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## ABSTRACT

This document contains 23 papers from a conference on promoting excellence in research and teaching for business. The following are among the papers included: "Alternative Licensure/Certification Assessment of State Specialists" (Marilyn Chalupa, Ginny Richerson, Nancy Groneman, Kimberlee Bartel, Randy L. Joyner, Dennis LaBonty); "Assessing Online Instruction Self-Efficacy" (Frederick Augustus Randall); "Computer Application Skills of High School Students in Georgia" (Ric Calhoun, Melinda McCannon, Tena B. Crews); "Computer Use Confidence and Skill Level Gain in Lecture-Based and Text-Based Instruction: An Action Research Study" (Jonathan R. Anderson, Alexa B. North); "Developing Web-Enabled Interactive Financial Tools without HTML and Script Languages" (Jensen J. Zhao); "Employment Attributes" (Nancy Buddy Penner, Harry Nowka); "Identification of Job Experiences of IS (Information Systems) Graduates and Comparison of Graduates' and Professionals' Perceptions on the Importance of Skills Required for the Workplace" (Diane C. Davis, Nancy M. Gonzenbach); "Learning Styles and Computer Success" (Margaret J. Erthal, Kathy Harting); "Recommended Computer End-User Skills for Business Students by Fortune 500 Executives--2001 Report" (Jensen J. Zhao, Melody W. Alexander); "The Status of High-End Technology Skills Taught in Business Teacher Education Programs" (Kelly Wilkinson, Cheryl Wiedmaier); "The Survey of Office Roles and Responsibilities in China" (June Lu, Wanda L. Stitt-Gohdes); "Does Business Education Fit into OCRE (Off Campus Residential Experience)? (Cyril Kesten);

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"Examination of How Business Executives Use Proofreading by Co-Workers When Preparing Documents" (Sherry J. Roberts, Paula Jones); "Learning Styles and the Learning Curve: A Comparison of Knowledge Gained from Research Projects for Classes and a Research Project for Publication" (Kushani Vidanagama, Faye L. Smith); "Online Course Delivery: A Qualitative Review of Policy and Theory Using WebCT" (John Duncan, Fred Reneau); "Strategies for Teaching Internet Ethics" (Martha H. Rader); "Using a Course Management Program to Foster the Teaching/learning Process in Business Communication Courses" (Allen D. Truell, Robert Underwood, Melody W. Alexander, James E. Bartlett); "Conducting Longitudinal Research: An Action Research Guide to the Process" (Michael Bronner); "Needed Research in Business Education" (Martha H. Rader, William J. Wilhelm); and "Selecting an Appropriate Sample Size for Conducting Survey Research" (James E. Bartlett, Chadwick C. Higgins, Joe W. Kotrlik). Many papers contain substantial bibliographies. (MN)



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## Book of Readings

### 2001 Delta Pi Epsilon National Conference

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# **DELTA PI EPSILON**

## **2001 NATIONAL CONFERENCE**

**Promoting Excellence in Research and Teaching for Business**

**Research that Informs Educational Practice . . .  
Instructional Practice that Stimulates Research**

**November 15-17, 2001  
The DoubleTree Hotel Downtown  
Nashville, Tennessee**

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**PART I**  
**REFEREED RESEARCH PAPERS**

# Alternative Licensure/Certification Assessment of State Specialists

**Marilyn Chalupa**  
**Ball State University**

**Ginny Richerson**  
**Murray State University**

**Nancy Groneman**  
**Emporia State University**

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## Abstract

With the shortage of business and marketing teachers in the United States, current practices for alternative licensure/certification were analyzed to identify the processes and programs used to obtain alternative licensure. Information obtained regarding alternative licensure/certification of business and marketing educators indicated that alternative licensure is not only viable but also vital to ensure the future of business and marketing teacher education programs.

## Introduction

The shortage of business and marketing teachers across the United States has been a prime concern of the National Association for Business Teacher Education (NABTE) for several years. Business and marketing teacher educators across the country have been trying to increase the business and marketing teacher supply by improving student recruitment and by offering alternative business and marketing teacher licensure/certification programs. By completing alternative licensure programs, students can often become licensed business or marketing teachers in a shorter time frame than if they completed a traditional business or marketing teacher education program. However, to meet the demand for business and marketing teachers quickly, some universities and private, for-profit corporations have created short-term alternative licensure/certification programs. Some of these programs lack both the depth and breadth of business and marketing as well as professional education subject matter needed to prepare "qualified" business and marketing teachers. In fact, some alternative programs involve only a few weeks of coursework beyond a bachelor's degree before the students are qualified to be full-time business or marketing teachers.

## Review of Related Literature

A teaching certificate or state teaching license is needed for an individual to teach in the public schools. The teaching license is granted on a state-by-state basis with each state having the authority to determine the criteria for the license. Institutions of higher education coordinate with their state's department of education to design a curriculum meeting the state's guidelines for preparing teachers. Upon completion of the approved curriculum and other state requirements, the candidate is recommended to receive a teaching license or certificate. The process is designed to work well for traditional undergraduate students who recently completed high school and have selected teaching as their career. Traditional teacher education programs, however, are not designed to meet the needs of individuals wanting to enter the teaching field as a second career (Feistritzer, 1998). Alternative licensure/certification programs are designed to provide increased licensing avenues for people entering teaching from routes other than the traditional teacher education undergraduate degree. An individual with a bachelor's degree in a business-related discipline should have a way of becoming a teacher through an alternative route. The route may be stream-

lined or faster than the route for a traditional undergraduate student. These people likely have many business content competencies and also some teaching or instructional experience. Additionally, the alternative program typically is designed to include achieving a passing score on a certification/licensure test; participating in teacher training sessions; and completing a supervised teaching internship (Otuya, 1992).

Alternative certification programs have their drawbacks. McDiarmid and Wilson (1991) caution that alternatively certified teachers may lack adequate pedagogical skills. They also voice concerns about the knowledge base being narrower than that of teachers with a traditional teacher education degree. Zumwalt (1996) notes that the concern is valid because alternative programs vary in rigor. While some programs offer the equivalent of a one-year master's program others are "little more than dressed-up emergency licensing procedures." (p 41.)

Alternative certification, however, provides an avenue for many individuals to enter into teaching without returning to college for a formal teacher education degree. School systems benefit from having a greater pool of applicants. The applicants themselves differ from traditionally teacher preparation college graduates in that they are typically older, have more job experience, are more likely to be people of color, and are more likely to be men (Feistritzer and Chester, 2000.) With 40 percent of the K-12 student population projected to be minority students by 2020, it is important that the students have role models from their own cultural groups (Stoddard and Floden, 1995.)

Alternatively certified teachers typically have a strong knowledge of their subject matter and a strong desire to teach; however, they often lack classroom management and organization skills (Newman and Thomas, 1999.) Marchant (1990) also reports lower scores for alternatively certified teachers in using a variety of instructional strategies and in establishing a "positive learning environment." Although some of the differences in performance diminish with teaching experience, the concerns are real. Clarridge (1990) reports that teachers without the traditional professional education courses were less able to present subject matter effectively; to provide quality student feedback; or to properly assess student performance. Yet, alternative certification programs are expanding and are helping to meet the needs of the school systems (Newman and Thomas, 1999.) The programs provide subject matter qualified candidates to meet the nation-wide teacher shortages. Although traditional teacher education programs are not graduating enough teachers to fill the openings, there are individuals in many professional specialties interested in teaching. Alternative programs provide those individuals with a means to enter the teaching field quickly (Dill, 1994.) It is important that the subject matter competency be combined with pedagogical training so that the result is effective classroom instruction (Otuya, 1992).

## The Problem

With the shortage of business and marketing education teachers in the United States of America, NABTE adopted a position statement in 2000 that indicated, "... both traditional and alternative business teacher licensure/certification programs must be designed and offered by accredited colleges and universities." An analysis of current practices for alternative licensure/certification of business and marketing educators in the United States of America was undertaken to determine the consistency among the processes used for alternative licensure/certification as well as the requirements for and delivery of such licensure within the United States of America. This study was designed to examine the alternative licensure/certification of business and marketing educators in the United States of America to ascertain the practices, procedures, and policies used in accomplishing such licensure (Perreault, Chalupa, Richerson, Groneman, Bartel, Joyner, & LaBonty, 2001).

