

8) What are the weakest features of this course instructor?

_____

9) Do you have any specific suggestions for changes that your instructor can make to improve future classes and/or courses?

_____

THE LINK BETWEEN TRANSFORMATIONAL LEADERSHIP AND TEACHERS' JOB SATISFACTION, COMMITMENT, MOTIVATION TO LEARN, AND TRUST IN THE LEADER

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ABSTRACT

The paper aims to provide an overview of recent research on the effects of a contemporary leadership model (transformational leadership) on teacher-related educational outcomes. It presents a review of international literature on transformational leadership in relation to its effects on the following four key outcomes: teacher job satisfaction, motivation to learn, trust in the leader, and commitment to the organization. Transformational leadership refers to a process of interaction between leaders and followers whereby the former enhance the creativity and motivation of the latter. Transformational leaders engage with followers, focusing on their intrinsic motivation and confidence. Unlike transactional leadership, transformational leadership does not seek to maintain the status quo but provides a stimulus for change and innovation instead.

The review mainly covers recent studies (published after 2000) on the link between transformational leadership and teacher job satisfaction, motivation to learn, trust in the leader, and commitment to the organization. The focus is on studies using advanced quantitative research such as structural equation modeling as these are considered to provide a more reliable basis for drawing conclusions on the effect of transformational leadership on teacher outcomes. The findings of the overview are used to draw conclusions and implications regarding educational policy as well as future research on the topic.

INTRODUCTION

Transformational leadership refers to a popular conception of leadership which has been investigated in both educational and business contexts. According to Bass and Avolio (1994), a transformational leader forms an organizational vision which goes beyond existing systems and practices. In this context, the leader is prepared to take risks in order to encourage change and innovation. Moreover, leaders support and motivate followers so that the latter exceed their original goals and create an organizational climate which respects individual needs and differences. Through a culture of collaboration, leaders and followers focus on the common good and the accomplishment of the goals of the organization.

Contemporary research on transformational leadership has attempted to examine the effect of transformational leadership behaviors and practices on educational outcomes. These outcomes include student achievement as well as teacher-related variables such as job satisfaction and professional commitment. Research on transformational leadership generally assumes that transformational behaviors and practices will result in educational effectiveness and satisfaction on the part of teachers and/or followers. An overview of the literature is necessary in order to determine the extent to which this assumption is correct.

The paper aims to provide an overview of recent research on the effects of transformational leadership on teacher-related outcomes and specifically on teachers' job satisfaction, teachers' motivation to learn, teachers' trust in their school leader and teachers' commitment to their organization. The overview includes recent studies (mainly after 2000) conducted in different countries. Even though studies using various methodological approaches are included in the review, there is an emphasis on studies using advanced quantitative research techniques such as structural equation modeling which can produce more reliable findings. The implications of the findings for educational policy and future research on the topic are discussed.

TRANSFORMATIONAL LEADERSHIP: THE CONCEPT

One of the forms of leadership which has been investigated in recent decades is transformational leadership. It constitutes a popular subject in the fields of psychology, administration, sociology and education (Yammarino, Spangler, & Bass, 1993). It is considered to be a process that changes and transforms people and organizations (Northhouse, 1997). Transformational leadership is defined as "…a process where leaders and their followers raise one another to higher levels of morality and motivation" (Burns, 1978, p. 20).

According to Hall, Johnson, Wysocki, and Kepner (2008), transformational leadership refers to a process which changes and converts individuals and organizations. Specifically, transformational leadership refers to the ability to prompt individuals to want to change and improve. It includes the evaluation of motives and needs of members of the organization and the satisfaction of their needs. Transformational leadership is the process through which an individual commits himself/herself to the well-being of the organization and creates connections which increase the level of motives and morale of subordinates. It is the leadership style which takes into account the needs of employees while being sensitive to the differences that exist in an organization.

Bass and his colleagues (see, for example, Bass & Avolio, 1994) proposed five factors as the main dimensions of transformational leadership:

1. Attributed idealized influence (the degree to which followers consider leaders to be trustworthy, with charisma, a clear and attainable mission, and a vision for the organization).
2. Idealized influence as behavior (actual leader behavior characterized by values and a sense of purpose).
3. Inspirational motivation (the behavior of the leader which serves as a source of inspiration for followers by providing them with meaning and challenge).
4. Intellectual stimulation (leaders encourage followers to be creative and innovative so that they adopt a critical stance in relation to prevalent assumptions and traditions).
5. Individualized consideration (leaders focus on individual needs and deal with followers on a one-to-one basis).

In the field of education, the research for transformational leadership is at the early stages. However, in studies of transformational leadership at the school level, researchers found an impact on teachers' perceptions and behavior (Bogler, 2001; Griffith, 2004; Leithwood & Jantzi, 2006). Transformational leadership has been linked to the commitment of employees to the organization, their trust in their leader, their job satisfaction and their motivation to learn. In education, it seems to affect teachers' attitudes towards their school, and their commitment to change and learning (Bass, 1999; Hallinger, 2003).

According to Leithwood and Jantzi (2005), the theory of transformational leadership was born in the sector of political sciences, with Burns (1978) seeking to identify attributes of supporting leadership in studies of historical leaders. Later, Bass (1985) became the main researcher of the importance of this model in the success of organizations. Since the 1990s, studies in educational leadership have investigated the effect of transformational leadership on the effectiveness of the school.

TRANSFORMATIONAL LEADERSHIP AND TEACHERS' TRUST IN THEIR LEADER

Transformational leadership seems to affect the confidence in the leader of the organization. Confidence or trust in the leader is an important feature of transformational leadership (Jung & Avolio, 2000; Yukl, 1999).

There is no universal definition of trust. However a frequently used concept of trust emphasizes interpersonal relationships: trust is considered to be "…the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor" (Mayer, Davis, & Schoorman, 1995, p. 712). Moreover, Cook and Wall (1980, p.39) defined trust as "the extent to which one is willing to ascribe good intentions to, and have confidence in, the words and actions of other people."

According to Yukl (1999), there are empirical studies showing a positive relationship between transformational leadership and trust in the leader. The establishment of trust in schools appears to be important to the extent that policymakers make the heads of schools responsible for this purpose. When there is trust, all employees are willing to contribute and do not hesitate to exchange ideas with their colleagues and their leader (Shih, Chiang, & Chen, 2012; Stewart, 2006).

In a quantitative research study, Zeinabadi and Rastegarpour (2010) examined the relationship between transformational leadership and trust in the school headmaster based on a sample of 652 primary school teachers in Iran. They used structural equation modeling to examine the relationship between transformational leadership and the confidence of teachers in the leader of the school. They found that transformational leadership had an effect on the trust of teachers in the leader. Their results supported a model which assumes a direct and indirect impact of transformational leadership on trust in the leader. Their results are similar to those of an earlier study by Podsakoff, MacKenzie, Moorman, and Fetter (1990). In particular, trust in the leader appeared to be one of the most important variables in order to achieve common objectives.

Moreover, Finnigan (2010) found that transformational leadership had an important role in school improvement and inspired confidence among workers in the organization. In a research based on a sample of 4545 teachers in 398 primary schools in Chicago, she investigated the leadership style of school principals and teachers' motivation at schools operating under accountability policies. Using quantitative analysis, with descriptive statistics, hierarchical linear models and regression analysis, she found that when there is no trust between the principal and teachers, it is difficult for school improvement efforts to be successful. According to this study, it is important for the leader to create a culture of trust and cooperation for the well-being of the school.

In another quantitative study in Iran, Mirza and Redzuan (2012) studied the relationship between the leadership style of primary school principals and teachers' trust in their school leader. Their sample consisted of 268 primary school principals and 513 primary school teachers. The researchers conducted correlation and t-test analysis in order to identify possible differences

between groups. They found that there was a statistically significant relationship between the principals' leadership style and the trust of teachers, especially in the case of transformational leadership. Specifically, high levels of trust were associated with transformational leadership in that there was high and positive correlation between teachers' trust in their leaders and the transformational leadership style. School leaders appeared to have a key role in developing trust at their schools.

Moreover, in a case study in Australia, Browning (2014) studied practices of transformational leadership which contribute to the development of trust. Principals were selected if they were considered to be transformational leaders, led schools with more than 120 teachers, and had an open policy of employment and high levels of trust. The sample consisted of 177 school principals. Semi-structured interviews were conducted with principals and staff, while participatory observation was also used to collect information on the topic. It was found that staff had a high level of personal confidence in the leader, in relation to the history, structure, purpose, values and vision of the organization. Also, it seemed that various practices were used by the leader in order to strengthen the trust of the staff. Based on Browning, there were ten practices of transformational leadership in the relationship of the school leader with teachers, which helped in the development of trust. These include the principal admitting openly to his/her mistakes, being an active listener, and taking joint decisions with the staff. Overall, this study found that there was a high association between transformational leadership and the trust of teachers in the leader of their school.

Based on recent investigations in the field of education, it appears that the leadership style of the leader, and especially transformational leadership, is associated with the trust of teachers in the school principal. The head of the school appears to contribute to the development of trust in the school. Through the development of trust, transformational leadership may have a significant impact on school improvement. However, the small number of available studies does not allow for the generalization of the findings to other contexts, which points to the need for more research on the topic in different countries.

TRANSFORMATIONAL LEADERSHIP AND TEACHERS' MOTIVATION TO LEARN

School leaders are in a position to improve the teaching and learning of teachers by influencing their motives. According to Marshall (1987, p. 136), the motivation for learning is "the meaningfulness, value, and benefits of academic tasks to the learner - regardless of whether or not they are intrinsically interesting."

As suggested by Leithwood, Harris, and Hopkins (2008), leaders contribute to the willingness of teachers to learn and to seek continuous updating of their knowledge about various aspects of their daily practice. According to Webb, Neumann, and Jones (2004), transformational leaders focus on intrinsic motivation, facilitate the professional development of employees, and have a common vision. A growing part of the literature indicates that leaders have the potential to facilitate creativity and learning of individuals (Elkins & Keller, 2003; Yukl, 2009).

Leithwood and Jantzi (2006) studied the effect of transformational leadership on teachers' motivation, skills and frameworks of work, on teaching practices and students' results. Their sample consisted of 2290 teachers and principals from 655 primary education schools in England. They used descriptive statistical analysis and t-test analysis to identify possible differences between principals. In this study, it was found that transformational leadership had a

significant effect on the desire of teachers to change their practices, their motivation to learn and their ability. No significant effects on student outcomes were identified.

In addition, Eyal and Roth (2011) conducted a quantitative study with 122 teachers in Israel. Their study was conducted in the context of the full range leadership model (Bass, 1985) and self-actualization theory (Maslow, 1954). The aim of their study was to explore the relationship between leadership and teachers' motivation. Based on the findings of structural equation modeling, they reported that transformational leadership was linked to teachers' motivation to make an additional effort at work, to learn better ways of teaching and implement educational innovations. Their results show that different leadership styles were associated with different sources of motivation for teachers. Overall, the school principals' leadership style had an important role in teachers' motivation.

Thoonen, Sleegers, Oort, Peetsma, and Geijsel (2011) provide evidence which supports the findings of previously mentioned studies. In their quantitative research based on 502 teachers in 32 schools in Holland, they examined the effect of transformational leadership on the motivation and learning of teachers. Using structural equation modeling, they concluded that the practices of transformational leadership encourage teachers' motivation to learn, as well as the improvement of the school. It was found that transformational leaders had a direct effect on teachers' motivation to learn, on the achievement of goals and on the participation in joint decision making at the school unit.

In a case study, King (2011) studied the role of leadership in the development of teachers' professional learning. Her research aimed to find out how leadership affects teachers' learning. The sample consisted of teachers and principals working at five Irish schools. According to King, in cases where school leaders had a long-term planning horizon, they gave the opportunity for using cooperative practices so that teachers learned from each other. The participants of this study felt satisfied when they used cooperative learning in that this gave them the chance to learn and support each other in their job. The author concluded that transformational leadership had an important effect on teachers' professional development by empowering them to improve and strengthen their skills and practices.

Overall, it appears that transformational leadership has an effect on teachers' motivation to learn and on their willingness to change their practices. Moreover, there is evidence to suggest that transformational leadership has an impact on teachers' professional development and mobilizes their learning. However, as in the case of trust, there are limitations stemming from the small number of available studies on the topic.

TRANSFORMATIONAL LEADERSHIP AND TEACHERS' COMMITMENT TO THE ORGANIZATION

Transformational leadership emphasizes the achievement of higher levels of commitment to the objectives of an organization on the part of the employees. In this context, it is hypothesized that greater levels of commitment lead to higher levels of productivity (Leithwood, 2000).

Leadership has been linked to many variables in the relevant literature, one of which is the commitment of employees to the organization. In the literature, organizational commitment is defined as "the relative strength of an individual's identification with, and involvement in, a particular organization" (Mowday, Porter, & Steers, 1982, p. 27). In the last three decades, employee loyalty to the organization is an important concept in organizational psychology (Meyer & Allen, 1997), which has been investigated in different contexts, including schools

(Reyes, 1990). There is evidence to suggest that leaders have an important role in increasing the engagement of employees with the organization. In particular, transformational leadership is considered to affect the commitment of employees to the organization (Avolio, Zhu, Koh, & Bhatia, 2004; Nguni, Sleegers, & Denessen, 2006; Zhu, Avolio, & Walumbwa, 2009).

A small number of studies in education have explored the relationship between transformational leadership and teachers' commitment to their school. Koh, Steers, and Terborg (1995) conducted a quantitative research with data from a sample of 846 teachers from 89 secondary schools in Singapore. They examined the effect of transformational leadership on the commitment of teachers to their work through a factor and regression analysis. They found that transformational leadership had a significant positive effect on the commitment of teachers to their work

In another quantitative study, Ross and Gray (2006) examined the effects of transformational leadership on the commitment of 3074 teachers in Canada. They used confirmatory factor analysis and structural equation modeling. Their results showed that for each increase of a standard deviation in transformational leadership, there was an increase in the commitment of teachers to the school targets and generally to their school. They found that transformational leadership could contribute to the commitment of people to the values and objectives of the organization and that its effects on commitment were direct.

Additionally, Nguni, Sleegers, and Denessen (2006) investigated the effects of transformational and transactional leadership on the commitment of teachers with data collected from 70 primary schools in Tanzania. Using multiple regression analysis and path analysis, they found that transformational leadership was associated with high levels of employee commitment to the objectives of their school. Furthermore, transformational leadership seemed to contribute to building the capacity of teachers to work with dedication and exert greater effort at the workplace.

A study by Nazarudin, Fauzee, Sofian, and Abu Latif (2008) investigated the link between the leadership styles of principals and the commitment of primary school teachers in Malaysia in the framework of the full range leadership model proposed by Bass (1985) and the organizational commitment model of Meyer and Allen (1991). Data were collected from 130 primary school teachers. The study found a positive link between inspirational motivation (a dimension of transformational leadership) and teachers' commitment to their school unit. A more recent study in the same country (Raman, Huey, Don, Daud, & Khalid, 2015) provided additional evidence to support the link between transformational leadership and the commitment of teachers to their school unit.

Khasawneh, Omari, and Abu-Tineh (2012) examined the relationship between transformational leadership and the commitment of teachers to their school. Specifically, they conducted quantitative research using a sample of 340 teachers from 66 secondary vocational schools in Jordan. Participants completed questionnaires which measured transformational leadership and the commitment of teachers. In particular, they used the Multifactor Leadership Questionnaire (MLQ) of Bass and Avolio (1995) and the Organizational Commitment Questionnaire of Mowday, Steers, and Porter (1979). The authors used correlation analysis, regression analysis and descriptive statistics, and found a strong, positive and statistically significant relationship between transformational leadership and the commitment of teachers. Transformational leaders affected employee loyalty by promoting the achievement of the objectives of employees and encouraging their subordinates to think critically and seek ways of solving problems.

In their meta-analysis, Leithwood and Sun (2012) examined the effect of transformational leadership on teachers' behaviors which included their commitment to their school. They analyzed 79 unpublished studies on the effects of transformational leadership and compared their findings with recently published research. The unpublished studies used quantitative data and examined transformational leadership in relation to variables related to teachers. They found that the practices of transformational leadership, such as building relationships, the development of staff and the development of a common vision had a strong influence on the commitment of teachers to their school.

Mirza and Redzuan (2012) examined the relationship between leadership style and teachers' commitment to their school. Using a sample of 268 school principals and 513 primary school teachers in Iran, they found that the principals' leadership style was linked directly to teachers' commitment. Specifically, Mirza and Redzuan reported a significant relationship between transformational leadership and teachers' commitment to their school. The teachers who considered their school leader to be transformational were more likely to be committed to their work.

Dumay and Galand (2012) examined the effect of transformational leadership on the commitment of 660 primary education teachers in Belgium. The data were collected through surveys. Quantitative analysis was used to examine the hypothesis that the culture and context of the school act as mediating variables in the relationship between transformational leadership and commitment to the organization. Their findings confirmed the positive effect of transformational leadership on the commitment of teachers to their school and work. Also, they found that the school context and school culture could act as mediating variables in the relationship between transformational leadership and teachers' commitment.

The commitment of teachers to their organization has been investigated to a greater extent than previously discussed variables in its relationship to transformational leadership. The available findings point to a positive effect of transformational leadership on teachers' commitment to their work and the goals of the organization. An additional teacher-related variable which has been linked to transformational leadership in the literature is job satisfaction. Relevant studies are discussed in the following section.

TRANSFORMATIONAL LEADERSHIP AND TEACHERS' JOB SATISFACTION

There are many definitions of job satisfaction in the literature. A popular definition was provided by Locke who defined job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job and job experience" (Locke, 1976, p. 1304). According to Leithwood and Jantzi (2008), transformational leadership has a significant impact on teachers' job satisfaction.

In their study, Koh, Steers, and Terborg (1995) collected data from 846 teachers in 89 schools in Singapore and examined the effect of transformational leadership behavior of school principals on the satisfaction of teachers from their leader. The results of this research showed that transformational leadership positively contributes to the satisfaction of teachers from their leader. In comparison to transactional leadership, transformational leadership was found to be associated with additional positive effects in predicting organizational commitment, organizational citizenship behavior and teacher satisfaction.

Bogler (2001) examined the effect of transformational leadership on teachers' perceptions about their job and their job satisfaction. She administered the MLQ to a sample of 745 primary and secondary school teachers in Israel. Correlation analysis was used to search for

relations between independent variables and teachers' job satisfaction. Also, factor analysis and path analysis were conducted to investigate the links between the variables under investigation. Bogler found that principals who adopted transformational leadership were sensitive to the needs and interests of teachers, offered incentives and had a greater effect on their job satisfaction. Teachers preferred to work with transformational leaders, with the latter enhancing the autonomy of the former. Teachers' job satisfaction was linked with their perceptions about their job and with transformational and participative leadership. The effect of transformational leadership on job satisfaction was both direct and indirect through teacher perceptions about their job. A negative correlation was reported in the case of job satisfaction and transactional leadership.

In a US study, Griffith (2004) examined whether principals who practiced transformational leadership had staff with higher levels of job satisfaction. Survey data were collected from primary school staff and students. Structural equation modeling was used to investigate the links between the variables, which appeared to be significant in that transformational leaders influenced teachers' job satisfaction. Principal transformational leadership was not associated directly with school staff turnover. An indirect effect on staff turnover was reported through staff job satisfaction.

Moreover, Nguni, Sleegers, and Denessen (2006) conducted quantitative research to examine the effects of transformational and transactional leadership on teachers' job satisfaction. Their sample consisted of 560 teachers from 70 schools in Tanzania. They found that the leaders' transformational behavior had a positive effect on teachers' job satisfaction. The factors of transformational leadership explained a significant part of the variance of job satisfaction. Teachers felt more satisfied when they had supportive leaders. Transformational leaders were considered more supportive and inspired trust in their staff. Also, transformational leaders increased the levels of teacher job satisfaction through the development of a common vision.

In Cyprus, Menon (2014) examined the relation between teachers' perceptions of headteacher transformational/transactional leadership behaviors, student and school outcomes, and teacher job satisfaction. Data were collected from a sample of 438 secondary school teachers in Cyprus. Structural equation modeling was used to investigate the direct link between three dimensions of leadership behavior (transformational, transactional, passive), teachers' perceptions of leader effectiveness, and teacher job satisfaction. In the adopted model, both perceived leader effectiveness and teacher job satisfaction predicted the extent to which the leader was considered to be transformational or transactional. It thus appears that in the case of Cyprus, the direction of causality was different from that reported in other countries, pointing to the importance of context as a factor in leadership research.

Job satisfaction has been investigated extensively in the literature. However, the number of recent studies investigating its link to transformational leadership is relatively small. Despite the limited number of studies, the fact that advanced quantitative analysis was used in relevant research suggests that there is a reliable basis for concluding that transformational leadership is significantly linked to teacher job satisfaction.

IMPLICATIONS

Implications for Policy and Practice

The review of recent research on the links between transformational leadership and specific teacher outcomes generally points to a positive and significant effect. These applies to four variables investigated in the literature, namely, teachers' job satisfaction, commitment,

motivation to learn, and trust in the leader. The findings of the review point to the importance of adopting transformational leadership behaviors and practices at the school unit. Transformational leaders can inspire teachers to achieve more and become more committed to their work and the mission of the organization. In order to achieve this, it is necessary for leadership preparation programs to enhance the transformational potential of individuals aspiring to become school leaders. These programs should take into account the findings of research on leadership models and practices in general as it has been suggested that transformational leadership may be more effective if combined with other forms of leadership. The integration of instructional leadership with transformational leadership has been suggested as a promising way forward in leadership theory (see, for example, Day & Sammons, 2013). Based on their research, Marks and Printy (2003) suggested that transformational leadership is not sufficient for leader effectiveness, calling for more studies on ways in which transformational and instructional leadership complement each other and affect student learning.

Implications for Further Research

As previously noted, additional research is needed to shed more light on the links between transformational leadership and teacher variables and outcomes. The number of available studies is limited and in some cases is associated with specific contexts. More research is needed on different countries and educational systems as factors associated with different countries and systems (e.g. automomy, centralization etc.) may limit the effectiveness of transformational leadership practices at the school unit.