## Methodology

To obtain data to determine the alternative licensure requirements for marketing educators in the United States of America, survey research methodology was used. According to Dillman (1978), survey research methodology was appropriate when dealing with quantitative data, controlling costs of conducting research, and including a large portion of the population in the sample or participants selected. Thus, survey research was deemed the best approach to collect concerning alternative licensure in marketing education from each of the 50 states. The results of the alternative licensure/certification requirements for business education teachers was reported in the *2001 NABTE Review* (Perreault et al, 2001, pp. 14-24).

## Instrumentation

The questionnaire, Alternative Licensure Information Request—Marketing Education (ALIME) was used in this study and was adapted from an instrument developed by Richerson et al (1999). Permission was secured from the instrument authors to alter the wording to reflect marketing education alternative licensure requirements. After the wording of the instrument was revised, it was finalized in order that the questionnaire would appear in an op scan format. In generating the ALIME, necessary competencies, skills, and requirements needed by marketing education teachers were reviewed through the policy and position papers issued by a number of government and educational organizations. From the list of competencies identified, an instrument, the ALIME, was designed to determine the alternative licensure requirements of each of the 50 states and related territories.

The two-page instrument was designed to have a marketing education consultant from each of the state departments of public

instruction indicate each state's requirements for alternative licensed marketing education teachers. Statements concerning the requirements of alternative licensed marketing education teachers were generated from a review of literature concerning teacher licensure; these statements addressed not only academic concerns but also trends and issues regarding the status of alternative teacher education licensure within each state. Additional information about the future of marketing teacher licensure was also requested.

### Reliability and Validity

After the ALIME had been developed, three individuals who were perceived as experts in teacher licensure or survey research methodology reviewed the instrument. Further, these individuals indicated that the instrument was designed to obtain the data needed to ascertain alternative licensure requirements for marketing educators—the instrument was valid. After the experts certified its validity, the instrument in op scan format was administered to 25 individuals who were employed in teacher education licensure. The instrument included 13 items organized into four subscales. Based on the results of the pilot study, the following coefficients of internal consistency (Cronbach's alpha) were determined: (1) enrolled trends = .81; (2) demographics of marketing education's alternatively licensed teachers = .70; (3) professional preparation of alternatively licensed teachers = .79; and (4) required content or competencies for alternatively licensed teachers in marketing education = .73. According to Cronbach (1951), coefficients above 0.6 were desirable and values above 0.8 are needed for a developed scale. Therefore, the coefficients calculated for each section of the instrument were in the appropriate range.

### Procedures

Upon receipt of the reliability and validity certification, surveys were addressed to marketing education consultants employed by the state departments of public education in the United States of America. The names of marketing education consultants were obtained from the web pages of each of the 50 state departments of public instruction. Approximately two weeks after the initial mailing, a follow-up mailing went to those not responding to the first mailing. A telephone call was placed to the marketing education consultants who had not forwarded a completed instrument within two weeks after the second mailing. From the 50 instruments mailed, 29 completed and usable instruments were received. This represented a 58% response rate, which almost met Wunsch's (1986) suggestion of a 60% survey return rate for a representative response.

### Findings

**RQ1: Does your state have specific requirements for initial certification/licensure of marketing education teachers who have previously completed an undergraduate non-teaching degree?** The results indicate that 93% (n = 27) of states do

have specific initial certification/licensure requirements for marketing educators where 7% (n = 2) do not.

**RQ2: For which teaching areas or levels do you presently license marketing education teachers? (Mark all that apply.)** The results, as reported in Table 1, indicate that while several states license marketing teachers at the junior high level and above, few states license marketing teachers below the junior high level.

**Table 1**  
*Teaching Areas of Levels at Which States Licensure Marketing Education Teachers*

Area or Level	n	%
Elementary	0	0
Junior high/middle school	9	33
Postsecondary	0	0
High school and postsecondary	4	13
All teaching levels	2	7
Junior high, high school, and postsecondary	4	13
High School	8	27
Junior high and high school	0	0
No response	2	7

**RQ 3 and 4: Approximately how many alternative licensure students are enrolled in teacher education programs in your state? Approximately how many alternative licensure marketing education students are currently teaching in your state's public schools?** The results as illustrated in Table 2 indicate that approximately same number of students and current teachers are pursuing teacher education via the alternative route.

**Table 2**  
*Number of Alternative Licensure Students and Active Teachers*

Number	Alternative Licensure Students N (%)	Alternative Licensure Teachers N (%)
0-49	27 (93%)	23 (80%)
50-99	2 (7%)	4 (13%)
100-199	0 (0%)	0 (0%)
200 or greater	0 (0%)	2 (7%)

**RQ5: Have enrollment trends in your state's marketing education teacher preparation program increased or decreased over the last two years (1998-2000)?** As information presented in Table 3 indicates, 60% indicated a decrease in enrollments while 33% indicated no change.

**Table 3**  
*Enrollment Trends Over the Past Two Years (1998-2000)*

Enrollment Trends	N (%)
Increased	2 (7%)
Decreased	17 (60%)
No Change	10 (33%)

**RQ6: How many (semester) credit hours of professional or teacher education courses (excluding content coursework) are currently required for alternative licensure students in your state to become certified to teach marketing education courses?** As Table 4 illustrates, 46% of the respondents indicated 6-23 credit hours were needed while 34% indicated 23 or more credit hours were needed.

**Table 4**  
*Semester Credit Hours of Professional Teacher Education Courses Required*

Credit Hours	N (%)
6 – 14	9 (33%)
15 – 23	4 (13%)
23 – 31	6 (20%)
31 – 39	2 (7%)
40 or more	2 (7%)
No response	6 (20%)

**RQ7: How is each of the following typical professional preparation elements currently delivered to alternative licensure marketing education students in your state, if required?** The preparation components included instructional methods, curriculum, issues/trends in marketing education, instructing special needs learners, discipline and classroom management, laboratory management educational/ instructional technology (multimedia), and field experiences (internships/student teaching). Results of the responses are indicated in Table 5.

**RQ8: Based on your state's licensure/certification requirements, are the following courses required, recommended, or not applicable?** As Table 6 illustrates, 54% of the respondents indicated that Issues/Trends in Marketing Education and 40% of the respondents indicated that Foundations of Marketing Education were not applicable, respectively, while 40% of the respondents recommended the inclusion of instructing special needs learners and 53% of the respondents recommended the inclusion of laboratory management. Forty percent or more of the respondents required instruction in the remaining five areas.

**RQ9: What changes would you recommend to ensure the success of alternatively licensure marketing education teachers in your state?** The following narrative, verbatim responses were provided.

- More access for instruction.
- Break down barriers of timeframe—shorten courses.
- It's not going to happen in [state].
- Rebuild teacher preparation.
- All that is recommended for [the 8 items listed] be required.
- Alternative certification is relatively new. We do not know its full impact, yet.
- Alternatively certified teachers be held to the same professional development as regularly certified teacher.
- Be more involved with the high school teacher and in-service.
- A subject matter focus for professional preparation elements.
- We recommend that our State University of [state] re-establish a former program for certification of all Career and Technical Education teachers who are not certified.
- Improved communication between alternative route teachers/postsecondary institutions/district schools/state departments of public instruction.

**RQ10: Do you currently have a specific program for initial certification of students who have previously completed a bachelor's degree in marketing?** Forty percent (n = 12) indicated "yes" while 53% (n=16) indicated "no," and 7% (2) did not respond. If the respondent answered "yes," three additional questions were asked and answered.

**RQ10a: Do your students attempting to get initial licensure/certification at the graduate level have to take additional undergraduate work or prerequisite courses?** Thirty-three percent (n=10) indicated "yes" while only 13% (n=3) indicated "no," and 54% (16) indicated it was "not applicable."

**RQ10b: Do all of your students seeking initial licensure/certification student teach?** Forty-seven percent (n=14) indicated "yes" while 7% (n = 2) indicated "no." Forty-six percent (n=13) indicated "not applicable".

**RQ10c: Can your graduate students seeking initial licensure/certification receive graduate credit for student teaching hours?** Sixty-six percent (n = 19) indicated "not applicable," while 27% (n = 8) indicated "no," and 7% (n = 2) indicated "yes."

## Delivery Methods of Teacher Professional Preparation Curricular Elements

Response	Instructional Methods N (%)	Curriculum	Issues/ Trends in Marketing Education	Foundations of Marketing Education	Instructing Special Needs Learners	Discipline and Classroom Management	Laboratory Management	Educational/ Instructional Technology (Multimedia)	Experiences (Internships) Student Teaching
Exclusively with technical students from one area	3 (13%)	6 (20%)	12 (40%)	9 (27%)	2 (7%)	2 (7%)	6 (20%)	2 (7%)	8 (27%)
Integrated with students from multiple technical areas	10 (33%)	9 (27%)	9 (27%)	10 (33%)	9 (27%)	10 (33%)	10 (33%)	14 (47%)	8 (27%)
Integrated with students from all secondary disciplines and technical areas	9 (27%)	9 (27%)	3 (13%)	5 (20%)	10 (33%)	9 (27%)	2 (7%)	4 (13%)	2 (7%)
Integrated with students from all elementary, middle, and secondary disciplines and technical areas	2 (9%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)
Private learning	2 (9%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)	2 (7%)
Distance Education	0	0	0	0	0	0	0	0	0
Not applicable	0	0	0	0	3 (13%)	2 (13%)	6 (20%)	4 (13%)	6 (20%)
No response	1 (6%)	1 (5%)	1 (6%)	1 (6%)	1 (6%)	1 (6%)	1 (6%)	1 (6%)	1 (5%)

rounding errors

**Table 6**  
*Course Requirements for Licensure/Certification*

Course	Required N (%)	Recommended N (%)	Not Applicable N (%)
Instructional Methods	21 (73%)	2 (7%)	6 (20%)
Curriculum	17 (60%)	6 (20%)	6 (20%)
Trends/Issues in marketing education	4 (13%)	10 (33%)	15 (54%)
Foundations of marketing education	10 (33%)	8 (27%)	11 (40%)
Instructing special needs learners	10 (33%)	11 (40%)	8 (27%)
Discipline and classroom management	14 (47%)	10 (33%)	5 (20%)
Laboratory management	4 (13%)	15 (53%)	10 (34%)
Educational/instructional technology	11 (40%)	11 (40%)	7 (20%)
Field experiences (internships/student teaching)	17 (60%)	4 (13%)	8 (27%)

rounding error

### Conclusions

No consistency exists in terms of the number of hours required in alternative programs designed to prepare marketing teachers. Although 33% of the state supervisors responding indicated that they required 6-14 hours in their alternative marketing teacher certification programs, the majority of the programs required more than 14 hours, with two of the programs requiring as many as 40 hours or more.

In terms of the number of state supervisors who indicated they offer a specific program for initial certification of students who have completed a bachelor's degree in marketing previously, there is no overwhelming consistency of responses. Fifty-three percent of the state supervisors indicated they do not have such programs while forty percent indicate they do have that type of program.

Greater consistency among the state supervisors who responded was found in the specific courses required for marketing teacher education licensure. An instructional methods course was required by 73% of the state supervisors who responded; and both curriculum courses and field experiences (internships/student teaching) were required by 60% of the state supervisors who responded. A course covering discipline and classroom management was required by 47% of the state supervisors who responded.

Of the 27 state supervisors who responded, 13 indicated that students could get initial licensure/certification through graduate level course work. However, 10 of the responding state supervisors required the students to take additional undergraduate work or prerequisite courses in addition to the graduate work to get initial licensure/certification.

### Summary

Traditional business and marketing teacher education programs are currently in place. Accordingly, those seeking a teaching career in business and/or marketing education should attend a college or university, which has a NABTE institutional membership, and enroll in one of these programs. Yet, traditional or modified business and marketing teacher education preparation programs may not meet the needs of individuals who are entering the teaching profession. Therefore, NABTE members should work together to provide courses in a variety of deliveries and schedules to support the alternative licensure/certification for business and marketing teachers. By providing varying deliveries and schedules of course work, people with non-educational backgrounds may seek careers in teaching business or marketing subjects. Further, these courses can be offered in a variety of settings, such as weekend workshops, intense summer seminars, online classes, and correspondent courses. Finally, NABTE members should communicate with all stakeholders who can help solve the business teacher education shortage. These include state specialists, teachers, state licensure/certification personnel, officers in state business education associations, and others. Cooperatively these stakeholders can solve the business and marketing teacher shortage.

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# Assessing Online Instruction Self-Efficacy

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## Abstract

Online instruction is an emerging trend in educational practice. Computer and Internet technologies are more commonly being used for distance education and classroom augmentation, however the impact of learners' self-perceptions on performance with these tools has not been fully assessed. In this article a theoretical model of online instruction self-efficacy is compared to a model derived by exploratory factor analysis. Albert Bandura's conceptualization of self-efficacy was used as the theoretical base for evaluating learners' judgments of their ability to participate in online instruction under diverse situations and levels of difficulty.

## Introduction

Online instruction is increasingly being used in educational practice (Khan, 1997; Palloff & Pratt, 1999). The use of computers in educational instruction is not new, and the use of computer technology in distance education, facilitation of communication, and classroom augmentation is increasingly common (Barnard, 1997). Currently, the technology has increased sufficiently to allow the beginnings of instruction using the Internet as a means of facilitating the entire learning experience without entering a physical classroom. This emerging instructional technique is already being implemented in university and corporate settings, yet the characteristics of online instruction have not been fully examined.

The increased use of online instruction necessitates investigation of learners' beliefs, attitudes and confidence regarding the use of this instructional technology. Personal confidence often influences behavior; people engage in activities that they feel confident they can undertake and avoid activities when uncertain of their ability to perform well. Beliefs about personal capability to plan and complete required actions is the basis of self-efficacy, a psychological construct proposed by Bandura (1977). Bandura (1977, 1986, 1997) reported that self-efficacy judgments could influence choice of activities, the level of effort exerted, persistence in difficult situations, and performance. This basic relationship between beliefs and action is particularly important to online instruction since much of the technology is unfamiliar, novel, and is an area of rapid change. It has been hypothesized that one's knowledge, skills, and prior achievements may be poor predictors of how they will do in ensuing experiences due to these mediating self-evaluations (Bandura, 1997). Therefore, one's previous educational experiences may not be indicative of experiences in online instruction since the person's self-efficacy beliefs regarding online instruction will mediate their actions during the learning experience, and ultimately, effect their performance and the outcomes of the experience.

While the self-efficacy construct has been examined in academic settings (Kinzie, Delcourt, & Powers, 1994; Madorin & Iwasiw, 1999; Pajares, 1996; Zimmerman, 1995), few studies (Jiang, 1998; Reinhart, 1999) have investigated self-efficacy related to online instruction and no comprehensive, multidimensional survey instrument assessing self-efficacy beliefs concerning online instruction could be found in the literature. To better understand learners' involvement in online learning experiences, a survey instrument needs to be developed that will assess perceived capability in a variety of online instructional tasks with different levels of task demand. This information is essential to both the appropriate development of online courses and the preparation of students to successfully learn from this new delivery system.

To examine online instruction self-efficacy, a theoretical framework for online learning was developed using two main sources: Bandura's (1997) conceptualization of self-efficacy and Khan's (1997) characteristics of online instruction, each of which will be briefly introduced. In addition to that framework, concepts and theories related to the domains of self-efficacy, online instruction and educational practice were used to develop a theoretical model of online instruction.

## *Self-Efficacy*

Self-efficacy, a central concept of social cognitive theory, is belief in one's capability to organize and execute a particular action under a given set of conditions. Self-efficacy judgments influence choice of activities, level of effort exerted, persistence in difficult situations, and performance. Self-efficacy beliefs serve as a mediator between capability and performance, so that one's performance is partially governed by their belief that they can perform the action. This means that people with similar abilities, or the same person under different conditions, may perform differently depending on their self-efficacy beliefs. This focus on individual beliefs does not suggest that belief of capability is divorced from actual skills. Effective performance requires both the requisite skills and the belief that the skills can be success-

fully used in a given situation. "Without skill, performance isn't possible; without self-efficacy, performance may not be attempted" (Ertmer, Evenbeck, Cennamo, & Lehman, 1994, p. 46). Bandura (1982) stated that self-efficacy beliefs result in four types of behavior: (a) performance, (b) efforts towards emotional arousal, (c) coping efforts, and (d) persistence in challenging situations. Research has shown that precise and specific measurements of self-efficacy results in a highly correlation between self-efficacy beliefs and subsequent performance (Bandura, 1997).