Moreover, it is important to strive for more conceptual and methodological clarity in relation to the variables investigated in leadership research. There are different approaches to the definition and measurement of transformational leadership as well as of the teacher variables discussed in this paper. The different definitions and methodological approaches make it difficult to compare findings from different studies. A major challenge for leadership models lies in the resolution of existing methodological problems, which will, in turn, allow for more research on their effects on educational outcomes. Bass (1999) points to the need for new methods for measuring transformational leadership and considers laboratory methods promising in the identification of cause and effect relationships. The review of the literature presented in this paper clearly points to the need for additional perspectives and approaches in the investigation of the effects of transformational leadership on teacher outcomes.

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HUMAN MOTIVATION AND LEADERSHIP: ASSESSING THE VALIDITY AND RELIABILITY OF THE ACTUALIZED LEADER PROFILE

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ABSTRACT

The purpose of the current investigation is to assess the validity and reliability of the Actualized Leader Profile (ALP) assessment scale. The ALP is a 57-item self-report assessment that measures an individual's dominant motive need, corresponding leadership style and leadership "shadow." The statistical analyses support a four-factor model of human motivation and leader behavior, and nine (9) characteristics of self-actualizing individuals (i.e., Actualized Leaders). The four-factor model in the PCFA analysis includes Achievement, Affiliation, Power, and Self-Actualization.

The ALP is based primarily on the seminal works in human motivation of David McClelland (1987) and Abraham Maslow (1954). McClelland's research into human motivation focused on the internal motive needs or "drivers" that direct and sustain human behavior: Achievement, Affiliation, and Power. In addition to McClelland's research, the ALP framework includes Abraham Maslow's concept of "self-actualization" as the fourth motive need and a modifier of the first three motive needs. In this current research effort, "self-actualization" was determined to be a fourth, unique motive need along with the three identified by McClelland, but the ALP conceptualizes this scale as a modifier of the first three needs (measuring intensity of the other needs, and thus the participant's level of reactivity).

Validity for the ALP was established using a Principal Components Factor Analysis (PCFA) to ascertain both the number of factors (four) and the factor loadings for each survey item on the four scales. A four-factor model with eigenvalues greater than 1.0 was generated, and survey items were reduced from 40 to 20 based on the factor loading scores. Eigenvalues ranged from 14.13 – 1.91, and accounted for 44% of the observed variance. The reliability for the ALP was estimated by assessing the internal consistency of the survey items for each of the four scales (i.e., Achievement, Affiliation, Power, and Self-Actualization) by calculating Cronbach's Alpha for each scale item. The standardized item Cronbach's alpha for the four scales ranged from .781 to .857. The research effort is summarized, and conclusions are drawn with specific implications for leadership development.

INTRODUCTION

The *Actualized Leader Profile* (ALP) is a 57-item self-report leadership assessment that measures leader style based on the intensity of the participant's dominant motive need. The ALP is based primarily on seminal works in human motivation (McClelland, 1987; Maslow, 1954). The theoretical framework for the ALP has been enhanced with the work of Viktor Frankl and Carl Jung.

McClelland's research into human motivation focused on the internal motive needs or "drivers" that direct and sustain human behavior. He identified three motive needs that propel

individual behavior: Achievement, Affiliation, and Power. Although every individual is a unique combination of all three, usually one motive need is dominant, particularly under stress (McClelland, 1987). In addition to McClelland's research, the ALP framework includes Abraham Maslow's concept of "self-actualization" as the fourth need, and a modifier of the first three motive needs. Maslow loosely defined "self-actualization" in his famous hierarchy of needs as the highest need that can emerge to drive human behavior, and this need represents our drive to reach our highest potential and ultimate purpose (Maslow, 1954). In this current research effort, "self-actualization" was determined to be a fourth, unique motive need along with the three motive needs identified by McClelland, but the ALP uses it as a modifier as opposed to a fourth style, meaning that it measures the intensity of the other needs, and the participant's level of reactivity. This conceptual approach and the resulting scoring model in the ALP helps the assessment to determine both the intensity of this need in driving behavior for the participant, and to predict how reactive the individual is likely to be under stress both in terms of intensity of behavior (i.e., Light, Medium, or Dark) and in frequency of their Leadership Shadow activation (i.e., Less Often, Moderately, or More Often). Table 1 provides an overview of the three motive needs and their relationship to leader behaviors.

Table 1
MOTIVE NEEDS
Relationship to Leader Behaviors

Motive Need	Leadership Style	Leadership Shadow
Achievement	Achiever	Fear of Failure
Affiliation	Affirmer	Fear of Rejection
Power	Asserter	Fear of Betrayal

The higher a participant's score in self-actualization, the more resilient and less reactive he or she is likely to be under stress. Conceptualizing self-actualization as a modifier, as opposed to a fourth style, is supported in the literature (Spreier, Fontaine, & Malloy, 2006) that discussed the differences between McClelland's concept of "personal power" and a more self-actualized, others-based approach to power, "social power." As such, the explicit goal of the ALP is for each participant to focus his or her developmental efforts on becoming more self-actualized in his or her style, Achievement, Affiliation, or Power.

The impulsive, reactive side of leader behavior is referred to as the "Leadership Shadow," and this concept is based on the seminal work of Carl Jung. Jung (1969) who in the mid-1920s first coined the term "shadow" to refer to the darker, instinctual side of individual personality that is often activated under stress. According to Jung, the Shadow exists at multiple levels: personal and collective. The ALP focuses on the personal level, and refines it even further as the extreme or "darker" side of the first three motive needs. This delineation is crucial because a unique, reactive, or "shadow" side is associated with each motive need. Under stress, when an individual is lower in self-actualization, he or she is more likely to engage in negative, "shadow" behaviors.

The 57-item self-report ALP assessment scale is divided into three sections. Section one contains 20 survey items, five (5) items for each of the four (4) scales (i.e., Achievement,

Affiliation, Power, and Self-Actualization). The results of the factor loading analyses using PCFA for item retention are discussed. Section two consists of 10 word-pair choices where the participant is asked to choose one word from each pair that is most descriptive of their style at work. Finally, three (3) survey items for each of the nine (9) attributes scales (n=27) were developed and will be assessed for validity in the subsequent statistical analysis of the ALP when a sufficient data set is developed. The results of the assessment's evaluation, and the implications for leadership development, are discussed.

THEORETICAL FRAMEWORK

The ALP is based on an effort to synthesize and integrate various and competing models of human behavior as they relate to leadership and leader behavior, and these theories and models will be presented in this section. The psychologists, researchers, and human development philosophers providing the foundation for the ALP are Viktor Frankl, David McClelland, Carl Jung, and Abraham Maslow. The ALP framework represents an attempt to distill, synthesize, and integrate these various and, at times, competing models and theories into one integrated framework. Although an obvious cornerstone for this model is the seminal work of Abraham Maslow who coined the term "self-actualization" as it relates to human potential and peak performance, the framework actually starts with the work of Viktor Frankl. Frankl is the author of "Man's Search for Meaning" and has influenced an untold number of researchers, psychologists, and philosophers. His philosophical foundation provides the basis for the ALP and the *Actualized Performance Cycle* presented at the paper's conclusion.

Viktor Frankl: Personal Freedom and Paradoxical Intent

In his best-selling book "Man's Search for Meaning," Austrian psychoanalyst Viktor Frankl (1946) discussed the horrors of his experience as a prisoner in concentration camps during World War II. It was in these hellish conditions that he came to realize that everything can be taken from us but one thing: *our freedom to choose our response to any situation*. This insight provides the first pillar and a basic assumption of our model: You are free to choose your response and your attitude to anyone and any situation.

With this insight, and his resulting therapeutic approach, "logotherapy" (the process of finding meaning in our suffering), he challenges us with a profound truth: no one can make you feel, think, or do anything; you have the freedom to choose your response and your attitude to any person and situation. When we react in anger or fear we give that freedom away. This insight led Stephen Covey in "The 7 Habits" to coin the term "reponse-ability": the freedom and ability to choose our response to any situation. Viktor Frankl's theory confronts us with a powerful truth: when we react to others in fear or anger, we relinquish this one guaranteed freedom. More times than not, the resulting interaction has negative consequences for the individual and adverse or outright dysfunctional implications for his or her group (I am using the term "group" to refer to a group of three or more members, which could be a team, department, division, or entire organization). Frankl reminds us of our power and freedom to choose our response to others, as well as the comfort of knowing that when we find meaning in our suffering, it ceases to be suffering in his philosophical theory of logotherapy.

But, can we avoid some suffering, or are we destined to lead in ways that damage ourselves and others? Perhaps Frankl's most powerful contribution is his concept of "paradoxical intent," which is as follows: *the more we fear something, the more likely we are to experience it*.

Let that insight sink in for just a moment. That observation reminds us of some of the tragic ironies of the human condition. The more we fear being alone, or being rejected, or failing in an endeavor, the more likely we will experience what we so fear. In his classic "The Abilene Paradox," the late Jerry B. Harvey (1974) refers to this concept as a "Paradox within a Paradox." Both Frankl and Harvey warn us that the sad, tragic irony of the human condition is that the more we fear something, the more likely we are to think (obsess), feel (fear) and do (counterproductive behaviors) things that almost guarantee that we will experience that which we so fear. From a leadership perspective, consider a high *Achiever* who is low in Self-Actualization. At his or her best, the Achiever is well-organized, detailed-oriented, and efficient. However, under stress, for example due to a lack of clear direction or increased ambiguity, he or she will begin to engaged in "shadow" Achiever behaviors, such as becoming rigid, narrow-minded, and the classic "micromanager." Over time, this cycle will limit the individual's upward mobility in a managerial role, fulfilling paradoxical intent.

So, with Viktor Frankl's work we have established the foundation for the ALP and the *Actualized Performance Cycle*. First, you always have the freedom to choose your response to a situation or person. Second, the more you fear something, the more likely you are to experience it. While these assertions may seem at first glance to be self-evident or even depressing, they are actually liberating when considered in the context of Maslow's concept of "self-actualization," which we will review shortly. Before doing so, let's turn our attention to human motivation and the motive needs or "drivers" that propel our behavior. In this endeavor, we will review the seminal work of David McClelland.

David McClelland: Human Motivation and the Three Motive Needs

Many behavioral science theories attempting to explain human motivation – what drives us to do what we do – have been proposed over the last 100 years. Some researchers have focused on the internal needs of individuals that drive our behavior, while other researchers have examined the context and process by which we exert effort, and the expectations we have on successfully being rewarded. Although the works of Maslow (1954) and Herzberg, Mausner, and Snyderman (1959) remain extremely popular, perhaps no other researcher has been more influential than David McClelland and his three-need or "Acquired Need" theory of human motivation.

The word motivation comes from the Latin word *movere* which means "to move" or "to stir." A need may be best thought of as an "internal state that makes a certain outcome appear attractive" (Robbins & Coulter, 2011). So, when we think of motive needs, also referred to as "drivers," we are simply examining the internal states that drive or stir our behavior in an attempt to satisfy this need (e.g., our desire for safety, the need for relationships and connection to others, our desire for control, etc.). There are a number of very influential theorists through the years who have informed our thinking in this area, including Yale psychologist Clayton Alderfer's ERG Theory (1972), and Frederick Herzberg's "Two-factor theory" (1959). It could be argued that no one has been more influential in describing what motivates or drives us to do the things that we do than the late Harvard psychologist David McClelland. McClelland (1987) identified three motive needs or drivers that propel our behavior: *Achievement*, *Affiliation*, and *Power*.

Achievers

Achievers, those with a high need for achievement, are driven for success, improvement, and accomplishment. They are primarily concerned with expertise and competence, and are detail-oriented, focused, and very well-organized. These individuals are efficient, rules and process-oriented, and prefer consistency and predictability. Under stress, however, their Leadership Shadow is triggered and *Achievers* become narrow-minded and rigid, transforming into the classic "micromanager" which has been discussed briefly and will be examined in greater detail during the review of Carl Jung.

Affirmers

Affirmers, those with a high need for affiliation, are warm and friendly, and are more focused on interpersonal relationships and harmony than results and outcomes. They are primarily concerned with their connection to, and acceptance from, others. These individuals are loyal, trusting, and empathetic. Under stress, when their Leadership Shadow is triggered, these individuals become overly accommodating, avoiding confrontation and allowing others to take advantage of them.

Asserters

Asserters, those with a high need for power, are candid, decisive, and courageous risk-takers. They are often viewed as "natural" leaders who challenge the status quo and drive results. *Asserters* are primarily concerned with control and can be skeptical and slow to trust others. Under stress, when their Leadership Shadow is triggered, they become controlling, autocratic, and condescending, often manipulating or intimidating others to get their way.

The PCFA demonstrated a four-factor model, with Self-Actualization being the fourth need with an eigenvalue greater than 1.00. A review of Abraham Maslow's work and theory of Self-Actualization and "Hierarchy of Needs" will be discussed as a modifier of the first three needs. Before reviewing Maslow's work, let's examine Jung's influential work in the human psyche, and the implications for understanding leader behaviors under stress.

Carl Jung: Leadership Shadows

Perhaps no one in the last 100 years has been more influential to Western culture than Carl Jung. From his theories of personality type ("introversion" and "extroversion") that led to the MBTI, to his concepts of the "collective unconscious," "archetypes," and "synchronicity," one could make a compelling argument that Jung's influence over the last 100 years is without a contemporary equal. An untold number of therapists and researchers have built their entire practices, and careers, on his concepts and frameworks. And it is Jung's concept of the "shadow" that is critical for understanding how normally positive traits (e.g., organized and efficient) can become negative (e.g., rigid and inflexible) under stress.

The "shadow" is Jung's concept of the dark, unconscious aspect that resides within each of us. Jung believed that in addition to an individual's shadow, there is also a collective unconscious that is essentially the repository or unconscious DNA of human history, varying by culture. Although he was convinced that the collective shadow had an enormous impact on human behavior in the present, our focus will be to further refine his notion of the "personal

shadow" by looking specifically at leader behaviors under stress, and how normally positive characteristics and traits can and do become dysfunctional or outright destructive.

The Shadow has been defined as the dark, rejected, instinctual side of ourselves that we deny or repress. Impulses such as rage, lust, greed, and jealousy reside in the shadow, but so too do creativity, passion, and profound insight. The more aware, open, and honest you are about your Shadow, the more integrated it becomes into your entire being. And the more integrated you are, the more your Shadow becomes a reservoir for creativity and passion.

According to Jung (1969), the Shadow exists at multiple levels. At the largest level, the *Collective Shadow* contains all human memory at an unconscious level. In a sense, it represents the DNA of our collective unconscious. Although it varies by culture and heritage, there are universal "archetypes" in the Collective Shadow, such as the heroic journey of the individual warrior. This has been perhaps most famously illustrated in our current culture by Luke Skywalker in "Star Wars." In fact, some have speculated that the mass appeal of "Star Wars" can be best understood in terms of the *Collective Shadow* because it connects with so many on a primal level. Jung also examined the *Collective Shadow* during World War II. According to Jung, who was commissioned by the Allies to provide a psychoanalytical explanation for the rise of Nazism, Hitler had tapped into the Wotan warrior archetype found in the *Collective Shadow* of the Germanic and Nordic people. You may or may not agree with Jung's explanation, but behavioral and political scientists to this day still struggle to fully explain from a purely rational perspective the fervor and allegiance that the Nazi party was able to elicit.

Whether or not you agree with Jung's concept of the *Collective Shadow*, his concept of the *Personal Shadow* is most closely aligned with Freud's notion of the "id" and represents the illicit desires, basic instincts, and selfish impulses repressed in our unconscious. We spend an inordinate amount of energy trying to deny, repress, or manage this aspect of being. We often explode in angry denial when someone points out a Shadow trait in our self that, while blatantly obvious to others, has been repressed. Jung reminded us that we do not become enlightened by pretending to be perfect; rather, we become enlightened when we're willing to confront and embrace this darker side of ourselves. This insight has key implications for the process of leadership development that will be discussed in our conclusion.

Finally, and most importantly for our purposes, is the concept of *Leadership Shadows*. We define them as the extreme and negative manifestation of our positive drivers, which are based on irrational thoughts, unfounded fears, and limiting core beliefs. Based on the three motive needs or drivers identified by McClelland, there are three *Leadership Shadows: **Fear of Failure***, ***Fear of Rejection,*** and ***Fear of Betrayal***. Table 2 summarizes these shadows in the context of the ALP framework.

Table 2
LEADERSHIP SHADOWS
ALP Framework

LEADERSHIP STYLE	LEADERSHIP SHADOW	SHADOW BEHAVIORS
Achiever	Fear of Failure	Micromanaging; obsessive; rigid; pessimistic; stubborn
Affirmer	Fear of Rejection	Conflict avoidant; devalues own opinions; accommodating
Asserter	Fear of Betrayal	Arrogant; controlling; skeptical; autocratic

However, when the Fear of Failure Leadership Shadow is activated, the strengths identified above become inherent limitations. Under stress, an Achiever will transform in unproductive ways: organized becomes rigid, detail-oriented devolves to being obsessive, and expertise leads to micromanagement. Much like Dr. Jekyll's transformation into Mr. Hyde, experiencing stress in the form of ambiguity or "losing" triggers the Fear of Failure Leadership Shadow, and the ugly transformation. The existential and ironic tragedy is that when this happens Achievers are actually more likely to fail.

The key contextual element related to all of the three styles and their corresponding Leadership Shadows is stress – that tense and taxing space we so often encounter in our professional and personal lives. This is the aspect of ourselves that is triggered by stress and often results in career (and relationship) limiting moves, such as micromanaging, avoiding conflict, or refusing to trust others. And it is within this vicious cycle that we experience the tragedy of the human condition first identified by Frankl: paradoxical intent.

Abraham Maslow: Self-Actualization

Out of this somewhat dark and depressing state of the human condition came what is known today as the "Humanistic" movement in psychology led by Abraham Maslow and his concept of "self-actualization." As described earlier, prior to Maslow the vast majority of psychologists and researchers focused on human deficiencies: why people act in destructive or neurotic ways, for example. Maslow turned the field upside down when he began to focus on psychological health, well-being, and optimal performance. Maslow identified a number of characteristics and traits of these "self-actualizing" individuals that allow them to be more satisfied, more at peace, and ultimately, more effective. And what is perhaps most important to remember is that people aren't born this way. Just like the research into what causes or creates healthy cells in biology, Maslow found that there are changes we can make – both internally and externally in our environments – which facilitate and accelerate our growth and development.

Maslow's most famous contribution to the study of human behavior is his "Hierarchy of Needs" which attempts to explain human motivation from a needs-based and hierarchical perspective. According to Maslow (1954), there are four groups of basic or "deficiency" needs that must be met in ascending order. The goal of every individual is to meet a given need, and then allow a higher order need to emerge to drive our behavior. Maslow illustrated, and many subsequent researchers have pointed out, that satisfying one need does not necessarily mean that a higher order need will emerge. Both research and every day experience demonstrate that many individuals get "stuck" in a certain deficiency need, for recognition or a sense of belonging to others, which can and does adversely impact one's ability for continued growth and development, which is the self-actualizing process. Figure 1 provides an overview of Maslow's model, with the three motive needs captured in their appropriate level:

Figure 1

The four theoretical frameworks have been discussed in an attempt, albeit brief, to synthesize and integrate these into a comprehensive framework for the ALP. Next, this paper will examine the methodological approach for assessing the reliability and validity of the ALP and *Actualized Performance Cycle*. This examination will begin with a review of the scale development process, and the approach taken for the ALP.

THE SCALE DEVELOPMENT PROCESS

Designing and constructing an attitude assessment scale consists of three general stages: design, development, and evaluation (Schwab, 1980). The theoretical framework and literature review was presented to provide the general developmental foundation of the ALP. Within the three broad stages of constructing an attitude assessment scale, Hinkin (1998) identified six steps in the scale development process. These six steps are presented in Table 3:

Table 3
SCALE DEVELOPMENT PROCESS

Step 1:	Item Generation
Step 2:	Questionnaire Administration
Step 3:	Initial Item Reduction
Step 4:	Confirmatory Factor Analysis
Step 5:	Convergent/Discriminant Validity
Step 6:	Replication

Item generation is the essential first step in developing a new Likert-type scale. The primary concern during this initial stage is content validity, which should be built into the scale through the development of clear, unambiguous, and accurate items that "…adequately capture the specific domain of interest" (Hinkin, 1998).

It is during the initial design step that a researcher should understand the theoretical foundation that provides the basis for the scale's development. This study fell under the deductive approach to scale development because the theoretical foundation being used to define ALP provided enough information to generate an initial set of items. The major advantage of the deductive approach to scale development is that, if done properly, this approach helps to ensure content validity (Hinkin, 1995).

Survey administration is the second step of the Likert-type scale development process. During this stage of scale development, the items that were retained during the content validation assessment were administered to a pilot sample to confirm expectations of the psychometric properties of the new measure. Critical issues regarding scale development during this step included choosing a representative pilot sample, the sample size, and the total number of items in the new measure. These and other scaling issues are discussed in the reliability and validity sections of this paper.

Following the initial survey administration, the third step in the process of developing a Likert-type scale is the initial item reduction. Once preliminary data has been collected from the pilot sample, factor analysis was employed to further refine the scale. PCFA with orthogonal rotation is the most widely used factoring method for item reduction (Hinkin, 1995). Although no absolute cutoff exists for determining which items should remain on a given scale, that is which items most clearly represent the content domain of the underlying construct, a .40 criterion level is most commonly used to judge factor loadings as meaningful (Hinkin, 1998). PCFA was also used to determine the latent dimensions of the ALP framework, and a minimal eigenvalue of 1.0 was used as an appropriate criterion for retaining each dimension of the ALP assessment scale.

Once validity was established through PCFA, internal consistency should be established. Cronbach's alpha is the more widely accepted and utilized technique for establishing internal reliability, and is the recommended statistic when employing PCFA (Cortina, 1993).

The final two stages, assessing convergent and discriminant validity and replication, although critical to a scale's ultimate utility, are beyond the scope of this study. Convergent and discriminant validity are measures of criterion-related validity, the ability to predict a change in certain variables based on data from the predictor variable. Although this may be of eventual interest for the scale's utility, only face validity, content validity, and construct validity were ascertained for this investigation. Likewise, the final step, replication, is a time-consuming process that often takes years to establish (Hinkin, 1998). Preliminary data on replication reliability and validity will be gathered during the subsequent administrations of the ALP, as well as efforts to predict performance, job satisfaction, and intrinsic satisfaction (e.g., the correlation of Actualized Leader behaviors with individual and group performance, etc.). For the current investigation, validity was assessed using PCFA to determine both the underlying structure and the number of factors explaining the observed variance (eigenvalues >/= 1.00), and PCFA was employed to determine survey item retention (>/= .40) for the five items per scale with the highest R^2.