Self-efficacy beliefs vary along several important dimensions including level of self-efficacy, generality of self-efficacy beliefs, and strength of efficacy belief (Bandura, 1997). The level of self-efficacy refers to the degree of challenge required in the given situation in which the person will perform. For example, if a person is to demonstrate his skill in driving a car, there would be low level of challenge if asked to perform the skill in a closed driving course, and self-efficacy might be high. If the level of challenge is to drive a car on a busy four-lane highway, the level of self-efficacy may be reduced. Moreover, if the level of challenge is to drive competitively in a Grand Prix, the person's self-efficacy beliefs may be further reduced due to the high demands of the situation.

The generality of self-efficacy beliefs can also vary. In some performances, people may believe in their capability across a wide range of activities or only in certain domains of functioning. For example, a person's belief in their ability to perform well while playing games with peers may be broad across sports categories such as football and baseball, yet not extend to playing abstract strategy board games such as chess. Generality can vary along several dimensions: similarity of activities; whether the performance is expressed in the behavioral, cognitive, or affective realm; qualitative situational features; and the personal characteristics of the people involved in the action (Bandura, 1997).

Additionally, self-efficacy beliefs can vary by strength, which can affect motivation and perseverance (Bandura, 1997). If a person holds a weak belief in their ability to complete an action, they are more easily dissuaded than the person who holds a secure belief in their abilities, and may not even attempt the performance. Likewise, the person who has a strong self-efficacy belief will persevere longer and thus increase the chance that the action is successfully completed.

Self-efficacy beliefs are derived from four principle sources of information including enactive mastery experiences, vicarious experiences, verbal persuasions, and physiological and affective states:

1. Mastery experiences are performances where the person believes the outcomes were successful and the direct result of their actions. These mastery experiences are the most influential source of information on self-efficacy since mastery experiences provide direct experience of whether a person can complete the necessary tasks or not.

2. Vicarious experiences are the second source of information for self-efficacy beliefs. Vicarious experience can allow us to rate our abilities in ambiguous situations by comparing ourselves with other's abilities. If we believe we have abilities similar to a person viewed completing an action, we infer our ability to perform as well, resulting in higher self-efficacy belief in our performance. Similarly, if we feel affinity to a person observed failing in a task performance, it is likely to diminish our belief in our ability to execute the task correctly.
3. Verbal or social persuasion is the third source of efficacy information. Hearing that others believe in a person's ability to complete a task tends to assist the individual in believing that they have the ability to succeed.
4. In the last source of influence on self-efficacy beliefs, people use their physiological and affective states to inform them of their capabilities. Emotional arousal, stress, fear, tenseness, and feelings of elation, satisfaction, and irritation can all impact performance. People are likely to believe in their efficacy if they do not experience stress reactions when executing a behavior, since high levels of aversive arousal can negatively affect performance (Bandura, 1997).

### *Components and Features of Online Instruction*

While self-efficacy theory provided a framework for assessing online instruction beliefs, it did not offer the domain-specific information about the online instruction skills and activities to be assessed. To create an appraisal instrument, a conceptual analysis of the domain of online instruction was needed. Without being linked to specific situations with graduations of challenge, assessments of self-efficacy lose explanatory and predictive power (Bandura, 1997). An analysis of the current literature was used to determine a comprehensive model of online instruction, which was used to generate the survey items. Harasim (1990) and Kahn (1997) have introduced pertinent characteristics of online instruction.

Harasim (1990) identified five important characteristics of online instruction:

1. Many-to-many communication: Group interaction and information exchange in a many-to-many format is possible using computer conferencing.
2. Place-independent group interaction: Group activities and collaborative efforts are available to geographically dispersed groups.
3. Time-independent communication: Asynchronous allowing learners can communicate at any time and place convenient to them.
4. Text-based communication: While some video and audio communication does occur with online instruction, most information transfer is text-based.

5. Computer-mediated learning: Learning and communication processes are mediated by computers.

In addition to these key characteristics, Khan (1997) attempted to describe online instruction in terms of components and features. Components are defined as integral parts of the online instruction system, which alone or in combination with other components, contribute to the features of online instruction. Components compiled by Khan include: content development, multimedia components, use of computer platforms, and browsers and other applications. These components and features were used as guides to the essential elements of the domain of online instruction.

The features of online instruction were into two categories: key features and additional features. Key features of online instruction include: "interactive, multimedial, online search, device-distance-time independent, globally accessible, electronic publishing, uniformity world-wide, online resources, distributed, cross-cultural interaction, multiple expertise, industry supported, learner-controlled, etc." (Khan, 1997, p. 8). The additional features, which are dependent on the quality and advancement of the online instruction system, included: "convenient, self-contained, ease of use, online support, authentic, course security, environmentally friendly, non-discriminatory, cost effective, ease of coursework development and maintenance, collaborative learning, formal and informal environments, online evaluation, virtual communities, etc." (Khan, 1997, p. 8). These features and additional features are inherent to many online instruction systems and impact learning and instruction on the web.

### *Self-Regulation*

In addition to the domain-specific characteristics of online learning, a review of related literature revealed the learner self-direction and self-regulatory skills might be important to assessing online learning self-efficacy. Bandura (1991) stated that self-regulatory systems lie at the heart of human agency. Motivation and action are not just determined by external rewards or punishments but are regulated by intentional forethought and self-reflection. Bandura (1991) described three main mechanisms of self-regulatory systems: self-observation, judgmental processes and self-reaction.

Bandura (1991) hypothesized that self-observation skills assist individuals in two main ways. First, self-observation, or self-reflection, has a self-diagnostic function which allows people to monitor their reactions, achievements, thought patterns, etc. This self-diagnostic skill provides the guidance and direction for self-regulation. Secondly, self-observation functions as self-motivation. As people reflect, they are more likely to use goal setting and be self-directed in their actions. This ability to reflect and self-motivate may be important to learners participating in online instruction. Shomaker (1998) claimed that students in distance education must have a high tolerance for ambiguity and be independent learners.

The second mechanism, self-judgement, influences how a person evaluates their performances. People develop internal, personal standards of what is acceptable and what is not. Additionally, these self-judgements are often referenced to standard norms or compared to other persons either individually or collectively. Self-judgment also includes value judgments of the importance of activities, which relates to motivation and self-regulation. Finally, self-judgements relate to determinants of actions. If they feel that they are not at fault for a poor performance or feel that the external demands were too great, they are less critical of themselves (Bandura, 1991).

The third mechanism of self-regulation, self-reaction, relates to viewing personal performances positively or negatively based on personal standards. People tend to prefer positive self-reactions and positive tangible outcomes and work towards attaining these, providing personal motivation. This motivation has been found to be greater for those people who make self-satisfaction or rewards contingent upon completing particular events (Bandura, 1991).

Self-efficacy affects each of these self-regulatory mechanisms. Self-efficacy affects perceived causes of successful performances and poor performances, with high self-efficacy being related to insufficient effort, whereas low self-efficacy is often associated with low ability. High self-efficacy can result in people setting higher goals for themselves and can influence on the valuation of activities. When people perceive themselves as being self-efficacious in an activity, they show sustained increased interest in the activity.

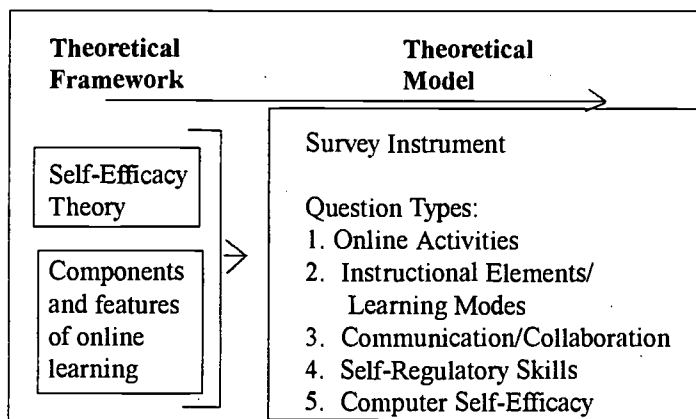
These three major areas, self-efficacy, characteristics of online instruction, and self-regulation, were used to construct a theoretical model to assess learners' self-efficacy beliefs related to participating in online instruction, as shown in Figure 1. This theoretical model, along with expert review, was used to generate a survey instrument.

### **Research Procedures**

The specific procedures used in this study followed Spector's (1992) suggestions in developing a summated rating scale. The procedure for this study included pilot testing of the instrument for face validity and item clarity, revision of the instrument based on data from the pilot study, and finally examined exploratory factor analysis.

The pilot testing for this study was done in two phases. First, a panel of experts reviewed the proposed instrument for face validity and item clarity. The resulting information was used to revise the instrument. Next, the revised instrument was pilot tested with a group of university students for item clarity and reliability. The statistical findings of the data gathered were used to revise the instrument to its final form.

**Figure 1**  
*The Original Theoretical Framework for Assessing Online Instruction Self-Efficacy*



The 40-item online instruction self-efficacy instrument was implemented with a group of 841 trainers for the National Joint Apprenticeship Training Committee (NJATC), which is cosponsored by the International Brotherhood of Electrical Workers (IBEW) and the National Electrical Contractors Association (NECA) at their national training conference. 764 surveys, roughly 90% of the sample, were returned and used in the subsequent preliminary analysis.

### Findings

Since this research was designed as a preliminary investigation of the salient characteristics of online instruction self-efficacy, exploratory factor analysis was used to investigate the factor structure. Exploratory factor analysis, using the principal component method of extraction and orthogonal rotation (Varimax), revealed a 3-factor structure accounting for 68% of the variance found in the sample data. This structure included a single main factor and two minor factors.

The main factor, with an eigenvalue of 16.5 accounting for 57% of the variance, included 14 items, and had a reliability coefficient of .96. These survey items had an underlying pattern focused on the technological/Internet skills needed for participating in online instruction. For example, items such as “download and install software for my Internet browser that is needed for the course”, “save a document from the Internet”, and “find my way (navigate) around websites” are skills that all loaded highly on this factor.

The second factor, with an eigenvalue of 1.8 and accounting for 6% of the variance, included items with an underlying theme of collaborative behavior. The 10 items in this factor had a reliability coefficient of .94. Items loading highly on this factor included belief in the ability to “develop a relationship with another course participant”, “participate in group decision making”, and “organize and lead a course project involving other participants”.

The third factor, with an eigenvalue of 1.4 and accounting for 5% of the variance, focused on individual behavior, with items including “stay involved with the course without face-to-face interaction with other participants”, “work alone”, and “learn from information presented in a video format”. This third factor included 8 items and had a reliability coefficient of .89.

### Discussion

While this research is still in a preliminary stage and must be verified with additional samples from a cross-section of potential online instruction students, it seems that some information on assessing online instruction self-efficacy can be gleaned. It is evident that belief in one’s ability to complete the technical demands of participating in an online course is a chief determinant of online instruction self-efficacy for this sample. Mastering the computer skills necessary and the ability to use the required Internet tools are important prerequisites to participating in an online course.

To a lesser degree, it seems that a set of collaborative skills and individual skills impact online instruction self-efficacy. This is often true in the traditional classroom and seems to translate into the virtual classroom. In effect, to be an efficient learner is to be able to work well with others as well as have the skills to complete the components of the course that require individual work. Of course, the virtual classroom introduces a different set of tools for collaborative work. Participating in group work when you never actually meet with the other group members obviously requires a set of tools for communication and collaboration. In this sample, belief in the ability to do these collaborative tasks was an important factor.

The least influential factor, though still important, was belief in the ability to complete tasks of an individual nature. The most obvious factor that is missing in this derived model of online instructional self-efficacy when compared to the theoretical model is the lack of a self-regulation factor. It was hypothesized that participating in online instruction may require a higher degree of self-regulation and self-directedness compared to the traditional classroom. It could be argued that this last factor represents self-regulation. However, items geared specifically to the self-regulation process, such as “plan and manage my own learning needs”, and “prioritize my own course activity workload” did not load well in the exploratory factor analysis.

In conclusion, this research can provide instructors with a basic model for making sure students are ready to participate in online learning. Specifically, students need to have the prerequisite technical computer and Internet skills required for the online learning environment. Additionally, preparation to use new types of tools to facilitate communication and collaboration with other class members, especially if the course includes a degree of collaborative learning, may be necessary.

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# Computer Application Skills of High School Students in Georgia

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## Abstract

The purpose of this study was to determine the computer proficiency of high school students in Georgia. The survey focused on skills related to using software applications, but also included questions about Microsoft Office User Specialist (MOUS) Certification, demographics, and course enrollments.

The findings indicated that large percentages of students had been trained in word processing, spreadsheet, and presentation management software, but were less likely to be exposed to database applications, web page creation, operating systems or the Internet. The findings also indicated that close to half of the students enrolled in the basic computer application courses were on the college prep curriculum track. Recommendations included a curriculum change in the introductory computer applications course offered by colleges.

## Introduction

College business graduates have been required to demonstrate basic computer skills since businesses began using computers on a large scale for business applications. As the computer industry has changed and the personal computer has become a necessary tool for all business desktops, the definition of basic computer skills for college computer classes has shifted to meet the requirements of business.

Today, there is a continued need for computer literacy for college business students (McGowan, 1999). Employers continue to look for employees of all types with better computer skills. Fisher-Larson (1997) noted the importance of students learning all aspects of computer applications to enable them to enter the workforce prepared to find a position. Furthermore, Massachusetts is studying a general education exam for all graduates that would include computer literacy (Healy, 1998).

Moreover, many students in secondary schools have been targeted in recent years for required computer literacy. Baab (1999) and Milburn and Rude-Parkins (1997) described education programs implemented to guarantee the computer literacy of students. Bostic (2000) reported on appropriate criteria to be used in selecting software for the pre-school computer curriculum. Kellner (2000) and Dianis (2000) wrote that education in the twenty-first century would require us to consider computer literacy a necessity.

For the last decade the basic computer course for business students has focused primarily on the personal computer applica-

tions of word processing, spreadsheets, and database applications. However, due to the enormous growth in the home ownership of personal computers and the availability of computer technology to secondary schools, many students are entering colleges with their basic computer skills already developed (Rogers and Randall, 1997; Gordon and Chimi, 1998). Yet not all high school graduates are required to demonstrate computer skills to earn their diploma nor to enter college (Georgia Department of Education, 1998).

Currently, all 31 of the colleges and universities in the State of Georgia that have a business major offer an introductory course in computer applications (Business Advisory Council, 2001). The major content areas in these courses include, but are not limited to, word processing, spreadsheet applications, and database processing. Many of the colleges now have a course that is very introductory in nature but none really know the skill level of the freshmen that arrive on their campus.

A number of questions arise. Are all students entering college with at least some introductory computer skills? Is the basic applications course offered by colleges still appropriate as an introductory course? If not, what skills or concepts should be considered introductory and required for business students?

## Purpose

The purpose of the study was to determine the computer proficiency of high school graduates in the state of Georgia.

Research questions that guided this study were:

1. What computer application skills are required for all high school graduates in the state of Georgia?
2. What percentage of those high school students taking the computer courses are on the college prep curriculum track?

### Method

The researchers created a 15-item survey to administer to high school business education teachers in Georgia. The names and addresses of the teachers were obtained from the Georgia State Department of Education. The survey was designed to gather specific information about the computer application skills demonstrated to high school students.

### Review of Literature

Recent research has shown an increasing number of computers being used by secondary school students in their homes. Samuelson (1999) reported in *Newsweek* that 50% of homes in the United States had personal computers compared to 15% in 1990. The National Center for Education Statistics (NCES) website reported from an October, 1997 survey of the Commerce Department that 50.7% of students in grades 1 through 8 and 55.7% of students in grades 9 through 12 had computers in their homes (Snyder and Hoffman, 2001).

Furthermore, more students are being exposed to computers in secondary school settings. In Georgia, 171,089 desktop computers were reportedly available in 83,229 classrooms for student usage with another 19,757 available in media centers and another 59,271 in computer labs (Georgia Department of Education, 1999). The NCES website indicated that 79.3% of students in grades 1 through 8 and 70.5% in grades 9 through 12 had reportedly used computers at school (Snyder and Hoffman, 2001).

In fact, recent statistics indicate that many secondary school students have had experience with a number of specific software applications. According to Snyder and Hoffman (2001), 36.1% of students in grades 1 through 8 had experience in word processing, while in grades 9 through 12, 65.9% of students had experience in word processing. According to the same data, 6.5% of students in grades 9 through 12 had experience with spreadsheets and 6.1% had experience with databases (Snyder and Hoffman, 2001).