Limitations of the Research Methodology

Likert-type scales offer a range of responses with different intensities from 'strongly agree' to 'strongly disagree.' Each participant has a different interpretation of the response categories, which can lead to a degree of imprecision in the response set, data collection, and data analysis. Previous researchers have commented that Likert-type scales are akin to a "ruler that stretches or contracts," which can and does impact the precision of the data collected.

The study design has limited generalizability due to homogeneous samples used for data collection. Although the sample size is well beyond the recommended size of 200 (n=611), the sample was non-random and somewhat homogeneous (all members of the same organization). Additionally, the problems of social desirability and bias are limitations when using self-report measures. Social desirability, the tendency to answer questions in a manner the respondent believes that they should be answered, as opposed to the way the respondent actually believes, creates bias and error in the data analysis.

There are limitations related to validity as well. First and foremost, this research design does not afford a measure of criterion-related validity. Ultimately, one would want to be able to predict a group's performance based on the survey score. For example, are certain leadership styles, such as an Actualized Asserter, more effective than others with different challenges and tasks? Future research will need to establish criterion-related validity. Moreover, PCFA provides limited construct validity information due to the subjective nature of its statistical measures.

Study Sample Demographics

Before reviewing the validity and reliability analyses findings, the descriptive statistics for the current investigation are presented. First, the data was collected from a global, high-performance engineering and manufacturing company headquartered in Charlotte, NC, where the lead author is currently employed as the Vice President of Talent. The organization is a diversified company with six divisions that produces ball bearings, high performance sealants, submarine engines, and trailer solutions for the trucking industry.

Data for the survey administration sample were captured over a six (6) month period from October 2015 to March 2016. During this time, 611participants completed the ALP as part of a larger leadership development program designed and facilitated within the study's host organization. Table 4 summarizes the sample's demographics.

Table 4
DEMOGRAPHIC CHARACTERISTICS
Study Sample

Characteristic	Percentage (%)
Gender	
Male	68
Female	30
Missing Data	2
	100
Age	
20-30	10
31-40	30
41-50	42
51-60	9
61 and over	2
Missing Data	7
	100
Professional Experience	
1-5 Years	21
6-10 Years	22
11-15 Years	30
Over 15 Years	23
Missing Data	4
	100

ASSESSING VALIDITY

Validity was assessed for the ALP using Principal Components Factor Analysis (PCFA), a statistical technique used for exploratory data analysis. The underlying assumption of exploratory data analysis is that the more one knows about the data, the more effectively and efficiently one can develop, test, and refine a given theory, or in this case, a measurement instrument (Hartwig & Dearing, 1979). Exploratory data analysis describes and summarizes data by grouping together correlated variables in factors, labeled "components," that are independent of each other (Hartwig & Dearing, 1979). These components are often rotated to maximize the variance explained by each factor (Litwin, 1995).

Principal Components Factor Analysis

Principal Components Factor Analysis (PCFA) is a statistical technique that linearly transforms an original set of variables into a substantially smaller set of uncorrelated variables. This process identifies the relevant factors under study (Dunteman, 1989). PCFA is an appropriate statistical technique when the underlying factor structure is unknown. The goal of PCFA is data reduction, allowing the researcher to better understand and interpret data collected from a smaller set of uncorrelated variables (Dunteman, 1989).

There are several guidelines and requirements for using PCFA. There are numerous strategies for determining how many latent factors exist in a data set, and for ascertaining which survey items should be retained.

Assessing the Latent Structure of the Data Set

Determining the number of factors, or components, to retain depends on both the underlying theory and the quantitative results of the research endeavor (Hinkin, 1998). Several guidelines have been established to assist researchers in making decisions about the number of latent factors to retain.

Perhaps the most well-known rule of thumb in survey development is Kaiser's criterion. Kaiser's criterion (also known as Kaiser's Rule) states that only components with eigenvalues that are greater than 1.0 should qualify for retention. An eigenvalue is the total amount of variance explained by a factor, and it represents the sum of the squared loadings of each variable for that factor (Hinkin, 1998).

Another guide for determining the number of factors to retain in a PCFA is the scree plot test. The "scree" is defined as the rubble or valley where the graph plotting the factors begins to level off, and it is a graphically illustrated plot in the data set. As successive factors are extracted, and their contribution to explaining the observed variance decreases, the graph declines. The point of interest is where the curve connecting the points starts to flatten out. It is at this point where a valley or scree appears in the graph, and where factor retention may stop (Kinnear & Gray, 1999).

In addition to using the Kaiser Criterion and scree plot test to decide on the number of factors to retain, the underlying theory or model guiding the research should also direct factor retention decisions so long as the data set is consistent with the model in use (Hinkin, 1998). That is, the research findings should fit the underlying theoretical framework in a conceptually sound way. The findings for the present study do fit the ALP framework and the conceptual models of human motivation as defined by McClelland (1987) and Maslow (1954), and a combination of the Kaiser Criterion and the ALP theoretical framework was used to determine the number of latent factors to retain.

Latent Structure Assessment and Item Retention Analysis

PCFA of the measurement items was conducted from the data collected from the 611 surveys collected. An orthogonal (varimax) rotation was used to compute a loading matrix that represented the relationship between the observed variables and each factor. Initial PCFA statistics indicated the presence of four factors (i.e., components or dimensions of motive need leadership) with eigenvalues greater than 1.0 that accounted for 44.58% of the total variance observed (Table 5). The remaining 55.32% of variance from the data set was not accounted for and was assumed to lie with factors not measured by the assessment instrument.

Table 5
PCFA
Factors

Component 1	Power (Asserter Style)
Component 2	Affiliation (Affirmer Style)
Component 3	Achievement (Achiever Style)
Component 4	Self-Actualization (Actualized Style)

Table 6 presents the eigenvalues by components and total variance explained by this analysis.

Table 6
TOTAL VARIANCE EXPLAINED

	Initial Eigenvalues			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.131	28.262	28.262	6.426	12.853	12.853
2	3.420	6.840	35.101	5.308	10.616	23.469
3	2.831	5.663	40.764	5.189	10.377	33.846
4	1.906	3.812	44.576	3.563		40.971

Extraction Method: Principal Component Analysis.

Variable (Item) Retention Analysis

Once the underlying structure of the data set has been determined, decisions surrounding which variables (i.e., survey items) to retain must be made. Although there is no universally accepted rule for the best way to determine which variables to retain, factor loadings computed by PCFA provide crucial information to assist the researcher (Hinkin, 1998). A factor loading is designated as a Pearson correlation coefficient of the original variable with the factor. Factor loadings range in value from +1.00, indicating a perfect positive association, to -1.00, which indicates a perfect negative association with the factor. It is generally agreed that in survey development, factor loadings of .40 or greater with no major cross-loading are deemed meaningful (Cattell, 1966; Hinkin, 1998; and Nunnally, 1967). Variables usually load on all factors, but should load higher (.40 or greater) on only a single factor. Factor loadings and cross-loadings were considered in determining which items to retain in the final version of the Actualized Leader Profile, and the loadings for the retained items ranged from .510 - .792, (Table 7).

Table 7
SCALE COMPONENT RANGES

Achievement	.652 - .584
Affiliation	.792 - .563
Power	.792 - .728
Self-Actualization	.632 - .510

The analyses used to determine which items were retained in the final version of the ALP were based on the factor loading scores solely, and in each instance (each component scale) the top five items with the highest factor loadings were selected for inclusion on the final version of the ALP. These scores, by component, follow in Table 8.

Table 8
ALP
Factor Loadings

Achievement Component Matrix		**Affiliation Component Matrix**		**Power Component Matrix**		**Self-Actualization Component Matrix**	
	Component 3		Component 2		Component 1		Component 4
wsb21	0.652	wsb35	0.792	wsb7	0.792	wsb18	0.632
wsb36	0.645	wsb11	0.731	wsb3	0.756	wsb10	0.562
wsb1	0.624	wsb6	0.73	wsb12	0.755	wsb27	0.53
wsb29	0.61	wsb2	0.649	wsb34	0.75	wsb24	0.525
wsb16	0.584	wsb19	0.563	wsb23	0.728	wsb8	0.51
wsb13	0.502	wsb22	0.488	wsb14	0.617	wsb32	0.498
wsb4	0.281	wsb37	0.455	wsb31	0.542	wsb5	0.489
wsb38	0.259	wsb25	0.231	wsb28	0.465	wsb33	0.483
wsb26	0.233	wsb30	0.161	wsb9	0.463	wsb15	0.421
wsb20	0.052	wsb17	0.161	wsb40	0.325	wsb39	0.18

Extraction Method: Principal Component Analysis.

ESTIMATING RELIABILITY

Coefficient alpha, commonly referred to as "Cronbach's alpha" and designated with "α," is a measure of internal consistency that estimates how well items "hang together." Reliability is a necessary condition for validity (Hinkin, 1998). In survey development, coefficient alpha measures the homogeneity of items for a given scale. Although there are other forms of reliability that can be estimated in survey research (Spector, 1992), coefficient alpha is a necessary estimate for scale development and the recommended reliability statistic when computing PCFA. The overall reliability estimates for each of the five scales of group culture are presented in Table 9, and the specific statistical output for each scale follows. Reliability estimates were calculated for each scale of the Group Culture Assessment Scale in an iterative fashion. First, coefficient alphas were calculated for all 10 items of each scale. Then, internal consistency was estimated for the total number of items per scale to be retained in the survey's final version based on the PCFA assessment. The number of items retained for each scale in the survey's final version is five (5) per scale, using a minimum reliability estimate threshold of .40. The total number of items retained for this section of final version of the survey was 20. Table 9 summarizes this reliability assessment effort utilizing Cronbach's alpha.

Table 9
RELIABILITY ASSESSMENT
Cronbach's Alpha

Scale	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Achievement	0.864	0.857	5
Affiliation	0.783	0.781	5
Power	0.852	0.850	5
Self-Actualization	0.801	0.799	5

Reliability Assessment for the Achievement Scale

The Achievement scale possessed a total reliability of α = .864. Coefficient alpha was computed for the five (5) items retained for this scale. Item analysis indicated that the retained items had moderate to strong inter-item correlations ranging from .271 to .801 (Table 10). The factor loadings (Table 8) ranged from .584 to .652 (exceeding the .40 recommendation). Cronbach's alpha decreased if any of the items was deleted (Table 11). The .40 minimum threshold established by Hinkin was used to make item retention decisions, although the actual reliability estimates for the retained items ranged from .506 - .838.

Table 10
ACHIEVEMENT SCALE
Inter-Item Correlation Matrix

	wsb4	wsb6	wsb9	wsb10	wsb20
wsb4	1.000	.575	.427	.739	.610
wsb6	.575	1.000	.271	.801	.784
wsb9	.427	.271	1.000	.482	.371
wsb10	.739	.801	.482	1.000	.817
wsb20	.610	.784	.371	.817	1.000

Table 11
ACHIEVEMENT SCALE
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
wsb4	12.01	18.134	.708	.554	.861
wsb6	12.78	16.074	.770	.707	.847
wsb9	12.72	16.330	.800	.698	.838
wsb10	12.70	14.506	.904	.819	.810
wsb20	13.39	16.606	.818	.715	.834

Reliability Assessment for the Affiliation Scale

The Affiliation scale possessed a total reliability of α = .783. Coefficient alpha was computed for the five (5) items retained for this scale. Item analysis indicated that the retained items had moderate to strong inter-item correlations ranging from .373 to .612 (Table 12). The factor loadings (Table 8) ranged from .563 - .792 (exceeding the .40 recommendation). Cronbach's alpha decreased if any of the items was deleted (Table 13).

Table 12
AFFILIATION SCALE
Inter-Item Correlation Matrix

	wsb8	wsb11	wsb13	wsb15	wsb18
wsb8	1.000	.387	.612	.483	.313
wsb11	.387	1.000	.373	.442	.406
wsb13	.612	.373	1.000	.575	.314
wsb15	.483	.442	.575	1.000	.262
wsb18	.313	.406	.314	.262	1.000

Table 13
AFFILIATION SCALE
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
wsb8	14.14	11.366	.613	.422	.725
wsb11	13.62	11.889	.531	.305	.751
wsb13	14.16	10.502	.645	.485	.712
wsb15	13.92	10.626	.599	.404	.729
wsb18	13.88	11.628	.572	.364	.738

Reliability Assessment for the Power Scale

The Power scale possessed a total reliability of α = .852. Coefficient alpha was computed for the five (5) items retained for this scale. Item analysis indicated that the retained items had moderate to strong inter-item correlations ranging from .671 to .606 (Table 14). The factor loadings (Table 8) ranged from .728 to .792 (exceeding the .40 recommendation). Cronbach's alpha decreased if any of the items was deleted (Table 15)

Table 14
POWER SCALE
Inter-Item Correlation Matrix

	wsb2	wsb3	wsb5	wsb16	wsb19
wsb2	1.000	.606	.603	.471	.571
wsb3	.606	1.000	.747	.519	.496
wsb5	.603	.747	1.000	.490	.552
wsb16	.471	.519	.490	1.000	.265
wsb19	.571	.496	.552	.265	1.000

Table 15
POWER SCALE
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
wsb2	13.35	13.623	.707	.507	.810
wsb3	12.85	12.999	.754	.616	.796
wsb5	13.10	12.711	.764	.624	.793
wsb16	13.25	15.230	.523	.329	.850
wsb19	13.76	14.323	.575	.404	.844

Reliability Assessment for the Self-Actualization Scale

The Self-Actualization scale possessed a total reliability of $\alpha = .801$. Coefficient alpha was computed for the five (5) items retained for this scale. Item analysis indicated that the retained items had moderate to strong inter-item correlations ranging from .253 to .649 (Table 16). The factor loadings (Table 8) ranged from .563 - .792 (exceeding the .40 recommendation). Cronbach's alpha decreased if any of the items was deleted (Table 17).

Table 16
SELF-ACTUALIZATION SCALE
Inter-Item Correlation Matrix

	wsb1	wsb7	wsb12	wsb14	wsb17
wsb1	1.000	.321	.253	.362	.330
wsb7	.321	1.000	.488	.465	.608
wsb12	.253	.488	1.000	.471	.478
wsb14	.362	.465	.471	1.000	.649
wsb17	.330	.608	.478	.649	1.000

Table 17
SELF-ACTUALIZATION SCALE
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
wsb1	15.49	14.493	.394	.164	.796
wsb7	15.06	12.164	.627	.431	.750
wsb12	15.29	12.635	.553	.325	.774
wsb14	15.36	12.102	.652	.474	.742
wsb17	14.92	11.706	.703	.549	.724

In addition to the 20 retained survey items, there are 20 additional scale component (i.e., factor) words in 10 word-pairs that account for five (5) additional items per scale. This section of the ALP assessment scale requires the participant to choose the word from the word-pair that is most descriptive of him or her. When combined with the five (5) survey items per scale, this results in five (5) additional "items" (i.e., words) that impact the overall score of the participant. Cronbach's alphas for all five items were in the acceptable to good ranges (Table 18.)

Table 18 WORD PAIRS Cronbach's Alpha			
Scale	**Cronbach's Alpha**	**Cronbach's Alpha Based on Standardized Items**	**N of Items**
Achievement	.755	.753	5
Affiliation	.818	.819	5
Power	.813	.810	5
Self-Actualization	.856	.830	5

Reliability Assessment for the Word-Pair Achievement Scale

The Achievement scale possessed a total reliability of α = .755. Coefficient alpha was computed for the five (5) items retained for this scale. Item analysis indicated that the retained items had moderate to strong inter-item correlations ranging from .331 to .551 (Table 19). Cronbach's alpha decreased if any of the items was deleted (Table 20).

Table 19 WORD-PAIR ACHIEVEMENT SCALE Inter-Item Correlation Matrix					
	Winning	**Reserved**	**Expertise**	**Perfection**	**Tactical**
winning	1.000	.423	.408	.331	.190
reserved	.423	1.000	.551	.471	.302
expertise	.408	.551	1.000	.428	.373
perfection	.331	.471	.428	1.000	.279
tactical	.190	.302	.373	.279	1.000

Table 20 WORD-PAIR ACHIEVEMENT SCALE Item-Total Statistics					
	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Squared Multiple Correlation**	**Cronbach's Alpha if Item Deleted**
winning	13.95	195.212	.460	.234	.731
reserved	14.41	180.523	.622	.404	.671
expertise	13.32	174.542	.622	.400	.669
perfection	13.39	186.000	.520	.282	.709
tactical	15.42	217.192	.378	.163	.754

Reliability Assessment for the Word-Pair Affiliation Scale

The Affiliation scale possessed a total reliability of α = .818. Coefficient alpha was computed for the five (5) items retained for this scale. Item analysis indicated that the retained items had

moderate to strong inter-item correlations ranging from .411 to .609 (Table 21). Cronbach's alpha decreased if any of the items was deleted (Table 22).

Table 21
WORD-PAIR AFFILIATION SCALE
Inter-Item Correlation Matrix

	Empathy	Relationships	Caring	Warm	Mercy
empathy	1.000	.580	.542	.429	.411
relationships	.580	1.000	.609	.497	.454
caring	.542	.609	1.000	.460	.436
warm	.429	.497	.460	1.000	.324
mercy	.411	.454	.436	.324	1.000

Table 22
WORD-PAIR AFFILIATION SCALE
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
empathy	24.26	223.474	.634	.416	.775
relationships	24.57	212.902	.705	.507	.753
caring	24.34	218.896	.668	.459	.764
warm	24.39	234.067	.538	.303	.802
mercy	26.08	232.754	.508	.266	.812

Reliability Assessment for the Word-Pair Power Scale

The Power scale possessed a total reliability of $\alpha = .813$. Coefficient alpha was computed for the five (5) items retained for this scale. Item analysis indicated that the retained items had moderate to strong inter-item correlations ranging from .172 to .771 (Table 23). Cronbach's alpha decreased if any of the items was deleted (Table 24).

Table 23
WORD-PAIR POWER SCALE
Inter-Item Correlation Matrix

	Justice	Strategic	Power	Control	Results
justice	1.000	.370	.388	.588	.771
strategic	.370	1.000	.172	.229	.464
power	.388	.172	1.000	.248	.362
control	.588	.229	.248	1.000	.647
results	.771	.464	.362	.647	1.000

Table 24
WORD-PAIR POWER SCALE
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
justice	18.40	183.938	.743	.621	.694
strategic	16.97	230.472	.395	.226	.809
power	21.64	248.358	.369	.160	.810
control	18.28	202.505	.579	.445	.753
results	18.99	177.882	.805	.690	.671

Reliability Assessment for the Word-Pair Self-Actualization Scale

The Self-Actualization scale possessed a total reliability of $\alpha = .856$. Coefficient alpha was computed for the five (5) items retained for this scale. Item analysis indicated that the retained items had moderate to strong inter-item correlations ranging from .123 to .828 (Table 25). Cronbach's alpha decreased if any of the items was deleted (Table 26).

Table 25
WORD-PAIR SELF-ACTUALIZATION SCALE
Inter-Item Correlation Matrix

	Risk	Spontaneous	Candor	Trust	Creativity
risk	1.000	.828	.378	.254	.746
spontaneous	.828	1.000	.425	.266	.780
candor	.378	.425	1.000	.123	.342
trust	.254	.266	.123	1.000	.114
creativity	.746	.780	.342	.114	1.000

Table 26
WORD-PAIR SELF-ACTUALIZATION SCALE
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
risk	22.10	166.280	.812	.717	.673
spontaneous	21.92	161.801	.856	.767	.655
candor	23.26	222.064	.359	.246	.825
trust	17.80	270.319	.157	.173	.851
creativity	21.86	174.476	.728	.653	.704

SUMMARY

The Actualized Leader Profile is a valid and reliable self-report assessment for measuring human motivation and leader style, based on the integrated framework resulting from combining the Acquired Needs Theory (McClelland, 1987) and self-actualization (Maslow, 1954). The steps outlined in this effort follow well-accepted guidelines for the scale development process (Hinkin, 1995) and yield a four-factor model of human behavior and leader style, with impressive factor loading well above the suggested .40 cutoff, indicating that the retained survey items assess their

desired component as defined in the theoretical framework. Moreover, the scales are estimated to have a high degree of reliability. The scales' average Cronbach's alpha is .818, meaning that the consistency of the items by scale is good. As such, it can be affirmed that the Actualized Leadership Profile is both a precise (valid) and consistent (reliable) assessment for measuring leader style, based on the underlying motive needs of the participant.

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STUDENT ENGAGEMENT AND PERFORMANCE: IS TECHNOLOGY THE ANSWER?

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ABSTRACT

Do teaching methods that incorporate technology improve student performance and comprehension in the classroom? This paper focuses on the results of a two-year longitudinal study investigating student perceptions of how well technology applications improve outcomes in accounting courses at both the undergraduate and graduate level. Courses studied include managerial accounting, auditing and graduate level advanced and non-profit accounting. In addition, grade distributions for a hybrid and traditional accounting course were compared to determine if blended styles improve grade performance.

The following are examples of the technology enhancements used and studied in the courses noted above, which are discussed in this paper:

1. *Online e-texts and homework labs*
2. *Pollanywhere.com instant student response surveys*
3. *Recorded lectures using Kaltura and Blackboard Collaborate*
4. *Online games and study modules*
5. *Other Blackboard testing features*

During 2012 and 2013, data primarily focused on student survey responses regarding the use of the tools listed. Comparative grades distributions were also used in the analysis. This research seeks to determine the feasibility of implementing blended or hybrid style courses within business school programs based on student satisfaction and performance. Results indicated that technology enhancements when applied in the appropriate course content positively impact student learning outcomes and objectives.

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Key words: *accounting, blended, learning outcomes, technology, Collaborate, Pollanywhere*

INTRODUCTION

According to International Federation of Accountants (IFAC) International Education Guideline No. 11, Information Technology in the Accounting Curriculum) technology needs to be a key component in the accounting curriculum (International Federation of Accountants, 1996). Based on International Education Guideline No. 11, the American Institute of Certified Public Accountants (AICPA) created a task force and established strategies for ways that accounting faculty can implement technology into the course work. The (AICPA) also has three classifications of competencies: broad business perspective competencies, personal competencies and functional competencies. The AICPA's competencies relate to the attitudes and behaviors of individuals preparing to enter the accounting profession; all three classifications include a technology component (International Federation of Accountants, 1996). The result of this new

emphasis is a paradigm shift in the way accounting classes are taught, from the traditional lecture format to one that incorporates technology. The Accounting Education Change Commission also issued pronouncements encouraging universities to involve the students more in the learning process. In essence these pronouncements emphasize that

1. The student should be an active participant in the learning process
2. The student should be taught to identify and solve unstructured problems that require use of multiple information sources
3. The student should learn by doing
4. The student should learn to work in groups
5. The student should be taught the creative use of technology (Saunders & Christopher, September, 2003)

While the majority of the research on the use of technology is in introductory accounting classes, this study will incorporate the impact of technology used in a variety of accounting classes, including both undergraduate and graduate accounting classes. This study will utilize a mix–methodology approach to evaluate the student's perceptions and academic performance over a two-year period due to the incorporation of technology into selected accounting courses. The literature review includes three sections:

1. Student engagement,
2. Guidance for accounting educators and
3. Computer-based learning in accounting classes. The methodology and data analysis will be presented along with the limitations of the study, recommendations and future research proposals for the continuation of this project.

LITERATURE

Student Engagement

According to Liu and Fey (Fall 2013), student motivation is enhanced by the use of active learning techniques such as the incorporation of technology. Zeidan and Reed (Fall 2013) also concur that active learning techniques, particularly in accounting courses, provide students an enhanced opportunity for learning and enables the accounting student to have a better sense of the actual work of accountants. In the book entitled Generation IY, the acronym EPIC is used to describe the best way to engage students. The E represents experiential. Dr. Elmore states that lectures alone to not engage or motivate students; he emphasizes that classes must include the other senses. The P stands for participatory; today's students are more engaged when they are actively participating in the learning process. I stand for Image-Rich. Today's students are a visually oriented generation. In order to fully engage the student, the professor should incorporate technology such as videos, cell phone technology, and the Internet. The C stands for Connected. The current generation of students is more connected socially and technologically. According to Dr. Elmore, today's student prefers the use of technology, and if today's professor is going to be relevant, utilizing technology in the classroom is a must (Elmore, 2010).

Guidance for Accounting Educators for Implementing Technology in the Course Room

According to Bryant and Hunton (Feburary 2000), there are six guidelines for accounting faculty to follow for implementing technology into accounting courses.

Guideline #1: For learning to be most effective, students should be both cognitively and physically engaged in the task. Computer-Based Learning (CBL) and distance learning are methods that require significant interaction between the user and the medium. As such, they represent good tools for actively engaging the learner.

Guideline #2: Students should know what the objectives of the CBL assignment are, and they should be able to determine whether they met those objectives.

Guideline #3: Feedback should be given to students to monitor their progress and reinforce positive behavior. Feedback type and timing are issues for instructors to consider when using CBL.

Guideline #4: Individual characteristics of the learner should be taken into account in instructional design.

Guideline #5: Tasks using CBL should be organized from simple to complex. Students can learn effectively when they build on small successes and progress from the known to the unknown, the concrete to the abstract.

Guideline #6: Where possible, learners should progress through the lesson at their own pace.

In addition to the above guidelines, the author states that accounting educators need to become competent themselves in the use of technology in the classroom, and need to determine which technology is appropriate for a given class or assignment.

The education committee of the AICPA created strategies, issued a challenge for accounting educators and developed issues for accounting educators to consider (American Institute of Certified Public Accountants, n.d.). The table below summarizes the strategies, challenge and issues.

AICPA Technology Issues and Challenge	AICPA Strategy Suggestion
Acknowledge technology resources are always changing	Accounting Professors must teach students that it is their responsibility, as accounting professionals, to improve their understanding of technology and to remain informed about IT resources throughout their careers. Students should learn that technology, when improperly managed, is a risk or problem, rather than a useful resource.
Students should be made aware that IT personal productivity skills are essential for today's professional.	Accounting Professors should ensure that students are proficient in using tools such as spreadsheets, word processors, presentation graphics, databases, etc., to enhance personal efficiency and effectiveness
Students should be encouraged to study IT from the perspective of its usefulness, application, and impact.	Focus student attention on harnessing the power and use of IT - rather than focusing on technology as an end in itself. It is important to emphasize how technology affects organizations, and how the use of technology can help accounting professionals produce and deliver more valuable information
Challenge to Accounting Faculty.	Accounting faculty should not treat technology and accounting as two separate and disjointed disciplines, technology should be integrated into the accounting courses
Participation of all accounting faculty.	If change is to occur in an accounting program, faculty must be actively involved
Proper technical support.	Technical support includes both computer hardware and software as well as resources for technical assistance. It is important that there be adequate hardware and software to incorporate technology issues in

	the curriculum
Faculty will require training in IT areas and skills	Computer hardware and software and the needed technical support and training demands require substantial financial resources as well as a great deal of devoted time and attention.
Accounting faculty should have accountability and outcome assessment.	Technology changes must be evaluated and actual outcomes measured against desired outcomes.

In addition to the guidelines, the AICPA also created sample teaching strategies and classroom techniques that may be used to teach technical content in accounting courses. These strategies also address one or more of the core competencies or elements of core competencies. There are three strategies that incorporate the use of technology: (1) the enhanced lecture, which incorporates active elements such as the inclusion of computer-based learning activities, (2) technology—Visual and Computer-Based instruction and technology and (3) course delivery, such as offering a portion of the course in an online or hybrid format (American Institute of Certified Public Accountants, n.d.).

Computer-Assisted Learning in Accounting Classes

There is debate as to whether technology should be included in accounting coursework curriculum or whether technology should be taught separately by IT faculty. A study performed by Shamsi S. Bawaneh in June 2011, concluded that there was evidence that using computer technology in teaching management accounting course improves students' performance in the final examination relative to both the performance in the mid-semester examination and the grade in the introductory accounting course (Bawaneh, June 2011).

According to another study that compared the effectiveness of computer-assisted learning to just the traditional face to face lecture, there are several advantages and disadvantages to utilizing computer assisted technology in accounting courses (Halabi, et al., 2010). Some of the advantages include better student absorption and retention, and a better level of learning (than that achieved through conventional methods alone). Computer-assisted learning also includes less instructor time per student because of student engagement in the computer-assisted activity. Computer-assisted learning is considered to be more interesting and stimulating than other methods of instruction, and is an easy way to learn. Computer-assisted learning material is generally easy to use because it breaks information and skills into small packages allowing students to learn in achievable stages. Computer-assisted learning encourages students to be independent and active learners thus promoting lifelong learning skills and capabilities. Computer-assisted learning allows students to proceed at their own pace and gives them flexibility to choose when they study. Finally, computer-assisted learning enables students to gain immediate feedback on their performance and immediate responses to both correct and incorrect procedures.

The study also noted disadvantages of utilizing computer-assisted learning in accounting courses. The first is the cost and time constraints to develop and implement computer based learning modules. Another disadvantage is that increased reliance on computers may mean that this form of learning dominates teaching instead of being used as a supportive tool. This could also potentially lead to a loss of direct contact between teachers and students. The last disadvantage mentioned is that unlike teachers in a live classroom, computers may be unable to answer learners' questions immediately. However, accounting-based research has shown that CBL feedback can be tailored to individual responses through artificial intelligence.

METHODOLOGY AND RESULTS

The initial two-year longitudinal study was based on undergraduate and graduate accounting student surveys collected from August 2012 through May 2013. The study was approved by the Institutional Review Board in 2012 and renewed in 2016. The following computer-based learning tools were used and studied:

1. MyAccountingLab (Pearson Publishing)
2. Blackboard Collaborate
3. Blackboard Assessment Tools

Student satisfaction was measured using a five-point Likert survey and a series of open-ended questions to establish core themes. Sample questions as well as student comments from the survey are included in the discussion of results below. In addition, the study includes comparative grades for multiple sections of a single course, each of which used differing technology teaching methods.

My Accounting Lab Results

Initial efforts to increase technology in accounting courses primarily focused on Computer Based Learning (CBL) utilizing publisher provided e-texts and online homework labs. Pearson's MyAccountingLab specifically was used in both the undergraduate managerial accounting and auditing courses for this study. MyAccountingLab (MAL) offers several features that may potentially increase student learning and comprehension. Homework modules allow participants to complete assignments at home with access to the e-book version of the text. These tools allow students to complete small sections of instruction at their own pace, a key characteristic described by Halabi (Halabi, et al., 2010). Two of the available tools for completing assignments within MAL are "Help Me Solve This" and "Ask My Professor".

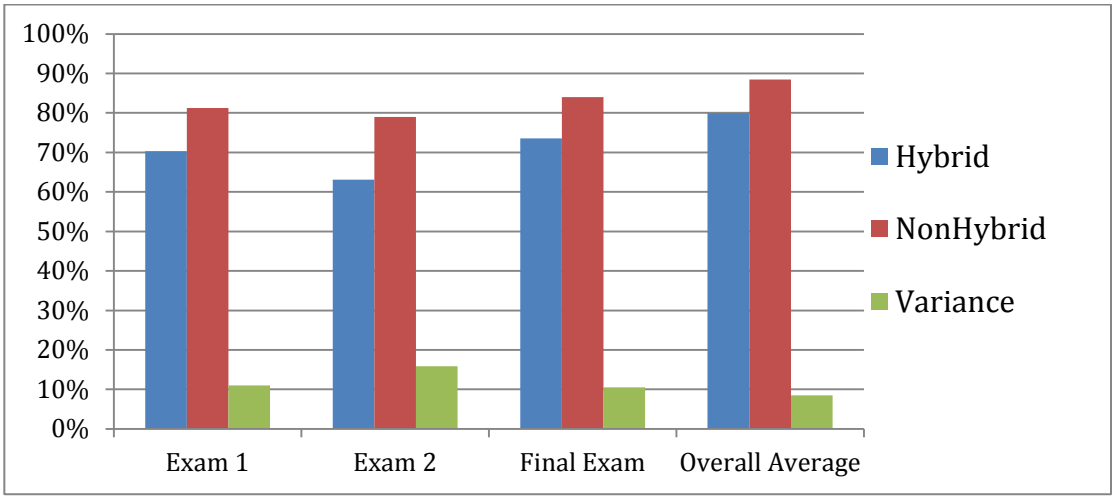
1. "Help Me Solve This" –Students can select this option while completing a homework questions, and will be given a second, similar example problem that has been completed with step-by-step instructions.
2. "Ask My Professor" – When selected, an email message is automatically sent to the instructor noting which problem the student is working and what work or calculations had already been completed. Instructors can then quickly identify where the student might have a problem with a calculation or question and reply with more specific guidance and instruction.

During the fall semester of 2012, there were two separate sections of managerial accounting; one section was set as a traditional face-to-face course, and the second section was labeled a "hybrid" course. There were approximately 100 students in the combined groups and both sections of the course required the use of MAL for completing homework assignments. The traditional section met for live lecture twice a week and completed all homework assignments independently while the hybrid section only met for live lecture once a week. Hybrid students were expected to use the second assigned day of class each week for independent study with the MAL features and tools. Both sections of the course were team taught by the same two professors and all material and exams were identical for both groups.

Grades were compared after each exam between sections to identify any discrepancies that may have resulted from the instructional method. As illustrated in Figure 1, grades for the

traditional section were 10-15% higher than the hybrid section for the first and second exam. In an effort to increase exam performance and content comprehension after the second exam, the hybrid section of the course was revised. The second day of class each week was re-designated as a "lab day". Students had the option of attending lab sessions, where instructors were available to work examples and help students with completion of the MAL homework assignments. The grade variance between the traditional and hybrid sections dropped below 10% for the final exam and overall average once the optional lab days were implemented. (Figure 1)

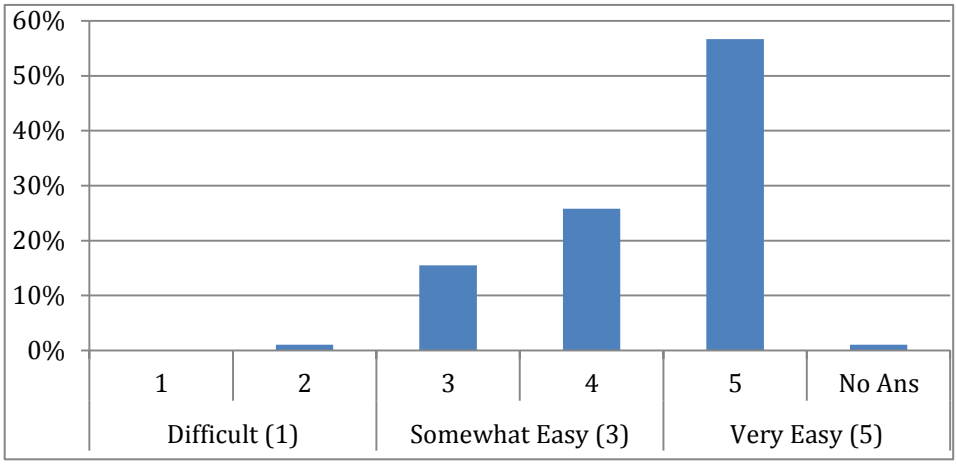
Figure 1
EXAM GRADE DISTRIBUTIONS- MANAGERIAL ACCOUNTING (FALL 2012)



Subsequent to the fall semester of 2012, all managerial courses were revised to a traditional format with online MAL homework assignments. A senior-level auditing course also started using MAL as part of the study in the spring semester of 2013. Auditing homework was primarily theoretical in content and therefore, MAL did not include the "Help Me Solve This" feature. However, all other MAL functionality was similar to that of the managerial courses.

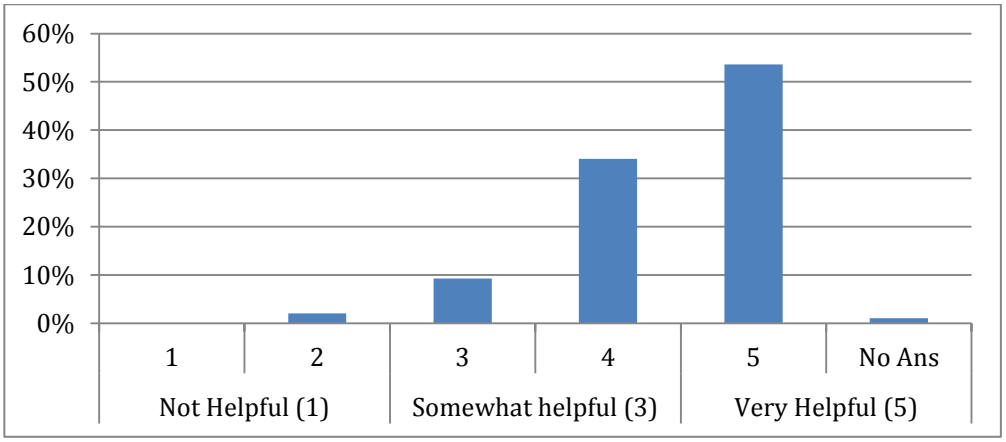
Combined 2013 survey results included 46 auditing students and 51 managerial accounting students using MAL to complete homework assignments. Figure 2 illustrates student perception of the ease of use in regards to MAL. The majority of students (75%) indicated that MAL was either "easy" or "very easy" to use while completing homework. A common theme of the open-ended questions was that the input format required by MAL made it difficult at times to get answers correct. One student commented, "The biggest challenge was how picky the program is on replies for the problems. For example, 3.7 vs. 3.69 or 3.70 vs. 3.7."

Figure 2
"ON A SCALE OF 1-5 HOW EASY WAS MYACCOUNTINGLAB TO USE ON HOMEWORK?"



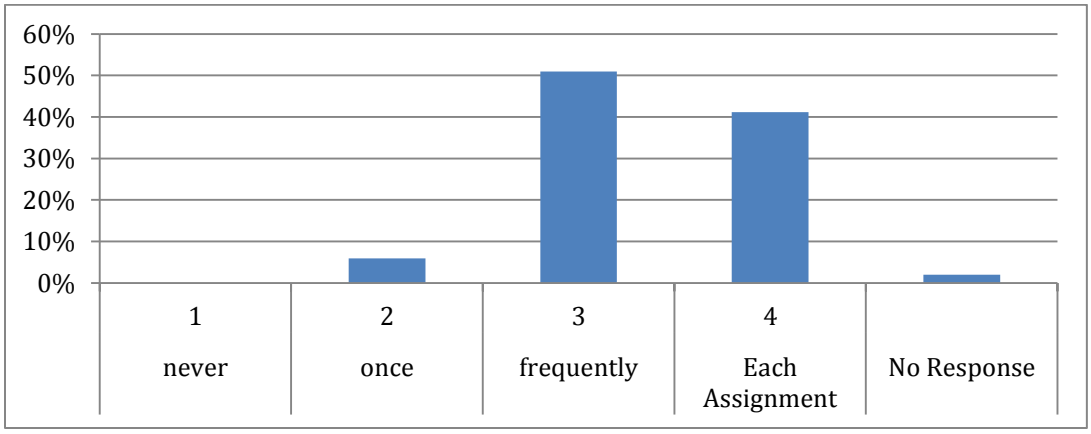
In addition, students were asked how helpful MAL homework was in reinforcing knowledge of content taught in class. Figure 3 illustrates that 53% of respondents indicated MAL was "very helpful" in reinforcing knowledge of material covered in class. One student replied, "The immediate response to submitted answers showed where I needed to focus."

Figure 3
"ON A SCALE OF 1-5 HOW HELPFUL WAS MAL HOMEWORK IN REINFORCING YOUR KNOWLEDGE OF THE MATERIAL TAUGHT IN CLASS?"



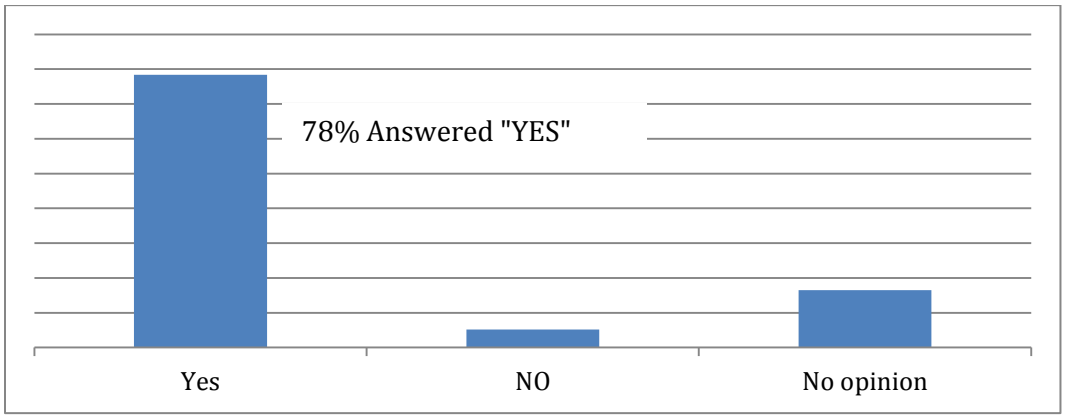
Only students in the managerial accounting course were surveyed regarding the effectiveness of the "Help Me Solve This" tool. Figure 4 shows that more than 90% of students surveyed reported using the tool frequently or on every assignment. Of those same students, 100% commented that they also found the tool helpful while completing those assignments. For example, one student replied, "MAL was a very beneficial system to use, especially the Help Me Solve This tool because it walked me through the problem step-by-step."

Figure 4
"HOW FREQUENTLY DID YOU UTILIZE THE "HELP ME SOLVE THIS" FEATURE WHILE DOING MAL ASSIGNMENTS?"



In addition, students were asked if overall, they enjoyed using MAL on assignments and a strong majority commented in a positive manner (Figure 5). One student replied, "I enjoyed the assignments, learned from it, and got great practice questions from it." A second student stated, "I would have enjoyed using MAL in all my courses. It is much easier to keep track of assignments and due dates."

Figure 5
"OVERALL, DID YOU ENJOY USING MAL ON ASSIGNMENTS?"



Blackboard Collaborate Results

Blackboard Collaborate is an online tool used to record and distribute lecture content to students in place of or in conjunction with live lectures. In a blended style course, these tools can be used to supplement in-class lectures and course material. Blackboard Collaborate is primarily intended as a collaborative tool in the classroom so that instructors and students can "meet" virtually in place of live lectures. Collaborate also allows the instructor to record a full lecture including audio, visual, PowerPoint, and Excel examples for students to watch at a later date. Students hear the content delivery and can watch the instructor move through slides and work examples in Excel.

Collaborate was first implemented as a computer-based learning tool for this study in a graduate level advanced accounting course during the fall of 2012. Students enrolled in the course typically attend weekly four-hour live classes over an eight-week period. The first lecture of the semester was recorded and posted using Collaborate in place of a traditional live class. Content of the session included course information, introductory material and examples. Based on positive student feedback after the first recorded session, it was decided to continue recording and posting each week's lecture on Blackboard. Although, the class continued to meet in a live format after week one, students were encouraged to use the Collaborate sessions to re-watch portions of the lecture and/or examples. Students that had to miss a week of class due to a work conflict reported watching the recordings to stay up-to-date with course content.

Based on a scale of 1-5, ranging from "Ineffective" to "Very Effective", 40% of students surveyed at the end of the 2012 fall semester indicated that the first Collaborate session was "Effective" in place of a live class. The remaining 60% found the recorded session "Very Effective". All lectures for the advanced accounting course were recorded and posted in subsequent semesters. Cumulative results from the 2012 and 2013 surveys indicated that 80% of respondents used Collaborate sessions throughout the semester to reinforce concepts taught in class. One hundred percent said that the Excel examples recorded in Collaborate were "Effective" in explaining calculations. Figure 6 includes some of the comments noted on open-ended questions pertaining to Blackboard Collaborate.

Figure 6

Question: Was the Blackboard Collaborate session effective *in place of live lectures*?
"Not as effective as live lectures, but useful for reinforcement."
"Yes or more so because of the ability to stop or rewind the lecture."
Question: What was your favorite aspect of using Blackboard Collaborate?
"Being able to "be" in class while I was traveling."
"I loved having the material reinforced. It was a breath of fresh air to see an instructor not withhold their lecture from students."
One international student replied that Collaborate sessions "helped the homework process being an international student with a language barrier."