Statistics on college students also exist. Olsen (2000) found that on five college campuses across the country – Michigan State, SUNY at Buffalo, Virginia Tech, Wellesley College, and Hamilton College – a majority of the freshmen, in some cases 90%, were entering college with personal computers. In fact a growing number of colleges are requiring students to own computers. Although *The Chronicle of Higher Education* (Growing Number, 2000) reported that less than 10% of colleges and universities required computers, the same article reported that many

colleges planned to implement the requirements in the fall of 2001. In Georgia, three of the colleges in the University System of Georgia — Floyd College, Clayton State College and University, and Georgia Tech — have required students to own computers for over three years.

A number of researchers have studied the computer skills of incoming freshmen college students. McGowan (1999) found that incoming freshman to Bradley University had developed computer skills to the extent that the traditional computer applications course of word processing, spreadsheet applications, and database processing had become outdated. In separate conferences for the International Academy for Information Management, Rogers and Randall (1997) and Gordon and Chimi (1998) reported an increase in the computer skill level of business majors.

In the State of Georgia, the Department of Education has developed a technology curriculum for high school graduates in Georgia (Georgia Department of Education, 1998). In fact, the curriculum includes standards that reach into the elementary grade levels (Georgia Department of Education, 1998). Yet the standards are not required for advancement nor do any achievement measurements exist. The result is a college student population for many schools with computer skills that are relatively unknown.

### Findings

The survey instrument was mailed to 378 high school business education teachers in Georgia. One hundred and four of the surveys were returned for a return rate of 27.5%. The first four questions related to MOUS (Microsoft Office User Specialist) Certification. All 104 respondents indicated that no certification test was offered to students in their curriculum. However, 63 of the respondents (60.6%) indicated that their curriculum provided students with the information necessary to successfully take the certification tests. Furthermore, all 63 of the positive respondents indicated that their students could earn certification at the core Word level. Though few teachers pointed out that their students were prepared for expert level of Word or Excel, 59 (56.7%) of them indicated their students were prepared for the core Excel level, 56 (53.8%) were prepared for PowerPoint, and 33 (31.7%) were prepared for Access.

The teachers were asked to describe the types of projects that students typically create in computer applications classes. The next five tables will display the results of the answers as they related to word processing, spreadsheets, presentation management software, database processing applications, and web page creation.

Table 1 summarizes data related to the word processing skills of high school students in Georgia. A large percentage of the respondents noted that their students participated in most of the word processing tasks that were mentioned on the survey.

**Table 1**  
*Percentage of Teachers Indicating Their Students Participation in Word Processing Projects*

Task	Percentage
Standard business letters and memos	93.3
Business letters with custom letterhead	88.5
Flyers or newsletters	98.1
Reports	100.0
Resumes	86.5
Mail Merge Documents	72.1
Other Activities	32.7

Table 2 contains data related to spreadsheet applications. The respondents surveyed noted that many of their students had experience with some of the fundamental aspects of spreadsheets such as creating formulas and using functions; however, less than half experienced more advanced capabilities usually covered in a college introductory course.

**Table 2**  
*Percentage of Teachers Indicating Their Students Participation in Spreadsheet Projects*

Task	Percentage
Simple formulas	96.2
Simple functions	95.2
Simple formatting	98.1
Advanced formatting	86.5
Using search operators	46.2
Absolute referencing	49.0
What-if analysis/Goal Seeking	31.7
Embedded Charts	47.1
Macros	22.1
Shared workbooks	21.2
Data maps	19.2
Other features	1.0

Table 3 indicates that the respondents believed that most students that took the course had experience with a number of tasks with presentation graphics software.

**Table 3**  
*Percentage of Teachers Indicating Their Students Participation in Presentation Projects*

Task	Percentage
Wizards	93.3
Design Templates	88.5
Clipart	98.1
Scanned or imported photographs	100.0
Slide transitions	86.5
Text Effects	72.1

The percentages of responses related to database applications were lower than the three previous applications. However, well over half of the respondents indicated that students had participated in the fundamental tasks related to the use of databases.

**Table 4**  
*Percentage of Teachers Indicating Their Students Participation in Database Projects*

Task	Percentage
Designing	69.2
Simple Sort	71.2
Multiple Sorts	61.5
Simple Criteria	65.4
Multiple Criteria	47.1
Reports	66.3
Forms	54.8
Relationships	22.1
Validation Rules/text	9.6
Required properties	12.5
Lookup fields	17.3
Compact and repair	5.8
Index	7.7
Other	0.0

As table 5 indicates, students are not as likely to participate in projects related to web page creation as they are in any of the other software applications.

**Table 5**  
*Percentage of Teachers Indicating Their Students Participation in Web Page Creation Projects*

Task	Percentage
Using wizards	43.3
Create from Word Processing or presentation documents	35.6
Hyperlinks within documents	44.2
Hyperlinks to other documents	40.4
Frames	25.0
Write HTML Code	20.1
Other	7.7

Teachers were asked whether any of their computer classes covered how to use the Internet or e-mail. Of the 91 responses to the question, 71.2% indicated that they covered Internet features while 35.6% covered e-mail features. A few of the respondents indicated that school policies would not allow the use of Internet and e-mail in the classroom. Teachers were also asked whether any of the computer classes covered operating system topics. Of the 87 responses, 47.1% indicated that they did cover operating system topics while 36.5% did not.



## Demographics

Demographic information about the schools, teachers, and number of students enrolled in the coursework was also obtained. When asked about the use of Microsoft products in computer classes, 84.6% of the respondents indicated that they did use Microsoft products, but only 1.9% (only 2) answered that they did not. Forty-three percent of the respondents indicated that their school was located in a rural area, 18.3% indicated an urban area, and 22.1% indicated a suburban area.

The respondents reported that most taught in a smaller school or at least a school with a small business education department. Seventy-three percent of the respondents indicated that there were only one to five teachers in their department while only 10.6% were in departments of 6 to 10 and only 4% had departments larger than 10. The majority of respondents indicated that their education staffs were experienced with a full 70% having between 6 and 20 years experience and another 9% with over 20 years experience.

Very few respondents nor their business education colleagues have computer certifications such as MOUS and A+. Only 12% of the respondents indicated that any of the business education teachers at their schools had MOUS certification and only 13% indicated that any teachers had any other type of certification.

In response to the questions about industry certification, 24% indicated that their school's business education program was certified, 8.7% indicated that the program was in the process of becoming certified, and 34.6% indicated that the program was planning to go through the process in the future. Another 29.8% indicated that their program was simply not certified.

The final question had a great impact on the necessity of the study. Respondents were asked to indicate the percentage of college preparatory students that take the computer applications course. A computer applications course offered in high schools in Georgia is offered through the business education program and therefore is not a required course for the college preparatory degree. Although 18.3% of the respondents indicated that they did not know the number of students that had taken the course, 41.3% indicated that over 46% of students who graduated enrolled in the computer course and 31.7% indicated that over 50% took the course.

## Conclusions and Recommendations

The computer has become a tool that is used by students at every level of education. As a result, many students are beginning college with an abundance of computer skills already developed. The results of the survey confirm that, in Georgia, students are gaining computer skills before they begin college. Although it is unclear the actual number of students that are taking computer classes in high schools, the survey indicates that close to half of high school graduates have taken an applications course.

Therefore, colleges should look closely at their introductory computer applications course in the area of business to determine if the course is sufficiently challenging for high school graduates.

Specifically, we recommend that:

1. More research should be done to accurately determine the number of high school graduates who have credit for computer courses.
2. The Georgia Department of Education should require the completion of a computer course or an equivalent exemption for graduation.
3. Colleges should develop an entrance exam to determine the skill level of students so that they are not placed in a course that teaches them skills they already possess.
4. Colleges should develop a course that focuses on the computer applications skills that have not been developed by high school graduates such as spreadsheet and database applications, in particular focusing on the advanced skills offered by these applications.

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# Computer Use Confidence and Skill Level Gain in Lecture-Based and Text-Based Instruction: An Action Research Study

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## Abstract

With increased emphasis on using technology in the classroom, it is imperative for researchers to discover how technology can best assist in learning. This study measured lecture-based and text-based instruction in a high school business education classroom. Two separate classes received instruction in word processing. Group one received lecture-based instruction; Group two received text-based instruction. Results, implications for classroom instruction, and directions for future research are discussed.