Blackboard Assessment Tools Results

In addition to the Collaborate function, online testing features through Blackboard were implemented in the advanced accounting graduate level course as part of this study. Blackboard testing features were utilized for both weekly quizzes as an embedded assessment tool and for the course midterm. After each week's lecture, students were given a three-day period to complete an online quiz through the Blackboard portal. Quizzes were timed at one hour and only included material that had been previously covered in class. The quiz format forced students to revisit new material within a short period after the initial introduction in an effort to increase retention. Students received a score at the end of the quiz, but were not given correct answers or solutions until the quiz-testing period was complete for everyone enrolled in the course. Quiz solutions were then posted online so that students could assess how well they understood material before they completed the required homework assignments for the next lecture.

Using technology as an embedded course assessment tool outside of the live class lectures enabled students to extend the learning process over several days as opposed to only

visiting material once during a given week. Students were surveyed through open-ended questions to determine if this practice was effective in aiding comprehensive of advanced topics. (Figure 7) Several students commented that although it increased the overall amount of work in the course, the multiple points of contact with material over the course of the week increased their understanding of the material. These findings support Bryant and Hunton's guidelines #3 and #6 (Bryant & Hunton, 2000), which suggest that timely feedback and a self guided pace are important characteristics of a computer-based learning tool.

The Blackboard assignment tool was also used to deliver a portion of the midterm exam to students each semester. Like weekly quizzes, students were allowed a window of time in which to complete their online exam. Test parameters were set to force completion once started and a time limit of 75 minutes was imposed for the exam. By moving the midterm exam to an online format as opposed to an in-class exam, an entire week of lecture time could be dedicated to instruction as opposed to testing. This increased the amount of time students spent face to face with the instructor and ultimately allowed more material to be covered over the eight-week period. (Two of the students that did not prefer an online midterm format had experienced technical computer problems that disrupted the online test.)

Figure 7
BLACKBOARD COLLABORATE: OPEN-ENDED RESPONSE QUESTIONS

Did Blackboard quizzes help reinforce concepts taught in class?	*100% said yes*
Did you like having a portion of the midterm exam online?	*85% said yes*

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Despite the positive comments and survey responses noted, there were some limitations to the study that should be considered in future research. First, the survey questions did not cover all technology tools used in the courses. For example, online games and polling techniques were also utilized for class instruction. These additional tools may have affected student performance and overall perception of the course. In addition, surveys did not include additional demographic information (gender, major, grade level classification, etc.) to determine additional trends with responses. Finally, the functionality of the CBL tools themselves may have influenced student responses. For example, students that experienced technical issues when inputting answers or completing online exams were less likely to perceive the technology as an effective tool in the learning process.

Based on the results of the study, the researchers would like to conduct future research in several areas. The first area would be a quantitative analysis study to assess the potential effects of these technological tools on student academic performance. The second area of future research would be an expansion of the above study. The expanded study would include testing student perception on all technological tools used in the classroom such as Pollanywhere, games, Kaltura and Collaborate. The researchers would like the testing to include an expanded use of blackboard tools in the undergraduate classes. In addition, researchers would like to explore if additional training in the use of technological delivery tools improves student performance and the perceived effectiveness of such tools. In 2015, researchers attended Quality Matters training for the development of hybrid and online courses. Such tools will be implemented in the course structure of an online undergraduate managerial accounting course offered in summer of 2016. Finally, future research would evaluate employer perception as to whether or not incorporation

of all these technological tools produces accounting students that meet the AICPA's core competency of technology.

Many recommendations for course improvement that may be useful to other accounting professors and administrators while developing online and/or hybrid courses arise from this research. First, great consideration should be taken in determining which courses are appropriate to offer in a Computer Based Learning format. This includes both an evaluation of student readiness as well as faculty training and support. Instructor training in the use of CBL tools, such as the Quality Matters course noted above, may be instrumental in developing a more effective course. Furthermore, care should be taken to create streamlined courses with consistent requirements and due dates in order to decrease the likelihood students "lose track" of assignments. In response to criticism related to cost, the researchers recommend accounting faculty initially use tools and services that are either free or low cost to students. Examples includes Blackboard tools embedded in the course itself, Pollanywhere or similar online tools that can be used for smaller groups at no cost and publisher software that may be purchased bundled with textbooks. Many publishers offer reduced rates on additional software when students purchase e-text that work directly with the software. Finally, accounting faculty should continue to focus on developing personal relationships and contact with students when using technology enhanced courses. Faculty can create this "contact" through discussion boards, emails and announcements presented in Blackboard. Faculty should consider sending out instructor introductions at the start of a semester and continue personal communication with students on a regular basis throughout the course. This can be accomplished through regular announcement postings or the use of discussion boards. In hybrid courses, particular attention should be given to live-lecture class times when students have direct access to faculty for questions and clarification.

RESEARCH QUESTION AND CONCLUSION

As the literature review suggests, accounting students are expected to enter the workforce with a set of core competencies related to the use of technology and accounting knowledge. This research seeks to identify if students perceive added value from computer based learning methods in the classroom, and what types of specific tools might be best based on student outcomes and survey results.

The results shown above indicate that a traditionally taught live lecture format may increase comprehension and yield better academic performance than a hybrid section of the same course. It is relevant to note that the managerial course in this example was primarily a freshman/sophomore level course. There is a potential indication that the level of the course may affect the outcome. While upper class and graduate students may fare better with self-instruction, the question arises as to whether freshman and sophomore level students are academically mature enough to excel in a hybrid course format. As noted in Guideline #4 (Bryant & Hunton, 2000), student characteristics should be taken into account in order for computer based learning to be an effective means of instruction.

Some core themes in complaints of the CBL tools studied were

1. The additional cost of the MAL tool
2. Technical problems with tools including input errors with MAL
3. Remembering to complete assignments on time. From the instructor's point of view, the time and potential cost of creating course material needs to be considered. While cost and time constraints

may have been true in the past, many publishers have now created the computer based learning modules to accompany the textbook.

As noted in the literature review, one common complaint of CBL tools is that they may lead to loss of direct contact with a professor. When asked if they enjoyed using MAL, one student replied, "No, it takes away from the personal side of class." This indicates that in some cases, an online learning tool may not meet the needs of all students. However, as shown in the results, the majority of students concur that computer-based learning tools can be an effective means of supplementing course content.

The results from this study support the literature review and indicate that although there are some challenges with using computer-based learning methods, overall, students perceive them as effective means for increasing comprehension of accounting topics.When the appropriate tools are used in a classroom with proper consideration given to the characteristics of students, technology can offer an enhanced opportunity for learning and help develop key core competencies.

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THE EFFECTS OF AN INSTITUTIONAL UNIFICATION WITHIN A COLLEGE OF BUSINESS

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Lori Feldman, Purdue University Northwest
Susan Conners, Purdue University Northwest

ABSTRACT

This paper explores the impact of a merger of two regional campuses in a statewide university system on its students, faculty, administrative, and professional support staff. Specifically, it looks at stakeholder impacts of the merger of the two Colleges of Business on these regional campuses into one entity.

The first year of a two year study has been completed and the paper reports the results of the first year's study. This first year study is the pre-merger survey of attitudes and issues regarding the merger. The post-merger survey will be completed at the start of next year for comparison purposes. The research is ongoing and will be fully completed next year. The results in this paper are the pre-merger survey of the stakeholder groups.

INTRODUCTION

Mergers or unifications are the formal union of two or more organizations into a single organization usually designed to deliver a more effective operation to meet external challenges and opportunities. (Harmon and Harmon, 2008). Corporate and higher education mergers are similar. In the case of higher education, strategic mergers are described as strategies of 'merging colleges for mutual growth' (Martin and Samels, 1994; Harman and Harman, 2008). Unifications and mergers have become a familiar alternative for the survival of higher education institutions with recent funding cutbacks and rising competition. Merging and closing smaller campuses are methods being employed by university systems, as the competition for resources becomes more challenging. In the era of global competition, merged institutions can be more efficient and economical but this is not guaranteed, and complications such as the loss of jobs and merging existing institutional cultures must be considered in the merger (Portnoi & Bagley, 2015).

The opportunity to examine the effect on stakeholders in a requisite merger is the topic of this paper. The subjects are two regional campuses in a Midwestern state university system specifically the merger of the two Colleges of Business. The institutions are both teaching undergraduate and graduate business programs. The Colleges of Business are both accredited but by different accrediting bodies.

While inside the same university system, there are significant differences in the culture and size of the two institutions. One is a large urban campus with approximately 9,000 students serving a very diverse student body that includes a significant international student population. The other is a smaller campus of approximately 3,000 students in a rural setting with less diversity in the student body.

The decision to merge these two institutions has generated substantial concerns and some resistance among the stakeholders. These institutions have existed separately for decades despite their close proximity of 30 miles in the region. The differences in size and location have created two very different campus cultures. The colleges approach course scheduling and curriculum

from different perspectives and each campus has developed their own student clubs and athletics system. There are many challenges in trying to unify them into one new institution. Each College of Business has its own Dean and faculty structures with similar but not identical policy and procedures for academic matters. The plan to merge them has presented a unique opportunity to examine thoughts and concerns pre and post-merger and examine what thoughts and attitudes change over the two year time period for the merger. This paper reports the results from the first year pre-merger survey.

RESEARCH QUESTION

This study poses a research question regarding the merger with four hypotheses for evaluation. The stakeholders defined as the population for the study are students, faculty, staff, and administrators in College of Business at both campuses. Mergers can produce the touted cost reduction and efficiencies; mergers can alternatively create significant governance problems due to differing academic cultures, and conflicting models of faculty rights or rules of progression for rank, and seniority which can bog down a merger process (Martin & Samels, 2002).

The research question resulting from the merger described in the introduction is "Are there positive impacts from the merger of two regional campuses Colleges of Business on their stakeholders?" The four hypotheses from this question tested in the study are:

H1 *The merger will have a positive effect on administrators in the College of Business.*
H2 *The merger will have a positive effect on professional staff in the College of Business.*
H3 *The merger will have a positive effect on faculty in the College of Business.*
H4 *The merger will have a positive effect on students in the College of Business.*

This opportunity, at the start of a merger process, allows the research to study multiple stakeholder groups at both institutions over a two year period of time. The four hypotheses allow for different reactions in the respective stakeholder groups.

The administrative stakeholder group is defined as all academic administrators in the two respective Colleges of Business. This group includes deans, associate deans, and department heads. The professional staff is defined as administrative support personnel and included academic advisors, lab managers, administrative assistants, and placement staff. The faculty group was defined as full time faculty including tenured, tenure track, and full time lecturers. For the purposes of this study adjunct faculty were excluded. The student group included all registered students, both undergraduate and graduate, coded with College of Business majors.

The four hypotheses are directly related to the four stakeholder groups and determining their outlook on the merger. The following section describes the research design and methods.

METHODOLOGY

The research design is for a two-year study of pre-merger and post-merger opinions of stakeholder groups on the merger of these two Colleges of Business. The study uses surveys designed to measure core issues and issues specific to each stakeholder group. The institutional review board for the university system reviewed and approved the research design and methods.

Four different surveys were developed - one for each of the stakeholder groups. There are 20 core questions that were included in the survey for each group and 10 questions in each survey that were specific only to that stakeholder group. The surveys were administered via

Qualtrics. Each group was sent a link to access their survey. The surveys were open from January 15 to March 1, 2016. This year's survey was the pre-merger survey. The surveys will be repeated in the same time period after the merger to measure what attitudinal changes occur in each group. The questions in the survey did not ask for any identifying information. The responses were completely anonymous and kept confidential. The sample size of stakeholders at both campuses surveyed was 7 administrators, 13 professional staff, 50 faculty, and 1959 students. Response rates for each stakeholder group were 71.4%, 53.8%, 40%, and 11.6% respectively.

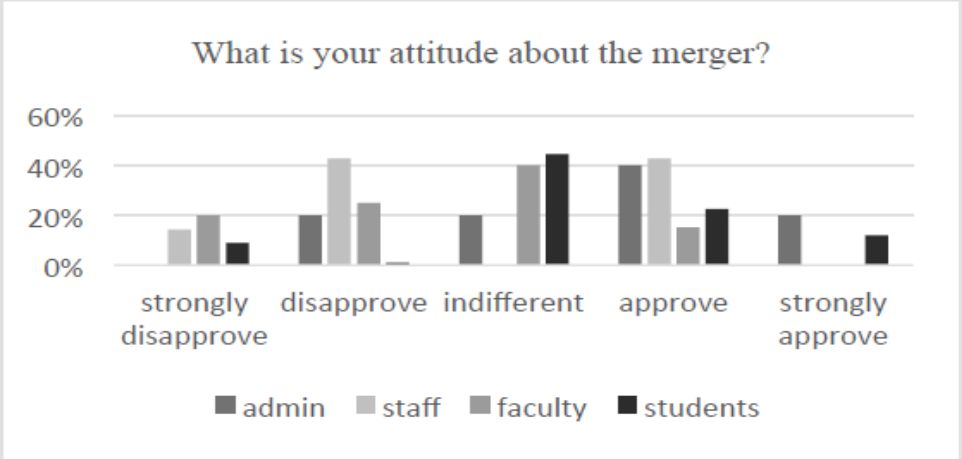
RESULTS

The results reported in this paper are from the first year pre-merger survey completed in January and February 2016. The results reported for the core questions are displayed in graphs in Figure 1 through 18 and exhibit a comparison of each group's answers to that core question. The specific unique second set of questions and responses for each stakeholder group are reported separately in Tables 1-4. In the responses to core questions, questions 13 and 14 results have been omitted as these questions had open ended responses. There are numerous responses to those questions that are still being compiled at this time.

The results of core questions for the four stakeholder groups are illustrated in the Figure 1-18 graphs. The core questions are intended to provide an overview of attitudes toward the merger across all groups while the individual stakeholder group questions provide insights to the unique perspectives of these groups. These questions are common issues to both campuses involved in the merger. In addition, there was one open ended question regarding what would you like to keep about the current status and one open ended question about what would you like to see changed. Respondents were able to compose any answer they desired to those questions. Those results are not reported in this paper.

The opening question in Figure 1 is an indication of their overall opinion about the idea of merger of these two campuses. There are varied opinions across all groups with the strongest approval coming from the students and administrators.

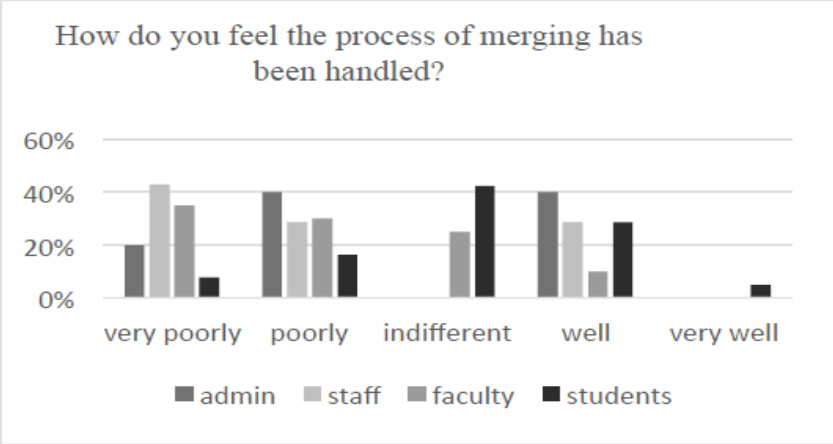
Figure 1



The remaining questions are more specific about the various aspects of the merger on these stake holder groups.

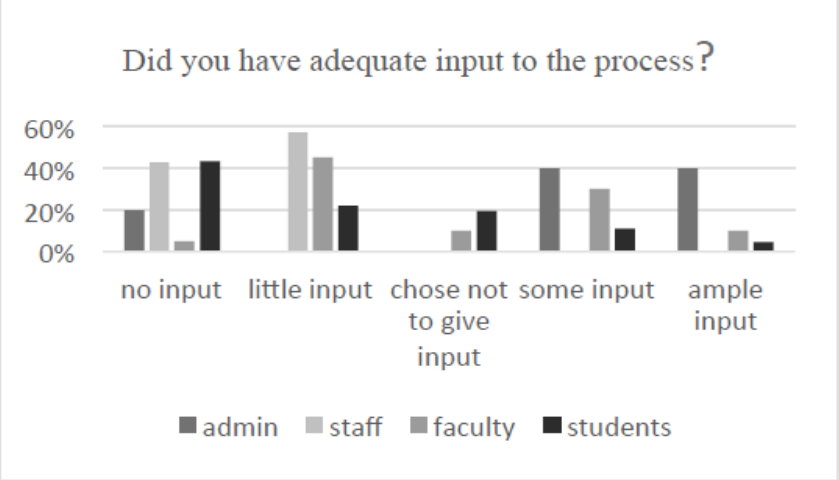
In Figure 2 the responses to the second question demonstrate a difference of opinion between the students and the employees on how the process has been handled.

Figure 2



It appears that the only group that felt they had adequate input to the process was the administrators. Figure 3 shows the perceived highest level of input from the administrators.

Figure 3



According to the survey, only the administrators and the students felt their input was seriously considered. Figure 4 indicates results partial to the negative side when asking these groups if their input was considered in the process.

All groups appear to believe strongly that the merger will change their environment. Figure 5 shows almost a unanimous positive response to that question.

Figure 4

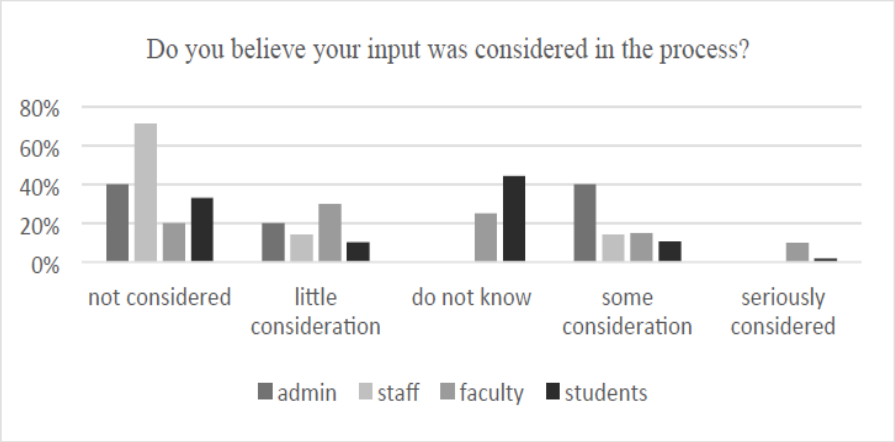
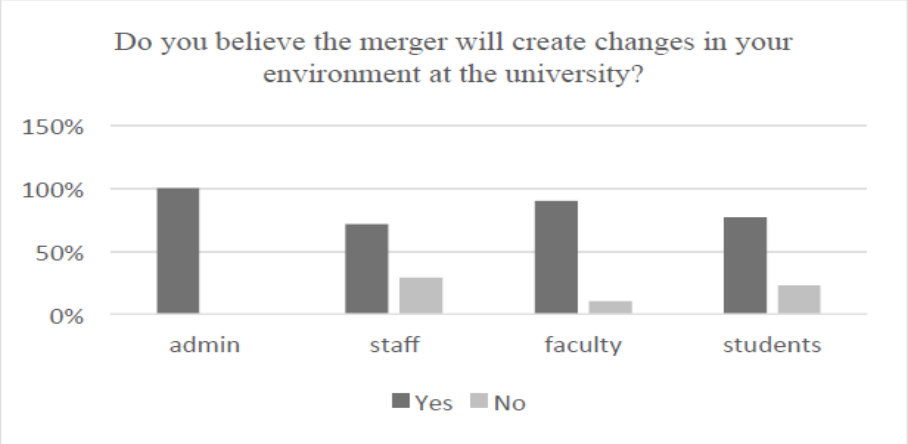
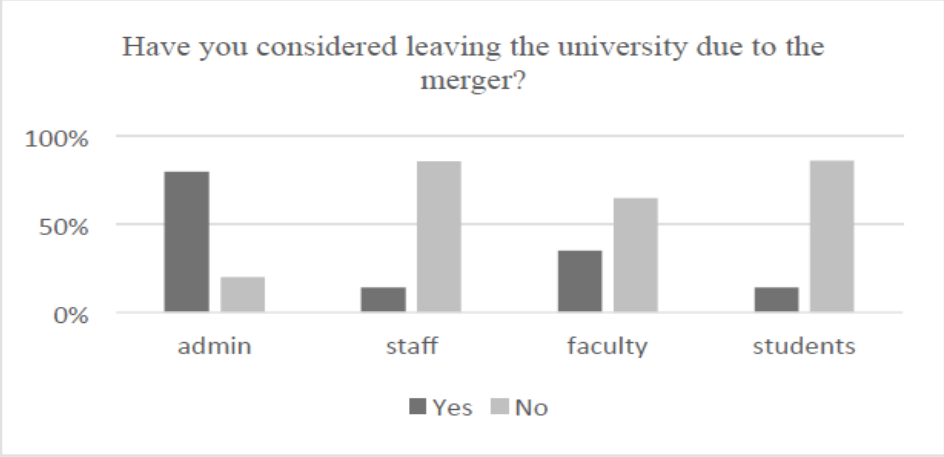


Figure 5



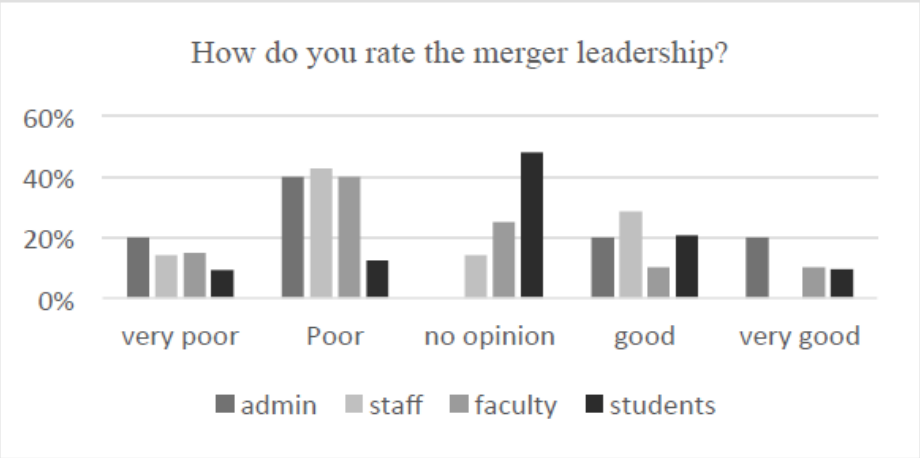
The anticipated reduction of administrative jobs is clearly indicated in Figure 6.

Figure 6



The responses on the merger leadership varied across the spectrum especially with the students. Figure 7 displays the results of rating the merger leadership.

Figure 7



On the question of value to the College of Business, Figure 8 indicates that all the groups except the faculty felt there would be positive value with the merger.

Figure 8

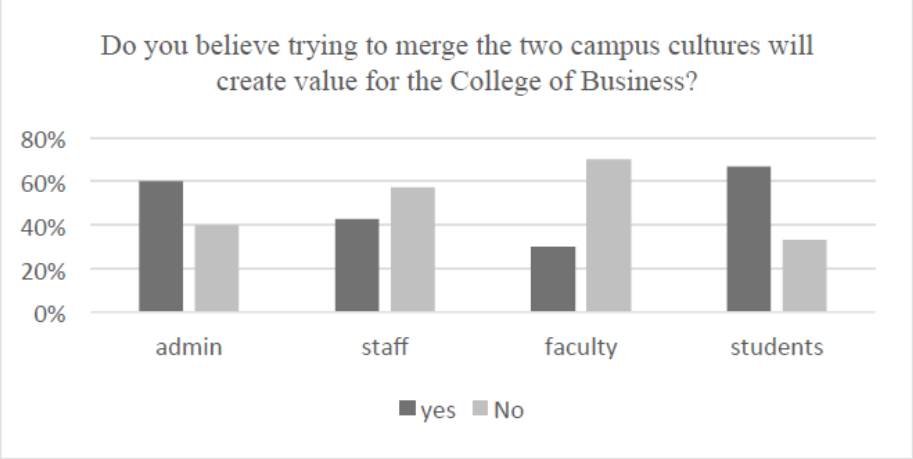
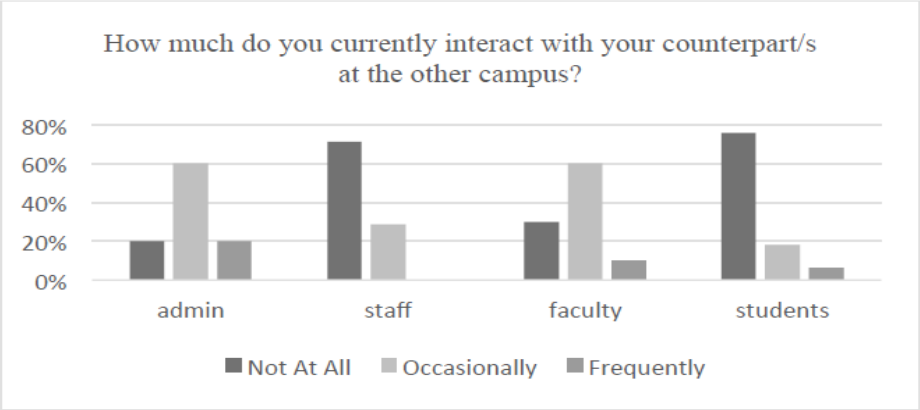


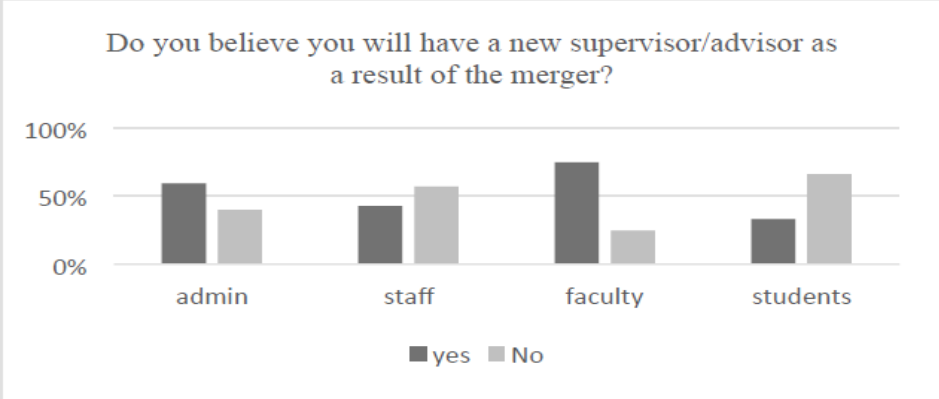
Figure 9 seems to indicate the campuses will need to create a method to integrate these groups that do not currently spend much time interacting.

Figure 9



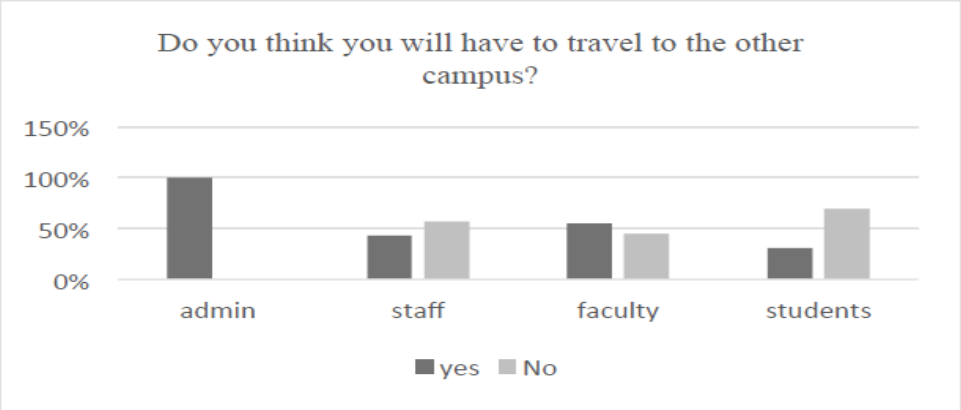
Faculty and staff groups expect to have a new supervisor post-merger in Figure 10, but staff member did not expect their supervisor to change.

Figure 10



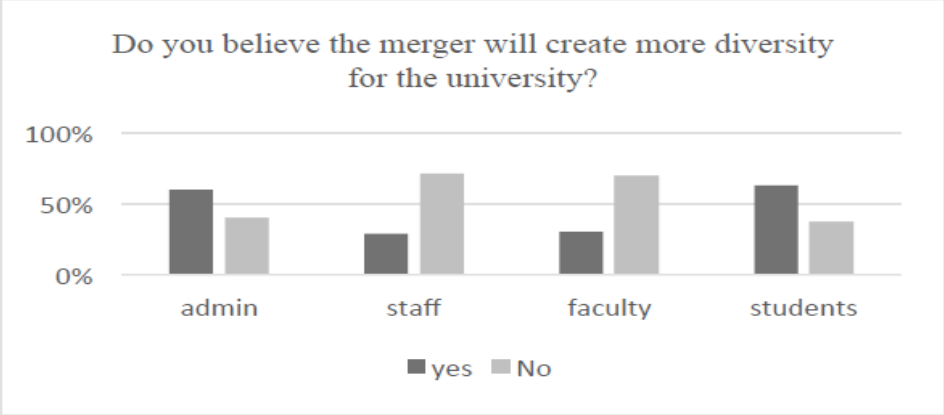
Only the administrators see travel as a merger issue effecting them. The administrators all understand travel between the campuses will now be required in their positions.

Figure 11



It is interesting to see that the students and the administrators think the merger will create more diversity but the staff and faculty do not believe that will be a result of the merger in Figure 12.

Figure 12



All groups seem to be evenly split on the question of implementation of the merger knowledge in Figure 13.

Figure 13

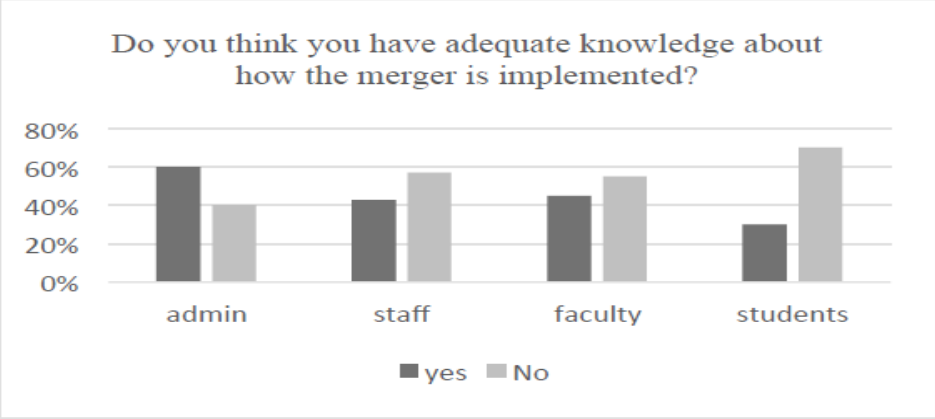
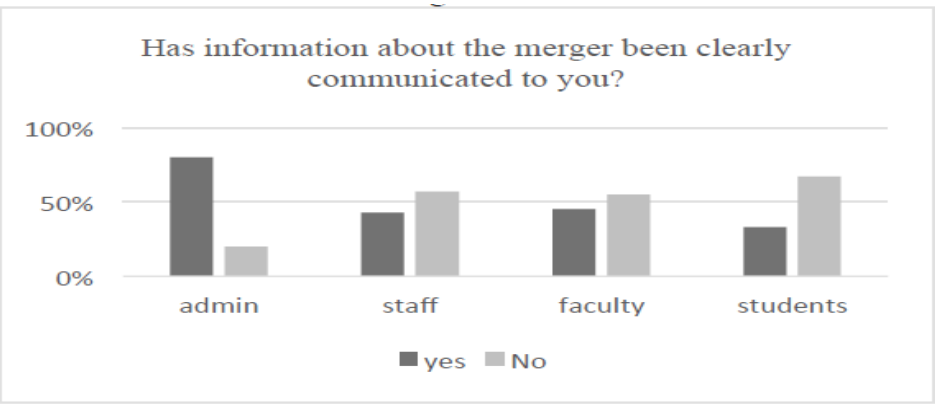


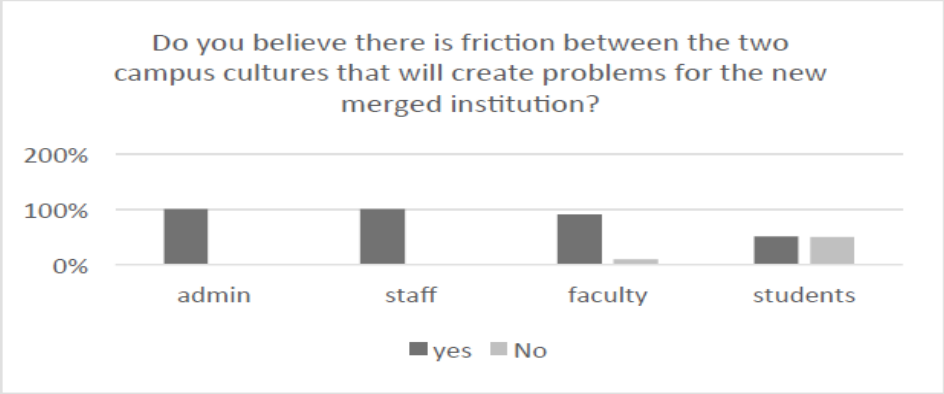
Figure 14 shows only the administrators feel adequately informed while the students feel least informed.

Figure 14



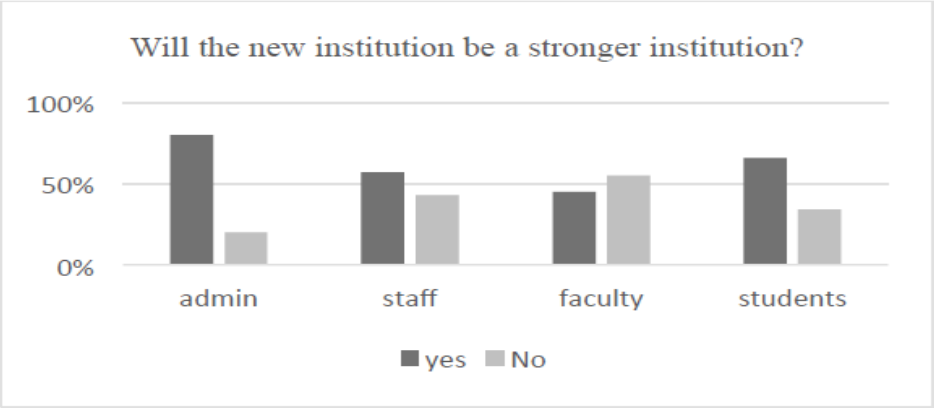
All groups feel strongly that there will be merger problems due to the friction between the two campuses. Figure 15 indicates staff, faculty, and administrators are expecting significant issues. The students are evenly split.

Figure 15



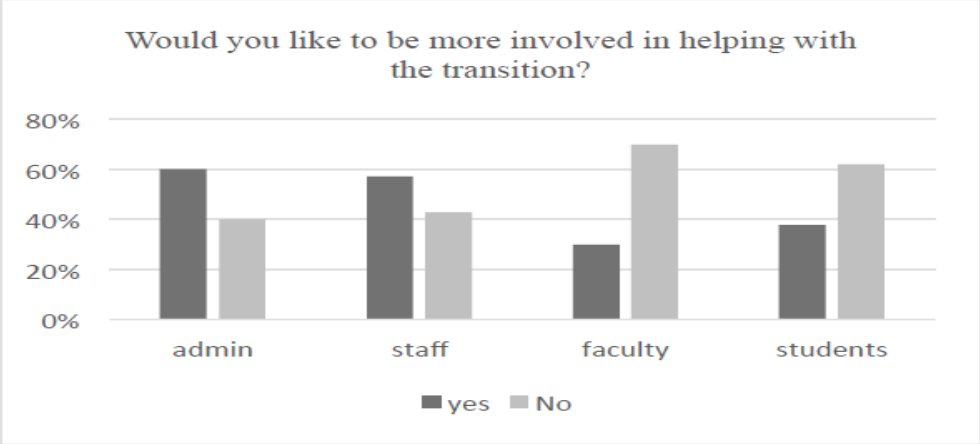
Despite the fact that all groups think there will be merger problems, in Figure 16 they believe the new merged institution will be stronger.

Figure 16



The faculty appears to be least interested in helping with the transition in Figure 17.

Figure 17



In Figure 18, only the administrators have a stronger indication they will not feel the same loyalty.

Figure 18

The graphs show the comparison data for the stakeholder groups to the core questions. In the following tables, the responses to unique stakeholder group questions are presented. These questions were developed for only that stakeholder group.

Table 1 shows the results for the administrative questions answered only by the College of Businesses administrators on both campuses. These ten questions were intended to gauge the concerns of managing units across both campuses as managers will have to oversee their units at both locations.

The question posed to administrators on equal weight in decision making for both campuses had an 80% negative response. When asked about changing administrative duties 80% believed they would change. There is an 80% positive response that the new College of Business structure will be beneficial. The responses to the other questions varied across the board from positive to negative in different degrees.

Table 1
ADMINISTRATIVE QUESTION RESULTS

	Not Confident	**Somewhat Confident**	**Hopeful**	**Confident**	**Very Confident**
1. How confident are you in your ability to manage across campuses	20%	20%	0%	40%	20%
2. How confident are you that the unification will not create silos?	20%	20%	60%	0%	0%
	Not Confident	**Somewhat Confident**	**Hopeful**	**Confident**	**Very Confident**
3. How confident are you about your role in creating one new culture for the new university?	40%	20%	0%	0%	40%
	Strongly Disagree	**Disagree**	**Neither Agree**	**Agree**	**Strongly Agree**
4. Do you think the combined budgets will benefit the College of Business?	20%	0%	40%	40%	0%
5. Do you believe there is equal weight in decision making given to both sites?	60%	20%	20%	0%	0%
	Weakening	**Somewhat Weakening**	**No Impact**	**Somewhat Strengthening**	**Strengthening**
6. Is the unification strengthening or weakening the quality of the academic programs?	20%	20%	20%	40%	0%
	Strongly Disagree	**Disagree**	**Neither Agree**	**Agree**	**Strongly Agree**
7. Do you believe the combined Colleges of Businesses will be able to better distribute staff resources?	20%	0%	20%	40%	20%
8. Do you believe the salary inequality issues are solved by the unification?	20%	0%	60%	0%	20%
;	**Yes**	**No**			
9. Do you believe the administrative duties are changing?	80%	20%			
	Strongly Disagree	**Disagree**	**Neither Agree**	**Agree**	**Strongly Agree**
10. Do you believe the new organizational structure best serves the College of Business?	20%	0%	0%	60%	20%

Table 2 presents the results from the professional staff unique survey questions. The staff in the College of Business are clerical, professional, and technical staff members and report directly to administrators.

The staff echoed the administrative response with 86% believing their job will change with the merger. However, 57% of the staff did not agree with the administrators and believe the new structure would not be beneficial. When asked about communication regarding the merger, the response from the staff was 71% indicating there was too little communication.

Table 2
PROFESSIONAL STAFF QUESTION RESULTS

	None	Little	Some	A Lot	
1. How confident are you in your ability to work within the new structure?	0%	14%	29%	57%	
2. How confident are you that the unification will provide proper representation for staff	0%	43%	43%	14%	
	None	**Little**	**Some**	**A Lot**	
3. How confident are you about your role in the new culture for the merged institution?	0%	57%	43%	0%	
	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
4. Do you think the combined staffs will benefit the College of Business?	0%	29%	43%	29%	0%
	Far too Little	**Too Little**	**About Right**	**Too Much**	**Far too Much**
5. Do you believe there is adequate communication about staff issues?	29%	71%	0%	0%	0%
	Much Weaker	**Weaker**	**No Change**	**Stronger**	**Much Stronger**
6. Is the unification strengthening or weakening the delivery of services to the College of Business?	0%	14%	71%	14%	0%
	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
7. Do you believe the combined Colleges of Businesses will be able to better distribute staff resources?	0%	43%	43%	14%	0%
	Much Worse	**Worse**	**About the Same**	**Better**	**Much Better**
8. Do you think the merger would be better if someone would just take charge and tell everyone what to do?	0%	71%	29%	0%	0%
	Yes	**No**			
9. Do you believe the staff duties are changing?	86%	14%			
10. Do you believe the new organizational structure best serves the College of Business?	43%	57%			

Table 3 reports the results for the unique faculty survey questions. The survey was sent to all tenure track ranked faculty and full time lecturers on both campuses.

The responses to two questions stood out on the faculty survey. The question on faculty moving to new departments has a 90% yes response. It appears many of them thought the new structure would require a lot of movement. In addition, 80% indicated they expected a loss of programs or degrees with the merger. The question on the path for tenure and promotion had 50% indicating it was now an unclear path.

Table 3
FACULTY QUESTION RESULTS

	Much Worse	**Worse**	**Somewhat Worse**	**About the Same**	**Better**
1. How do you rate your chances for advancement under new merger?	10%	10%	15%	60%	5%
	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
2. There will be more opportunities for professional development under new merger?	5%	45%	35%	15%	0%
3. The route to promotion and tenure under the new merger is clear.	20%	35%	40%	5%	0%
	Very unclear	**Unclear**	**unknown**	**Clear**	**Very Clear**
4. How clear is the mission, vision and goals for the new merged College of Business?	10%	35%	35%	20%	0%
	Very Bad	**Bad**	**Neither Good nor Bad**	**Good**	**Very Good**
5. Over the past 18 months of the unification process, what effect has it had on faculty classroom	10%	10%	80%	0%	0%
6. The unification will enhance faculty chances for scholarship.	15%	20%	45%	20%	0%
7. The unification process has had a positive effect on faculty relations across both campuses	10%	45%	35%	10%	0%
8. Do you think the merger would be better if someone would just take charge and tell everyone	15%	30%	25%	20%	10%
	Yes	**No**			
9. Is there a possibility that some faculty may be placed in other departments?	90%	10%			
10. Is there a possibility that either campus may lose degrees or programs?	80%	20%			

Table 4 contains the results from the student survey questions. This survey was sent to undergraduate and graduate students. This included full time and part time students on both campuses.

The students indicated that online courses and transferability of courses were important topics of concern. The students felt strongly 80% that the unification needed to provide both short and long term benefits for students. The graduate programs were significant with 62% indicating they were very concerned that the graduate programs remain on both campuses.

The needs of full time resident students are different from the part time commuter students. This may be why the responses varied on the questions.

Table 4
STUDENT QUESTION RESULTS

	Extremely Important	Very Important	Neither Important nor Unimportant	Very Unimportant	Not at all Important
1. How important is it that unification provides short term and long term benefits for the students?	48%	32%	17%	1%	1%
	None	**Little**	**Some**	**A Lot**	
2. Are you concerned about the necessity to travel to take required courses?	23%	21%	21%	35%	
3. Are you concerned about taking online courses to meet degree requirements?	44%	21%	24%	11%	
4. Are you concerned about course transferable regardless of when I started?	33%	24%	22%	20%	
5. Are you concerned if there will be master's degree programs available on both campuses in their current time slots?	37%	25%	21%	18%	
6. Are you concerned with the possible effects unification might have on cost (tuition)?	11%	19%	30%	40%	
7. How important is it that current university employment opportunities for students?	10%	18%	31%	41%	
8. How important is it that student clubs exist on both campuses?	33%	38%	23%	3%	3%
9. How important is it that athletic teams are at both campuses?	22%	31%	33%	4%	9%
10. How important is it that student government has representation from both campuses?	38%	32%	23%	3%	4%

The trends for the pre-merger survey are discussed below for both the overall core questions and the specific responses from the stakeholder groups. Some trends and highlights stand out in the data. After the post-merger survey next year, comparison data will be available. Lack of adequate communication was a theme with 68% indicating they did not have enough knowledge about the implementation of the merger and 61% believing that information is not being clearly communicated to the stakeholders. One of the positive aspects is that 83% responded they would not leave the university due to the merger and 64% expected to have the same loyalty to the merged College of Business as they had for their current campus College of Business. One of the merger challenges will be uniting when 71% indicate they have no current interaction with their counterparts at the other campus.

The first hypothesis addressed whether the merger will have a positive effect on the administrators of the College of Business. The administrators indicated positive factors with 60% feeling confident they could manage across both campuses. Challenges for this group include 80% indicating they did not think there was equality in decision making across the campuses and 80% believing that their administrative duties would change after the merger. The finding is the hypothesis is supported.