## The Need for Study

Business instruction is rapidly changing, specifically in the area of instructional methods. Advances in technology allow faculty to teach business content (accounting, finance, management, computer use, etc.) using a variety of mediums. In some courses, students receive the majority of their instruction while sitting at a computer terminal. To date there have been few studies that evaluate effective instructional methods for computer-based instruction. Realizing the intent of instruction is to instill in the students the ability to transfer what they have learned in class to the "real world" (Hunter, 1996), this study measures two instructional strategies (lecture and text-based computer instruction) and their effects on students' confidence in autonomous computer use.

## Related Literature

Research in the use of computer-based instruction includes study from many diverse areas. Examples include multimedia rat dissection (Predevec, 2001), multimedia vs. text-based teaching of sports skills (Mckethan, 2001), matching computer-based engineering technology to cognitive learning styles (Boles, 1999), and studying teachers' beliefs in special education about computer-based instruction in the classroom (Macarthur, 1991). With such wide content variety, it is a challenge to align studies and compare results.

One study, however, relates well to the current study. Keuhner (1999) studied reading ability increases in community college students. Students were divided into two groups, one given text-based instruction and the other given computer-based instruction. Of the 40 students that volunteered, 11 completed the study. The results of Keuhner's study indicates there was no difference

in the increase of reading levels between the computer-based and text-based instruction. The results of Keuhner's study are relevant because this current study compares text-based and computer-based instruction and because the research model is similar.

## Methodology

During a six-week period, two high school computer applications classes received instruction in word processing skills. All students used the same software and were given instruction in the same content.

The first group of students was instructed through lecture, using an LCD that projected the instructor's computer screen. The instructor taught the students to perform the word processing techniques and guided the students through the process of performing certain word processing tasks. Group one students were able to ask questions throughout the instruction and were given individual and group assistance.

The second group of students received textbook-based instruction. The textbook is from a major publishing company. It takes the students through basic word processing skills giving examples and assignments throughout. Group two students were required to answer their own questions by referring to the text or to the help menu assistance available within the word processing software. These students received minimal help from the instructor. The instructor answered the students' questions by referring them to the section of the text or help menu in which they could find answers on their own.

Each student was evaluated, through the use of a pretest, to measure current ability to use the word processing software. The

pretest was a skill-based test. Students were given written instructions and asked to complete word processing tasks. The tasks were to be completed in one 90-minute class period. The instructor evaluated each student on his or her ability to complete each of the tasks without assistance. Students were rated on a scale of 0-3 on the number and quality of completed tasks (0 being no tasks complete and 3 all tasks completed accurately).

The second instrument was a Likert-type scale questionnaire, developed by the researcher due to the specific nature of the study. This instrument was designed to measure the confidence level of the student in performing each of the word-processing tasks. It also gathered demographic and historical information for group comparison. The questionnaire asked each student to rate himself or herself on his or her perceived ability to complete a defined word processing task. This section included eight word processing tasks. Students rated themselves on all eight tasks.

Students were also asked to rate themselves on their confidence level in completing a new word processing task in one of three ways: autonomously, with help from the instructor, and with the assistance of a textbook.

### Results

Prior to the study demographic and ability data were collected and are shown in tables 1 and 2. The average performance increase by students is shown in Table 3.

**Table 1**  
*Data for Group Comparison*

Data Category	Group 1 Lecture-based Instruction (Mean)	Group 2 Text-based Instruction (Mean)
Production Rating (pretest)	1.0 (scale 0-3)	1.0 (scale 0-3)
Daily hours of computer use (outside of class)	1.0	1.8
Age at first computer use	10.5	7.5

n=50

**Table 2**  
*Data for Group Comparison*

	Group 1 Lecture-based Instruction (Percent)	Group 2 Text-based Instruction (Percent)
Computer in home	88%	100%
Internet at home	80%	92%
Previously enrolled in another computer courses	20%	20%

n=50

**Table 3**  
*Results for Groups One and Two*

Data Category (Measures are calculated on a 10 pt. Scale)	Pre Instruction		Post Instruction		Net Gain	
	Lecture Group 1	Text Group 2	Lecture Group 1	Text Group 2	Lecture Group 1	Text Group 2
Confidence in performing learned tasks	7.5	6.5	9.5	9.75	2	3.75
Confidence in completing a new task without help	5.0	6.5	7	7.5	2	1
Confidence in completing a new task with the use of a text book	6.0	8.5	8.5	10	2.5	1.5
Confidence in completing a new task with help from the instructor	8.9	9.0	10	10	1.1	1

n=50

## Discussion

Prior to discussing the results, it is necessary to point out restrictions as to the generalizability of this study. First, one author was the instructor in the classroom throughout the study. This may have caused some skew in the results due to the tendencies and/or teaching style of the instructor. Next, because this study is action research, the sample used was not randomly selected. Students were assigned to classes by the registrar of the school. Therefore, completely random assignment was not possible due to school policy. Finally, because of the small number of students (n=50), the results cannot be generalized to other populations.

The demographic data listed in Table 1 does show differences in the two groups. First, Group 2 (the text-based instruction group) has had more exposure to computer use and that exposure began at an earlier age. For this reason, the students' (Group 2 - text based instruction) ability and confidence levels at the beginning of the research study were higher than those in group 1 (the lecture-based instruction group). This may have had an impact on the results listed in Table 2.

The results do provide evidence that may be useful in the design and implementation of computer-based business instruction. First, although both groups improved and rated their confidence higher in the posttest, Group 2 (the text-based group) increased at almost twice the level of Group 1 (the lecture-based group). The indications are that students gain higher confidence levels when they learn computer skills autonomously as opposed to learning in a lecture-based format. This finding may be used to support efforts to increase the degree of autonomous learning in the classroom.

Another interesting finding is that the students who received lecture-based instruction (group 2) had lower confidence levels in their ability to acquire new computer skills. This obviously may have been caused by less computer exposure by group 2 students (lecture-based instruction) prior to instruction, but it also could support the above argument that student confidence levels in acquiring new skills are higher if they learn their original skills autonomously.

This study gives some evidence that students who participate in learning through autonomous work have higher confidence levels in both skills acquired and ability to learn new skills in the future. Hopefully this research will encourage like studies that will assist instructors in preparing and implementing effective classroom instruction.

## Recommendations for Further Study

In the future it is suggested that studies explore the difference in lecture-based and text based instruction. We suggest that one important outcome of these studies should be discovering which teaching method produces the highest level of autonomous computer confidence in students. This may provide further clari-

fication as to the instructional method that encourage students to continue to develop their individual computer skills and abilities.

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# Developing Web-Enabled Interactive Financial Tools Without HTML and Script Languages

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## Abstract

This experimental study identified an alternative approach to developing Web-enabled interactive financial tools without requiring HTML and script languages. The purpose of this study is fourfold: (a) to reduce the complexity of developing Web-enabled financial calculators, (b) to provide educators with a cost-effective alternative for teaching students to develop such interactive Web applications, (c) to increase the productivity of Web developers, and (d) to stimulate students' creative thinking in generating new ideas and products.

## Introduction

The Internet and Web technologies are fundamentally changing the way business is done, the way software applications and services are being built and delivered, and the way people work, study, and live. While companies and consumers have been experiencing tremendous benefits of using Web-enabled interactive database applications, such as online shopping, trading, banking, inventory and accounts management, they also demand more Web-enabled, interactive financial applications for boosting user and organizational productivity in data analysis, problem solving, and decision making (see, for example, Charski, 2000; Kulman, 1999; Lim, Dillion, Pethokoukis, & Charski, 2000; Perry, 2000; Wiener, 2000). To meet such growing demands, employers in all areas manage to hire individuals who can develop and support Internet, intranets, and Web applications (Bureau of Labor Statistics, 2000). Corporate recruiters expect business school graduates they hire to have Web related skills, and more business schools are offering Internet and e-commerce training (Korry, 1999).

Currently, most Web-based interactive financial tools, such as loan payment calculator, retirement planning, and business budgeting tools available on the Web, are developed with HTML and script languages (see, for example, FinanCenter.com, 2001; MoneyAdvisor.com, 2001; SectorUpdates.com, 2001). These financial tools play an important role in corporate business strategies because they help users increase productivity in data analysis, problem solving, and decision making and create customer loyalty. However, developing such applications not only requires a good knowledge of HTML and script languages but also is time consuming. This application development hurdle indicates a need for identifying a more cost-effective alternative approach to developing Web-enabled interactive financial tools.