The second hypothesis addressed whether the merger will have a positive effect on the professional staff of the College of Business. The professional staff echoed the concern about

communication with 71% indicating lack of adequate communication on the merger. Similarly to the administrators, 86% of the professional staff believed their duties would be changing with the merger. On a positive note, 57% confirmed they could work in a new structure. The staff expected changes and have a concern about communication but the majority 57% still felt they could work in the new structure and 80% indicated they were not considering leaving the university. The finding is the hypothesis is supported.

The third hypothesis addressed whether the merger will have a positive effect on the faculty of the College of Business. The faculty results were less optimistic with 50% believing the merger is not having a positive effect on the College of Business and 50% not believing that there will be opportunities for professional development. This group also indicated 90% expected faculty to be moving departments in the merger and 80% believe there will be a loss of degrees or programs. This hypothesis is less hopeful and does not reflect a positive effect. It appears that there is much more work to be done with the faculty where acceptance may be more challenging. The finding is the hypothesis is not supported.

The fourth hypothesis addressed whether the merger will have a positive effect on the students of the College of Business. The student results show two issues that are of major concern to this stakeholder group. 71% indicated that retaining student clubs on both campuses was an important issue and 70% were concerned that student government representation should be from both campuses. Other apprehensions included 40% being concerned about a tuition increase and 35% being concerned that the merger would require them to travel to another campus for class. Overall the positive responses were stronger than the negative responses with over 80% indicating they would not leave the university. The hypothesis is supported.

CONCLUSIONS

These are preliminary results from the first survey in a two year study. The data suggest that there are many challenges for the university to unite the merged College of Business into a cohesive well-functioning whole. Those challenges include the merging of cultures, effectively educating students and managing programs across two campuses, and leading staff and faculty. It is clear that communication will be more critical than usual in this process of helping stakeholders move from confusion and frustration to acceptance and unity. This first year pre-merger study establishes the baseline for comparison to next year's post-merger survey.

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THE EFFECT AND IMPLICATIONS OF PROGRESSION POLICIES ON ACCOUNTING STUDENT RETENTION AND ADVANCEMENT

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ABSTRACT

At a mid-size, four-year, regional, state university, with a sequence of three intermediate financial accounting classes, students that had successfully progressed from Intermediate Financial Accounting I were classified as either C students (earned a C) or A/B students (earned an A or B) and the subsequent performance by the groups was compared. The results provide insight for making accounting program progression and retention policies.

The C students were 31% of the sample population and almost 22% of the total number of students that successfully completed the accounting program. Most C students (63%) changed majors or chose a different path during their junior year. The C students who successfully completed the accounting program had lower grades in their accounting classes, repeated more classes and took longer to complete the accounting program than the A/B students that successfully completed the program. Even though the C students required additional departmental resources, faculty decided to retain the policy of allowing students to progress from Intermediate Financial Accounting I with a C, instead of increasing the minimum grade to progress to a B. Faculty were concerned that potentially forcing a change of major too early could result in losing 22% of the accounting graduates.

INTRODUCTION

Due to progression and retention concerns, accounting faculty at a mid-size, four-year, regional, state university, considered whether the minimum grade necessary to advance from Intermediate Financial Accounting I (the first of a three course sequence) should be raised from a C to a B. The faculty questioned whether students that could barely progress from Intermediate Financial Accounting I, a course notably less rigorous than the two remaining intermediate classes and other upper-level accounting classes, would have a reasonable chance of successfully completing the rest of the program.

A requirement for a student to earn a minimum grade to advance to the next course in a sequence is a progression policy intended to ensure that a student has the knowledge and skills necessary to succeed in the subsequent class. The requirement also helps set an expectation of acceptable performance.

Accounting is a challenging major and profession. The work does not go away until someone does it. People that either can't or won't do the work required would probably be better served by changing majors or doing something else. Most accounting programs have a course that tends to encourage some students to change majors. A concern is where in the curriculum the course should be. Too soon results in the unnecessary loss of majors and too late delays the student from finding a major that better suits their interests and abilities.

This paper examines the subsequent performance of students that earned a C in Intermediate Financial Accounting I (C students) compared to those that earned an A or B (A/B students) and discusses the progression and retention policy implications of the findings.

There are no separate admission requirements for either the College of Business or the accounting program at the university studied. The Accounting Department has no say in who is allowed to enter the university or the accounting program. As such, this study does not address admissions policies such as required minimum scores on standardized entrance exams (ACT, SAT), high school GPA, gender or race. Some of this information is provided solely to help readers consider whether the results may be generalizable to their institutions.

Further, this study does not address issues that may affect student academic performance such as commuting time, hours worked at outside jobs, financial need, family responsibilities, marital status, level of interaction with faculty, or whether the student is a transfer student. The Accounting Department has no ability to set or regulate behavioural standards outside the classroom. Grades are not adjusted because a student faced challenges. Whether in school or at work, everyone has challenges of one type or another and eventually it is up to the individual to do, or not do, what needs to be done to be successful.

LITERATURE REVIEW

Similar to other academic programs, accounting programs are subject to retention and graduation pressures. However, if accounting students are allowed to graduate without having demonstrated a reasonable level of competency it may reflect poorly on both the students and academic institution. Unprepared students may have problems both getting and keeping an accounting position. Firms may stop hiring at institutions that produce too many accounting students that prove unable to do the job. Thus, it is in the best interest of all concerned for accounting programs to maintain academic standards, identify as early as possible students that are unlikely to successfully complete an accounting degree, and advise those students to choose a more viable option based on their interests and abilities.

There is little recent published research directly related to grade related accounting program progression requirements. There are studies investigating factors that may predict or improve the likelihood of success in Intermediate Financial Accounting I, who should be admitted into accounting programs, and more general studies related to college persistence.

Ward, et al. (2014) used a readiness test to determine whether students possessed sufficient accounting knowledge to succeed in Intermediate Financial Accounting I. Students that failed the test were deemed to have insufficient knowledge to succeed in the course. Initially, optional review classes were provided by faculty. In following semesters, failing students were required to complete ALEKS® educational software by the time the class completed the first four chapters of the textbook. The authors found average Intermediate Financial Accounting I student grades were significantly higher for each of the intervention periods over the base period that employed no intervention.

Sargent (2013) found that students proficient in prerequisite skills (based on passing an all-or-nothing proficiency test) earned better project and cumulative final exam scores in non-prerequisite areas. Grades in Intermediate II were also better after adding the proficiency test, compared to the two prior terms.

Sanders and Willis (2009) observed evidence of improvement in student success in Intermediate Financial Accounting I after a Principles of Accounting Competency Exam (PACE)

was implemented by the Accounting Department. Students that did not initially pass the exam were offered remedial learning options such as self-study, review sessions, ALEKS® educational software, and the opportunity to audit the financial accounting principles course.

Shoulders and Hicks (2008) used exams in an analysis-of-diagnostic-exam-driven teaching and learning cycle (ADEPT Learning Cycle) while teaching intermediate financial accounting. Students were assisted using corrective steps to resolve deficiencies and provided with one-on-one tutoring as needed. Students had to complete each diagnostic exam successfully before interim exams. "The study reports better student performance in Intermediate I for ADEPT students. Student satisfaction indicated on course evaluations also was extremely high. Further, the study reports superior performance in Intermediate II by Intermediate I ADEPT students compared to other Intermediate I students. Finally, 100 percent of "pre-Intermediate I" accounting majors in the ADEPT approach class completed accounting degrees compared to less than 80 percent of other "pre-Intermediate I" accounting majors."

Eikner and Montondon (2001) evaluated whether ability-related, preparation-related, motivation/dedicated-related, time-related, and innate personal/demographic-related factors were associated with success in Intermediate Financial Accounting I. They found GPA, the grade in the first accounting principles course, and age were significant. Norton-Welsh and Reding (1992) found that admission test scores and GPA could be used to predict success in future accounting courses. Clark and Sweeney (1985) found that students with higher GPAs (after taking 45 semester hours of courses) and higher college math and English composition grades were more likely to successfully complete accounting programs than students with lower GPAs, and lower college math and English composition grades.

Duff (2004) found that students with higher prior academic achievement and who used a deep approach to learning (understanding) had much higher progression rates than students with lower prior academic achievement and who used a surface approach to learning (memorizing). Graza and Jenkins (2003) found prior year academic performance and application to studies were positively associated with performance measured by grade points.

Adams et al. (1994) found that good job opportunities, high earnings potential and genuine interest in the field were important to attract high-aptitude students into accounting and that educators should emphasize the psychologically rewarding nature of accounting careers. Reinstein and Garr (1995) found that creating a positive experience in the introductory accounting courses, initiating a career day program, improving the internship program, creating a speaker's program, increasing Beta Alpha Psi activities, and setting up an outreach program with community colleges attracted more majors into the accounting program.

BACKGROUND AND METHODOLOGY

The educational institution from which the data was collected is a mid-size, four-year, regional, state university with relatively small class sizes. The gender classification of accounting majors is approximately 59% female and 41% male. The accounting graduates are approximately the same percentage. The ethnic classification of accounting majors is approximately, 69% white, 16% black, 4% Hispanic, 4% Asian, and 7% other/not reported. The ethnic classification of accounting graduates is approximately, 79% white, 11% black, 3% Hispanic, 1% Asian, and 6% other/not reported.

Formerly, the university had an open admission policy. It now has relatively low admission requirements. The average institutional ACT score is approximately 22. Approximately 94% of the

students fall within the range 18-30. There are no separate admission requirements for either the College of Business or the accounting program.

The accounting program observed has one financial accounting principles course and a sequence of three intermediate financial accounting courses. Intermediate Financial Accounting I is a bridge course from the principles course to the second intermediate course. Intermediate Financial Accounting II is much more challenging than Intermediate Financial Accounting I and more indicative of the rigor of the rest of the program.

In order to progress through, and graduate from, the accounting program studied, students must earn at least a C in the financial accounting principles course and in all three intermediate financial accounting courses. With one exception, the other five required courses and one accounting elective in the accounting curriculum require at least a D to progress and graduate. The exception is the accounting internship (an option for the accounting elective) which is a pass/fail class. In addition, to graduate a student must achieve at least a 2.2 GPA, both overall and for courses in the accounting curriculum.

This study addresses seven questions:

1. What percentage of the sample population is composed of C students (those who earned a C in Intermediate Financial Accounting I)?
2. Are there differences in subsequent academic outcomes between C students and A/B students (those that earned an A or B in Intermediate Financial Accounting I))?
3. If C students subsequently changed majors, when in the accounting program did it happen?
4. Is there a difference in the performance in accounting classes between C students and A/B students that successfully completed the accounting program?
5. Is there a difference in the number of classes repeated by C students and A/B students that successfully completed the accounting program?
6. Is there a difference in how long it takes to successfully complete the accounting program between C students and A/B students?
7. What implications do the results have on accounting department progression and retention policies?

Student grades for all accounting classes were obtained for six years: Fall 2007 to Summer 2013. As students begin taking accounting classes in their sophomore year, the data contained approximately four years of students who completed all of their accounting classes, assuming they finished the program in the expected amount of time. For students who took longer than the planned program length, other available data was used to determine their status in the program.

RESULTS

Questions 1 and 2

Table 1 addresses questions:

1. What percentage of the sample population is composed of C students (those who earned a C in Intermediate Financial Accounting I)?
2. Are there differences in subsequent academic outcomes between C students and A/B students (those who earned an A or B in Intermediate Financial Accounting I)?

A frequency analysis of the subsequent academic progress of students who could progress from Intermediate Financial Accounting I during the sample period is shown in Table 1. The students were classified into five groups: those who eventually changed their major, those who were still

accounting majors and still taking classes, those who had dropped out of school, those who were not accounting majors, and those who were accounting majors that successfully completed all of the required courses in the program. In order to obtain the most accurate counts in each category, data for the Fall 2013 and Spring 2014 semesters was utilized (i.e., two semesters of data after the end of the sample period); however, this was only done to gain more information about students within the sample period, not to add any new students to the sample group.

Results in Table 1 indicate that C students were 31% (265/[265+587]) of the sample population and that there were notable differences between the percentage of C students and A/B students in regards to two categories: those who subsequently changed their major and those that successfully completed the program. A higher percentage of C students (27%) eventually changed their major compared to A/B students (7%). Also, a much lower percentage of C students successfully completed the program (37%) compared to A/B students (60%). While there were some differences between the two groups in the other categories, the differences were not as notable.

Table 1
CATEGORIES OF SUBSEQUENT ACADEMIC PROGRESS FOR STUDENTS WHO SUCCESSFULLY COMPLETED INTERMEDIATE FINANCIAL ACCOUNTING I

	C Students*		**A/B Students***	
Changed Major	72	27%	43	7%
Continuing Student in Program	47	18%	102	17%
Dropped out of School	24	9%	35	6%
Not an Accounting Major	24	9%	58	10%
Successfully Completed Program	98	37%	349	60%
Total	265	100%	587	100%

Students enrolled during Fall 2007 through Summer 2013. Data from the Fall 2013 and Spring 2014 semesters was utilized to determine how some students should be classified, but no new students were added to the sample period

*C students are those students who completed Intermediate Financial Accounting I with a C, the minimum grade needed to progress in the program. A/B students are those students who completed Intermediate Financial Accounting I with an A or B.

Question 3

Table 2 addresses question (3): If C students subsequently changed majors, when in the accounting program did it happen? Approximately 70% of the C students who changed majors attempted Intermediate Financial Accounting II. However fewer than half of those students took the other junior level accounting courses (Intermediate Financial Accounting III, Accounting Information Systems (AIS), Cost, Tax). Also, only a few C students changed majors after taking the senior level accounting courses (Auditing, Advanced Accounting). This indicates that Intermediate Financial Accounting II, and to a lesser extent Intermediate Financial Accounting III, were where in the accounting curriculum that students were able to more effectively determine their ability to successfully complete the accounting program and either changed their major or took other action. These findings are consistent with the impressions of the accounting faculty because Intermediate Financial Accounting II is much more rigorous than Intermediate Financial Accounting I and not

quite as challenging as Intermediate Financial Accounting III.

Table 2
NUMBER OF SUBSEQUENT ACCOUNTING COURSES TAKEN BY C STUDENTS WHO SUBSEQUENTLY CHANGED THEIR MAJOR

Accounting Course	Number of Subsequent Accounting Courses Taken by 72 C Students* That Subsequently Changed Their Major During the Sample Period Fall 2007 to Summer 2013.
Intermediate Financial Accounting II	51
Intermediate Financial Accounting III	25
Accounting Information Systems (AIS)	19
Cost Accounting	25
Tax	13
Auditing	3
Advanced Accounting	2

*C students are those students who completed Intermediate Financial Accounting I with a C, the minimum grade needed to progress in the program.

Questions 4, 5, and 6

Table 3 addresses questions (4), (5) and (6) concerning whether there were differences in the performance in accounting classes (accounting course GPA), class repeat rates, and duration to complete the accounting program between C students and A/B students who successfully completed the accounting program.

Per Table 3, there is a significant difference in performance between the C students and A/B students. Accounting course GPA represents the average GPA associated with only the required accounting courses taken in the undergraduate program, excluding Financial Accounting Principles. The A/B student's average performance approximated a B while the C students' performance was closer to a C.

There is also a significant difference in the number of classes repeated by the C students and A/B students. The repeat rate is calculated as the number of accounting courses taken (including withdrawals and excluding Financial Accounting Principles) divided by the number required. For example, if a student repeated one class, then based on the nine required courses in the accounting program, this metric would be calculated as 1.111 (i.e., 10/9). Based on this measure, C students repeat, on average, approximately two classes whereas A/B students generally do not repeat classes or only repeat one class.

Lastly, there is a significant difference between C students and A/B students regarding how long it takes them to successfully complete the accounting program. The duration metric is defined as the number of semesters taken to complete the requirements of the program, excluding the semester in which Financial Accounting Principles class was taken and semesters where an accounting class was not taken. In the calculation, each semester is counted equally, except for summer which counts as half the value of a regular semester. For example, if a student took accounting classes in three regular semesters and went to summer school in two years, then their duration would be counted as 4. C students do take a little longer to complete their course work.

Table 3
DIFFERENCES BETWEEN C STUDENTS AND A/B STUDENTS THAT COMPLETED THE ACCOUNTING PROGRAM

	C Students*	A/B Students*	T Test (p-value)
Number of Students**	98	349	
Accounting Course GPA†	2.305	3.096	.00
Repeat Rate††	1.192	1.042	.00
Duration†††	4.883	4.327	.00

*C students are those students who completed Intermediate Financial Accounting I with a C, the minimum grade needed to progress in the program. A/B students are those students who completed Intermediate Financial Accounting I with an A or B.

** Number of students that took and successfully completed all of the required courses in the accounting program within the Fall 2007 and Spring 2013 semesters.

† Accounting course GPA based on grades earned in all accounting classes excluding Financial Accounting Principles and including any repeated classes.

†† Repeat rate is calculated as the number of required accounting courses actually taken divided by the number required.

†† † Duration is the average number of semesters taken to complete the required accounting courses, excluding Financial Accounting Principles. In this calculation, each semester a student has taken a required accounting class counts as 1, except for summer school which counts as .5.

CONCLUSIONS/IMPLICATIONS

At a mid-size, four-year, regional, state-supported university, students that had successfully progressed from Intermediate Financial Accounting I were classified as either C students (earned a C) or A/B students (earned an A or B) and the groups were compared. C students were 31% of the sample population and almost 22% of the total number of students who successfully completed the accounting program. As a group, C students should not be ignored or forced to change majors too early in the accounting program. Further, unless resources are extremely limited, it is not necessary to raise the progression requirement for Intermediate Financial Accounting I from a C to a B.

Junior year is a reasonable place for most C students to realize that they need to change majors or do something else. The required courses for the different business majors are very similar into the junior year so changing to another business major may not significantly impact the length of their undergraduate degree.

Although, a number of C students do successfully complete the accounting program, as a group their average accounting GPA is well below 3.0, which is often indicative of their overall GPA. Students with an overall GPA below 3.0 may have limited access to on-campus job interviews because employers often pre-screen candidates by requiring them to have at least a 3.0 GPA to sign up for interviews. This is not to say that C students cannot get accounting jobs. However they will often need to find jobs on their own and are likely to receive a lower pay rate than A/B students. Even in cases where C students are allowed to interview on campus, there are approximately 3.5 A/B students per each C student competing for interview slots. This is not an unusual position for

the bottom 22% of any major or profession. However, C students can redeem themselves and qualify for better jobs by taking and passing the CPA Exam. A year after graduation, interviewees are often asked if they have passed the CPA Exam, instead of being asked about their GPA.

Most of the C students changed majors and the remaining C students required additional departmental resources. However, faculty concluded that it was preferable to continue to allow students to progress from Intermediate Financial Accounting I with a C instead of increasing the minimum grade to progress to a B. Faculty were concerned that potentially forcing a change of major too early could result in losing 22% of the accounting graduates.

LIMITATIONS

The limitations of this paper are typical of other studies. The educational institution from which the data was collected is a mid-size, four-year, regional, state-supported university with relatively small class sizes. Formerly, the university had an open admission policy. It now has relatively low admission requirements. To the extent that another university has a different environment or attracts a different population demographic, results may differ. Further, the accounting program from which the student populations were observed has a series of three intermediate financial accounting courses. Intermediate Financial Accounting II is much more indicative of the rigor of the program compared to Intermediate Financial Accounting I. To the extent that an accounting program has only two intermediate financial accounting classes, the progression rules and findings may differ.

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CHECK MY WORK! INSTANTANEOUS FEEDBACK AND STUDENT PERFORMANCE IN AN INTRODUCTORY FINANCIAL ACCOUNTING COURSE

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ABSTRACT

This study uses a controlled experiment to examine the impact on student performance of using an online homework management platform. We conducted the experiment in two introductory financial accounting courses, with the treatment classroom using the online interactive homework (OIH) with instantaneous feedback and the control classroom using traditional paper homework with delayed feedback. After controlling for prior grade point average (GPA), gender and academic standing, the results do not show any difference in student performance on the multiple choice section of the final exam. But when we change the metric for assessment to their ability to do an integrative accounting cycle problem on the final exam that involved preparing an income statement, statement of retained earnings and a balance sheet, 44% of the students in the OIH group correctly balanced the Balance Sheet, compared to only 27% for the control group. We also found that OIH students' level of engagement in the course, as measured by their time spent outside of class on homework was at least 50% greater than the control group of students. The students also revealed a strong preference for the instant feedback feature "Check my work!" over all other features of the online system like pull down menus, directed links to the eBook, videos and hints.Overall, the study highlights the important role of OIH technology in increasing "time on task" which is an important facet of the active learning environment. The study also highlights the role played by the assessment metric in studies that seek to look for differential impact of technology in general, and online homework systems in particular.

INTRODUCTION

In an editorial titled "The role of accounting education research in our discipline", Pierre et al. (2008) emphasize the changing nature of today's educational landscape as: " Increasing student numbers, coupled with a broader spectrum of students' abilities and a focus on student-centered learning-which emphasizes education literature with, inter alia, active learning and the differences between deep and surface learning(with which most accounting educators seem unlikely to be familiar)- creates a zone of discomfort for those educators who have failed to keep up with the contemporary discourse of pedagogy in favor of getting to grips with technology such as Power Point, with its dubious consequences for effective teaching and learning (see Waller and Gove 2007)."

Research regarding the use and effectiveness of educational technology in accounting education is imperative given the pace of technological progress. Universities across the globe have invested resources in web-based interfaces like Blackboard and WebCT to enhance course delivery. Textbook publishers have also added technological supplements to their textbooks. The array of choices available to the accounting educator can seem rather daunting at times. Given the substantial financial and human capital investment required to integrate technology into accounting education, it is imperative that we seek to identify the most effective learning resources by going beyond a blind adoption of technology.

Numerous studies in the last decade have sought to study the effect of educational technologies on student performance (Watson et al. 2003), with a few studies that focused on how technology can be applied to accounting education and how students perceive the new technology. In contrast, research on the effect of new technology on student performance has been relatively scant and has generally found "no effect" of the new content-delivery technology on student performance (Agarwal et al. 2004; Susskind 2005; Rankin and Hoaas 2001; Russell 2001; Szabo and Hastings 2000; Agarwal and Day 1998; Gafffney,Ryan & Wurst 2010). In a study of a Student Response System (SRS) technology, Edmonds & Edmonds (2008) find that students in courses taught with the SRS technology scored 3.15 percentage points better than students in the non-SRS managerial accounting course after controlling for age, gender and prior Grade Point Average (GPA) and American College Testing (ACT) scores. They also found that the SRS technology was particularly beneficial to low-GPA students. In a more recent study, King and Mo (2013) looked at the impact on test performance of web-based learning systems(Connect) in a managerial accounting course and found that students' course grades were positively associated with students' performance in both homework and reading assignments on Connect. There is however no consensus on the educational effectiveness of different methods of integrating technology into the classroom (Boyce 1999; Jackling and McDowall 2006). With the ongoing trend towards greater computerization and increased class sizes in introductory accounting courses across campuses, both large and small, it is vital that educators are able to identify the areas most suited to an electronic platform and to then harness the unique features of that platform to increase student-focused active learning. More specifically, educators need to investigate 'how' technology based tools like online interactive homework(OIH), SRS, Blackboard, etc. enhance the learning process and whether they result in improved student performance.

In order to fill this gap in the literature we delve into the specific features of the OIH that engage students and that student perceive as most useful to the active learning environment. Our theoretical model is a simple education production function where the output is student knowledge of accounting and the inputs are student ability as measured by GPA and SAT scores, along with other demographic characteristics like gender and age. In the last two decades, an expansive body of research in educational pedagogy has emphasized the role of an "active" learning environment in undergraduate education. Further, in 1989, The Accounting Education Change Commission (AECC) rightly recognized the crucial role of an active learning environment in preparing graduates to meet the rigors of practice in accounting. While the AECC outlined what a sound accounting curriculum should look like, it did not provide any specifics on how pedagogical styles need to change to meet the goals of an active learning environment. Bradford and Peck(1997) suggested that the AECC objective can be met by adopting "the seven principles of good practice

in undergraduate education" issued by the Association of Higher Education (AAHE). Of these seven principles, the following five promote an "active" learning environment; viz., (1) encouraging student-faculty contact, (2) Promoting cooperation among students, (3) encouraging student participation, (4) giving prompt feedback and (5) emphasizing time on task.

The objective of this study is to explore two facets of this "active learning" environment, namely (4) and (5) above. We believe an online homework management platform, along with links to guided readings from the eBook, will promote these two facets of an active learning environment. We therefore, in this study, seek to measure the effect of these tools on actual student performance in the course. The results of the study have important implications on how to design the introductory financial accounting course by integrating technological elements that actually enhance student learning. To our knowledge, there is no controlled study of the effect of an OIH on student performance in an introductory financial accounting course in a small class size setting. This study therefore seeks to fill this crucial gap in the literature and in doing so, hopes to provide guidance to accounting educators on the effectiveness of adopting this technology for their introductory accounting classes where small class sizes are the norm.

The reminder of the paper is organized as follows. We start by discussing the existing body of research associated with the use of technology in general and content-delivery methods in particular in higher education and relate the use of OIH to active learning strategies. We then describe the research design and hypotheses developed, followed by a discussion of results and the implication of the results for accounting education going forward.

LITERATURE REVIEW ON TECHNOLOGY-ENHANCED COURSE DELIVERY

Online Web-based Interactive Homework and Student Performance

Homework is an integral part of the introductory accounting course, since the ability to solve problems is perfected through regular practice. Given this integral role playing by homework in a quantitative course like accounting, it is important that the assessment and feedback mechanism is designed to improve student learning. A meta-analysis of many different studies in other quantitative disciplines like math, physics, etc. concluded that homework which was promptly graded and/or commented on had a large positive effect on student learning (Walberg, Paschan & Weinstein, 1985). Although there have been numerous studies of student experience, perceptions and performance in web based homework systems in math and physics courses at the college level (Titus, et al 1998), these studies have generally had mixed results as to the effect of OIH on student performance. Oliver (1988) found that frequent and timely testing and feedback increase student motivation leading to more engaged students. In a study of the role of feedback in learning, Homa (1984) found that the group that was given immediate corrective feedback showed dramatically increased performance on successive learning trials relative to the control group. The important role of timely feedback in effective learning is widely recognized and summarized by Chickering (1987) in the following words: "No feedback can occur without assessment. But assessment without timely feedback contributes little to learning". In a follow up study, (A. a. Chickering 1996) they discuss how technology can improve the timeliness of feedback.

Lehman and Herring (2003) constructed an interactive spreadsheet template assignment that provided students with immediate feedback and found that the immediate feedback enhanced student learning. In a related study of students in an introductory physics course, Bonham, Dearborff & Beichner (2003) find no significant difference in student performance between the groups that used web based homework vs. paper based homework.

Doran et al (1991) studied the effect of prior academic performance and aptitude on performance in an introductory accounting course and found that measures associated with aptitude (accounting major) and general academic performance (GPA) had a significant positive effect on performance. Research by Eskew & Faley (1988) and Gul and Fong (1993) looked at the linkages between prior mathematical background and performance and found a positive relationship. However other studies (Gist et al. 1996) have presented contradictory evidence on the link between mathematical background and performance in accounting courses. Evidence on the influence of gender on performance is also not consistent (Eskew& Faley,1988; Buckless et al.,1991;Koh and Koh,1999).

Lane and Porch (2002) studied the effect of computer-assisted learning on students' performance and found a negative impact on students' perceptions and attitudes and no significant effect on performance. They however lacked a control group, thereby making it difficult to generalize their results. Stuart (2004) looked at the role of immediate feedback on student performance in an auditing class in Singapore and found that immediate feedback improved performance significantly.

In a recent study, (Haverty 2010) studies the effect of introducing an online homework management system in a managerial accounting course on students learning. He finds that although there was no discernable difference in student performance on exams, neither did the instructor's evaluations suffer due to the adoption of technology in the course. And finally, when students were required to both, read the chapter before class and complete online homework problems using Connect, King and Mo (2013) find that overall course grades improved for the students using the web-based learning software.

With a view to extending this line of research into web-based learning system we explore in greater depth the specific features of the OIH that appeal to students. Our approach emphasizes the role OIH can play in an "active learning" environment where the student's level of engagement in the course increases, thereby promoting more long-term retention of the concepts learned.

RESEARCH DESIGN

Experimental Design and Methodology

Bonwell and Eison (1991) associate active learning with the following seven characteristics: (1) students are involved in more than passive listening; (2) students are engaged in activities; (3) there is less emphasis placed on information transmission and greater emphasis on developing skills; (4) there is greater emphasis placed on the exploration of attitudes and values; (5) students can receive immediate feedback ; (6) student motivation is increased; and (7) students are involved in higher order thinking. The OIH treatment used in this study focuses on characteristics 1, 2, 5 and 6, with a particular emphasis on the 5th characteristic 'immediate feedback'.

In this study, the online interactive homework (OIH) system was introduced to 30 students enrolled in one section of an introductory financial accounting course in the Fall Semester of 2010. In order to isolate the effect of the OIH on student involvement, perceptions and performance in the course, the results were compared to a control group consisting of 30 students in another section of the same course in the same semester. The treatment and control classrooms were taught by the same instructor, with both classes offered at a similar time of day, with one class meeting three times a week vs. twice for the control group. The same syllabus, course content, homework, and tests were used in both classes. The OIH technology (Cengage Now) was introduced in the experimental/treatment classroom after completion of the first exams in week 4 of the semester in order to establish a benchmark performance measure and mitigate any self-selection bias.

Both classrooms were assigned weekly homework drawn from the end of chapter exercises and had six days to complete it. All home works were due on Friday by 3pm. The traditional classroom turned in their hand written homework assignments on Friday and these were graded and returned to the students the following Wednesday/Thursday, a lag of almost one week. The suggested solutions to the problems were posted on Blackboard on the Monday following the due date, so students had access to the solutions when they received their "graded" home works back. In the OIH classroom, students log on using a password through the internet to a central web server, select the assignment and work through the exercises while at the computer. After working the problem and entering their answers, the OIH classroom could use the "*Check my Work!*" feature. All incorrect answers were highlighted and students were provided with automated hints and links to the relevant sections of the eBook. The student could then rework the solution and resubmit the assignment. Even though both classrooms received feedback on correct responses, the nature and the timing of the feedback differed significantly. The OIH group received instantaneous feedback on their responses and had the time and opportunity to rework their problems, including reading the relevant pages from the eBook. The non-OIH group only received feedback after a lag and had to compare their answers to the solution set on their own after a week. With their busy class schedules, only the most diligent student would be expected to go back and review and compare their solutions with the suggested solution set!

Hypothesis Development

Since students in the OIH classroom have access to 3 "Check my Work" options, they tend to use it to check their progress, especially in multi-step problems. When the system scores their answers as incorrect, they are motivated to rework them and also access the links to the eBook and read the relevant subject matter, before returning to the problem. This naturally increases their "time on task" for all homework assignments. We hypothesize that this increased time on task, coupled with instantaneous feedback, reinforces learning in the student and should lead to better scores on exams. This leads us to our first hypothesis:

H1: Students in the OIH classroom will score higher on the final exam compared to students in the traditional paper-based homework classroom.

Since the feedback is immediate, the student has the option of reading through the relevant material until they feel comfortable with the concepts and its application. One can therefore

reasonably expect that closing this feedback look instantaneously will be especially advantageous for the low GPA students. We therefore propose our second hypothesis to be:

H2: *Low prior GPA students will show greater improvement in exam performance in the OIH classroom relative to high GPA students.*

Model Development

To test whether OIH technology affects student exam performance we pooled the two classes into the following regression model.

$$Final\ exa = \propto_0 + \propto_1 OIH_i + \propto_2 Gender_i + \propto_3 Acad.standin + \propto_4 GPA_i + \epsilon_i \quad (1)$$

where *Final exam* is the score on a final comprehensive exam consisting of 30 multiple choice questions. *OIH* is a dummy variable that is 1 for the treatment group and 0 for the control group. *Gender* is a binary variable coded 1 for male and 0 for female students. *GPA* is the student's grade point average as revealed by the student in the end of semester questionnaire.

The coefficient on OIH is the main focus of this study. H1 predicts the coefficient to be positive. The variables on gender and GPA have been found to be significant predictors of student exam performance (Jones and Fields 2001; Wooten 1998). *Acad.standing* is a proxy variable for age in our study and could take on one of four values; freshman, sophomore (most common), junior and senior. Since all the students in our study are traditional students, we chose to use academic standing as a variable that picks up differences between an accounting/finance major(for whom it is a sophomore level course) or a general business major (who can wait until their junior/senior year to take it).

RESULTS AND DISCUSSION

It was anticipated that the students in the OIH group would score higher on exams than those in the traditional paper-based homework group. In order to test this hypothesis (H1), regression analysis was conducted in which the dependent variable was the final exam scores of the students. In addition to the classroom distinctions, students' GPA, gender, and academic standing were used as independent variables for the regression. The results from the regression analysis show that only student grade point average (GPA) has a significant relationship with the exam scores (Table 1). Whether or not the students had access to the online tools was insignificant in determining their performance on the multiple choice section of the exam.

Table 1
RESULTS OF HYPOTHESIS TESTING (H1)
Regression on Final Exam Scores[a]

Independent Factors	t	p
(Constant)	.355	.724
Online[b]	-.346	.731
Gender	-.134	.894
Class[c]	.234	.816
GPA	4.605[d]	.000

[a] Dependent variable: final exam scores.
[b] Online was manipulated through students either having or not having access to the online tools.
[c] Class is a measure of student's academic classification (i.e. Sophomore).

Additionally we hypothesized that within the OIH group those students with lower prior GPA's would show greater improvement in exam performance. This hypothesis (H2) was tested using a T-test to compare the mean improvement of the high GPA students with the mean improvement of the low GPA students. The students were divided into the high and low GPA groups by splitting the OIH group at the mean GPA. This procedure placed 15 students in both the high and low GPA groups. The mean improvement was calculated by subtracting the previous exam score from the final exam scores. The results show no significant difference between the mean improvement of the high and low GPA groups (Table 2).

Table 2
RESULTS OF HYPOTHESIS TESTING

Panel A: Group Statistics

	GPA[a]	N	Mean	Std. Deviation	Std. Error Mean
Improvement[b]	High GPA	15	-.101	.100	.025
	Low GPA	15	-.075	.258	.067

[a]GPA is a dichotomized variable split at the mean GPA (3.1).

[b]Dependent variable: Improvement (The difference between final exam scores and the previous exam scores).

Panel B: Independent Samples Test Results for High GPA vs Low GPA[b]

	Student Improvement		
	t	df	p
High GPA vs. Low GPA	-.365	28	.718

In order to determine how the OIH group's study habits may have been affected, we distributed scaled questions (see Appendix A) to both groups of students asking them about time spent on homework and their perceptions of the importance of homework and class time. The results of this questionnaire are summarized in Table 3 Panel A and B.

Table 3
RESULTS OF QUESTIONNAIRE

Panel A: Group Means

Homework Styles	Homework (Hours)[a]	Outside vs Class Time[b]	Additional Resources[c]
Online Interactive Homework	4.95	7.27	6.37
Traditional Paper Homework	3.15	5.89	4.33

Panel B: T-test Results

Homework Styles	Homework	Outside vs Class Time	Additional Resources
Online Interactive Homework vs. Traditional Paper Homework	4.204***	2.034**	2.315**

[a]Dependent Variable: Homework Time (Self-reported amount of time spent on homework per week).
[b]Dependent Variable: Outside vs Class time (Measured using a survey question asking students if they agreed that time spent working outside of class was more important than class time)(10-point scale).
[c]Dependent Variable: Additional Resources (Measured using a survey question that asked if students would have liked to have additional resources) (10-point scale).

***Significant at $p \leq .01$
**Significant at $p \leq .05$

The first interesting result was in regard to the answers received when the students were asked how much time they spent on homework. The responses indicate that the OIH group spent about two additional hours per week (1.8) working homework problems (Table 3: Panel A). This result may seem counterintuitive at first, if the online homework is thought to help facilitate solving the problems at a faster pace. However, the OIH group's responses to questions concerning how they used the online tools shows that the extra time spent was probably used to correct answers that they could see were wrong, while the traditional classroom students did not have knowledge of whether their initial solutions were correct.

The second significant difference between the groups was found in their response to the statement "*Time spent working outside of class is more important to my success than class time"*. The results show the OIH group more likely to agree with this statement at a significance level of <.05 (Table 3; Panel B). This result leads to the conclusion that when students are given access to

the online tools, they deem time spent outside of class (when they can work with the tools) more valuable than if the online tools are not used. A third significant difference between groups related to whether the students would have liked additional resources to use during the course. The results show that the students in the OIH group were more inclined to want additional resources (Table 3; Panel A and B). This result is somewhat surprising given the fact that they already had more resources than students in the traditional classroom group. However, it appears that once the students had experienced the tools unique to the web based learning environment, they sought more alternative resources, perhaps indicating more active learning. However, the two groups did not differ significantly on their perceptions of the relative importance of studying, homework, or class attendance to their success in the course or on the exams.

The final exam for the course included two sections; Section A with 30 multiple choice questions and Section B with one accounting cycle problem. Although we failed to accept both our hypotheses when the assessment metric was the grade on the multiple choice section, we found that 44% of the students in the OIH group correctly completed the accounting cycle problem compared on only 27% of the students in the control group. The accounting cycle problem required the student to enter journal entries, post to ledger, and prepare adjusted trial balance, income statement, statement of retained earnings and the balance sheet. In view of these differences, we think it is important to pick the final assessment tool carefully in studies that seek to measure the impact of web-based homework management systems. The lack of statistically significant differences in exam scores, in addition to the being a limitation of the small sample sizes, may be an artifact of the format (multiple choice questions) of the final exam, rather than a true indication of student learning.

Exploring Students' Use of Specific Features of the OIH System

In order to gather information on '*how'* the students in the OIH group were using the online tools we administered a second questionnaire to the treatment group only (see Appendix B). Students in the OIH class were asked to answer some additional questions using a 10-point scale (1 = Completely Disagree, 10 = Completely Agree). The first statement given to the OIH group was "I found myself trying to find the correct answer if the "check my work" said my answer was *incorrect".* The average response to this statement was 9.6 suggesting that the students took the time to try to immediately rectify their incorrect answers.

Responses to a statement stating that online homework decreased the amount of time spent on homework averaged to 3.2, while responses to a statement stating that the student spent more time finding the correct answer on online homework than traditional homework averaged to 8.6. The results of these two questions give additional validity to the proposition that the OIH group spent more time on homework because they were able to discover when their initial solutions were incorrect. Responses to statements stating that the Instant Grading was helpful and that the student's learning increased due to instant feedback averaged 9.3 and 8.2, respectively. These results show that students perceived the instant feedback on the homework assignments as a helpful learning tool. Other responses indicated that even though the students found the online homework frustrating at times they thought the online tools were an effective way to learn accounting and they liked the fact that they could check their work throughout the homework. The study also asked if the students would prefer to buy the electronic copy of the book for a lower

price than the hard copy and the average response was 7.4, indicating that students are willing to give up any benefits of a hard copy to save on the cost.

Finally, we asked the students in the OIH group to rank some of the features they had access to online in terms of importance to them(Appendix B). The four features were video links, pull-down menus, check my work, and hints. The "check my work" feature was the most important to the students with an average ranking of 1.2. Pull down menus' average ranking was 2.4, while the hints feature's average ranking was 2.9. The video links were deemed least important by the students with an average ranking of 3.6. The instantaneous feedback feature appeared to be ranked as the most useful by the students in their online learning experience in the accounting course.

SUMMARY AND CONCLUDING REMARKS

This paper used a controlled experiment to examine the impact on student performance of using an online homework management platform that gave students instantaneous feedback on their homework problems. The evidence provided by this study suggests that although exam performance is not significantly impacted by the use of online OIH, the students' time on task improved significantly. Further, although their scores on the multiple choice section of the final exam were not significantly better, the group using OIH, on average, performed much better on the accounting cycle problem, 44% of the students in the OIH group correctly balanced the Balance Sheet, compared to only 27% for the control group. The choice of assessment tool on the final exam may affect the results of studies seeking to measure impact of web-based homework tools on student learning. An interesting insight gained in this study was the finding that students spend more time on homework and value their out of class learning more when using OIH. We found that OIH students' level of engagement in the course, as measured by their time spent outside of class on homework was at least 50% greater than the control group of students. Given these implications and the assumption that it is usually a good thing to have students voluntarily spend more time looking at course materials, OIH can be seen as a helpful teaching tool. This concept becomes even more important when the importance of a college student's non-class time is taken into account.

Additionally, the study implies that students spend more time working through homework in search of correct solutions when using OIH. One effective learning technique involves correcting one's own mistakes. The instant feedback that students receive when using OIH allows them to do more of this correcting on their own time. Student responses also indicated that using OIH was an effective teaching tool and that the instant feedback increased their learning. Since it is virtually impossible for an instructor to be available whenever students need feedback, using OIH can be used as an effective supplement. More specifically, students responded that they liked the "check my work" feature and its availability throughout the homework. Students also ranked the *"Check my work"* feature as more important than other features of the OIH. This finding shows that students like to be able to correct their own mistakes and investigate what errors they are making. With traditional paper-based homework students must wait until solutions have been provided by the instructor. First, this delays the students' learning and may cause a decrease in the enthusiasm of the students towards mastering accounting. Secondly, this no longer allows students to investigate errors on their own and build solutions independently. Both of these consequences to using traditional paper-based homework could hinder the learning of some students.

Overall, the study highlights the important role of OIH technology in increasing "time on task" which is an important facet of the active learning environment. The study also highlights the role played by the assessment metric in studies that seek to look for differential impact of technology in general, and online homework systems in particular. While we find no significant difference in multiple choice format exam performance when using OIH, we do receive feedback that indicates that OIH increases student learning, and since academics should be more focused on learning than grade outcomes, using OIH can be a useful tool for instructor use.

APPENDIX A

Student Response Questionnaire: *Completed By Both Groups*

Participation Code: _____
Major:_____
Gender:_____
Academic Standing: _____
GPA:_____
Is this your first accounting class on any level?_____
How much time per week (in hours) do you spend doing homework for Acc 2010?_____
How much time per week (in hours) do you spend studying for Acc 2010 outside of doing homework assignments?_____
How much total time per week (in hours) do you dedicate to Acc 2010 outside of class?_____
Using the following scale reply to each question to indicate how much you agree or disagree with each statement.

1 2 3 4 5 6 7 8 9 10
Completely Disagree Completely Agree

____Attending class is important for me to be able to understand the concepts in the course
____Attending class is important for me to be able to score high on my exams
____Completing my homework is important for me to be able to understand the concepts in the course
____Completing my homework is important for me to be able to score high on my exams
____Studying is important for me to be able to understand the concepts in the course
____Studying is important for me to be able to score high on my exams
____I have all the resources I need to be successful in the course
____I would have liked to had additional resources to help me in the course
____Time spent working outside of class is more important to my success than class time
____Timely feedback is an important part of my learning process

APPENDIX B

Student Response Questionnaire: *Completed By The Treatment Group Only.*

Using the following scale reply to each question to indicate how much you agree or disagree with each statement.

1 2 3 4 5 6 7 8 9 10
Completely Disagree Completely Agree

____I found myself trying to find the correct answer if the "check my work" said my answer was incorrect
____The time I spent on homework decreased as a result of the computer graded homework.
____For homework that did not have computer graded feedback, I often just completed the requirements not really trying to find the correct answer.
____I spent more time trying to find the correct answer on cases that used the computer homework, than on those that didn't.
____I felt the instant grading feature very helpful.
____My learning increased as a result of the instant feedback feature.
____I often just typed in numbers until it was "correct" without working through the problem.
____Completing the online homework helped me do better on exams.
____If the computer graded homework said my answer was wrong, I generally did not try to find out why
____I believe that using the computers is an effective way to learn about accounting and business.
____I found the computer homework to be frustrating at times.
____I prefer doing homework on paper and/or excel.
____I like the fact that I can check my work at various sub sections.
____I think computer based homework should be required for this class.
____I was happy with a mixed to assessment. (Online and Paper exams).
____I prefer online based exams to paper exams.
____I have a more favorable view of accounting after taking this class.
____I enjoyed this class more than I thought I would.
____I would rather spend $90 on an electronic copy of the text than $250 for a hard copy.

Please rank the following features in order of helpfulness for your learning experience. (1= Most important, 4= Least important, Use each number once)
____Video Links
____Pull Down Menus
____Check My Work
____Hints

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