## Problem Statement and Hypotheses

The problem addressed in this experimental study was to identify an alternative approach to developing Web-enabled interactive financial applications without requiring HTML and script languages. As the related literature indicates, while many current spreadsheet software enable users to save spreadsheet files in HTML format for Web publishing, their makers also exert efforts to make spreadsheets as integrated with the Web technologies as possible. For instance, Microsoft Corporation (1998) created an Office Web component that is a COM (Component Object Model) for working in the Web browser to provide basic grid (spreadsheet) functionality. Corel's (1999) Quattro Pro 9 includes a new Web query tool that allows users to create Web queries and import data such as currency exchange rates and stock price lists from the Web. According to *Smart Computing* (2000), with Lotus' Internet tools, creating Web pages from Lotus 1-2-3 worksheets is a straightforward task. Similarly, Sun Microsystems challenges Microsoft Office suite by making its StarOffice suite highly compatible with Microsoft Office. Therefore, users can easily migrate and work with MS Office files on StarOffice. In addition, StarOffice has easy-to-use Web editing and publishing tools (Hamilton, 1999; O'Regan & Bu-Bois, 1999).

Based on the literature review, the following four hypotheses were tested in order to address the research problem in this study:

- H1: Lotus 1-2-3 spreadsheet software can develop Web-enabled interactive financial calculators.
- H2: Microsoft Excel spreadsheet software can develop Web-enabled interactive financial calculators.
- H3: Quattro Pro spreadsheet software can develop Web-enabled interactive financial calculators.

H4: Sun Microsystems StarCalc spreadsheet software can develop Web-enabled interactive financial calculators.

### Purpose of the Study

The purpose of this study is fourfold: (a) to reduce the complexity of developing Web-enabled interactive financial calculators, (b) to provide educators with a cost-effective alternative for teaching students to develop Web-enabled interactive calculators; (c) to increase Web developers' productivity; and (d) to stimulate students' creative thinking in generating new ideas and products.

### Research Design and Procedures

A product-testing experiment was designed with two independent variables (spreadsheet software and Web browser) and one dependent variable (a Web-based financial trend analysis tool without HTML and script languages). The first independent variable (spreadsheet software) included four types: (a) Lotus 1-2-3 release 5, (b) Microsoft Excel 97/2000, (c) Corel Quattro Pro 9, and (d) Sun StarCalc 5. The second independent variable (Web browser) contained three conditions: Internet Explorer 5.x, Netscape Communicator 4.x, and StarOffice 5.x. These two independent variables formed a 4 x 3 factorial design with 12 possible combinations for testing which combination(s) would produce a workable Web-enabled interactive financial trend analysis tool without HTML and script languages.

First, an interactive financial trend analysis tool was designed on a spreadsheet. The layout of the tool includes an interactive

input/output table and a related bar chart (see Figure 1). As shown in Figure 2, proper mathematical formulas, relative and absolute references were used in the relevant cells so that entering key data can automatically generate trend analysis results and a bar chart.

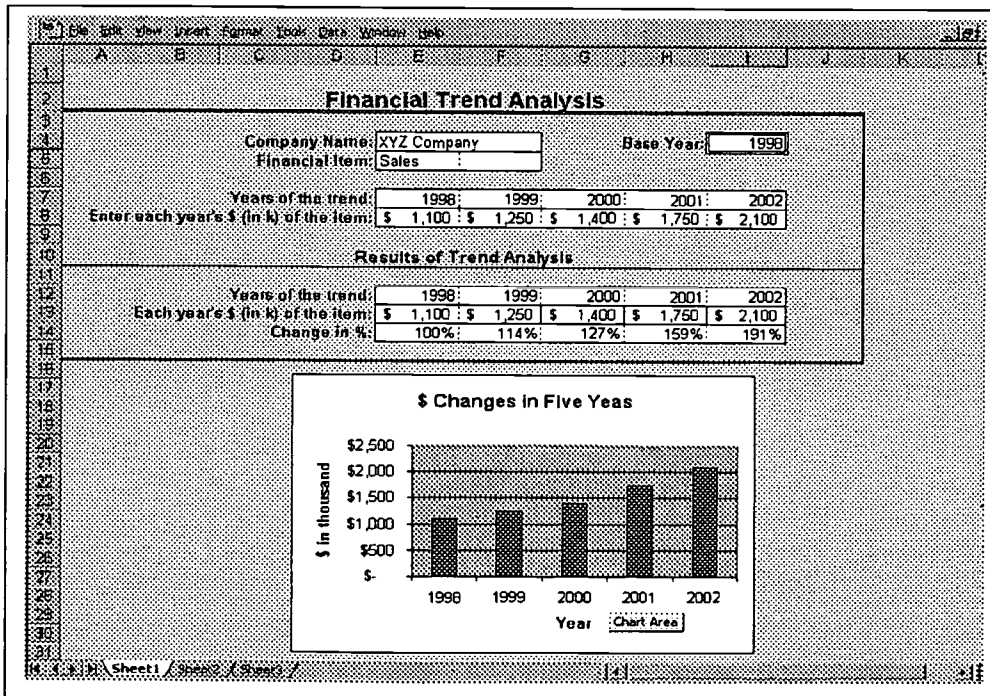
Second, based on the 4 x 3 factorial design, first, the financial trend analysis tool was developed by using the foregoing four spreadsheet software to create four respective versions of the tool for the Web. Then, the four versions were saved in varied types of spreadsheet files.

Third, each file was posted on a local intranet and tested on each of the three different Web browsers. If a file passed the initial tests, it would be published on the Internet for further testing on three different Web browsers. The final testing results were used to accept or reject the research hypotheses.

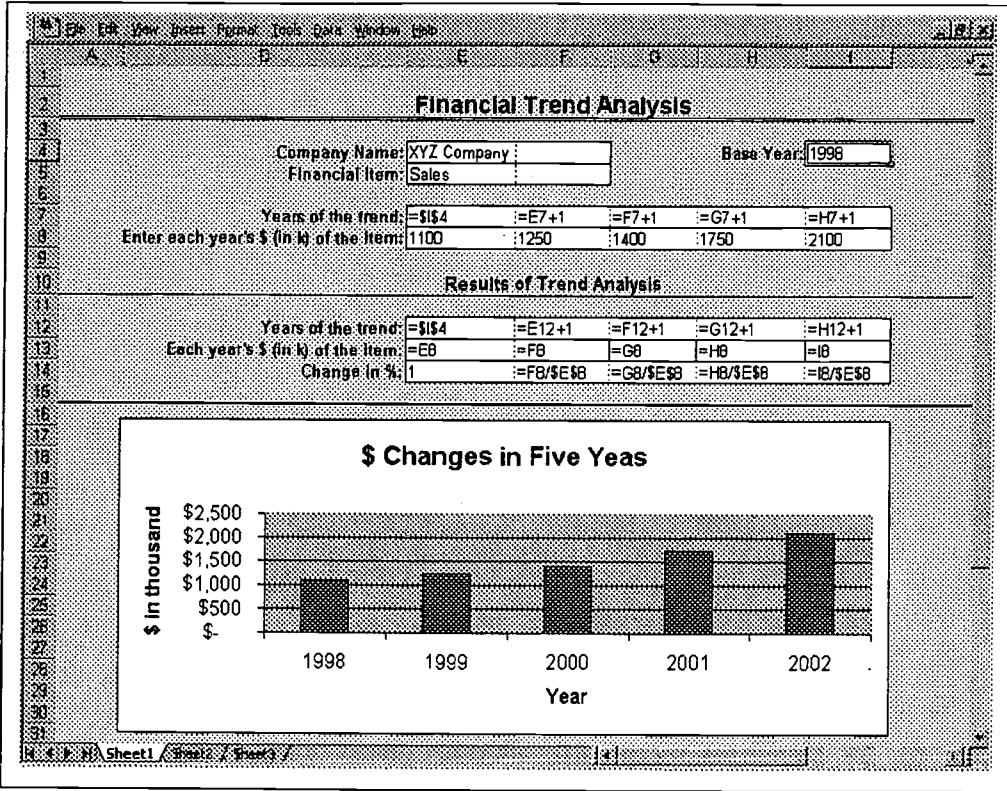
### Findings

H1 stated that Lotus 1-2-3 spreadsheet software can develop Web-enabled interactive financial calculators. A financial trend analysis tool was developed by using Lotus 1-2-3 and saved as a Lotus 1-2-3 file with .wk4 as the file extension. As the testing results indicated, the Lotus file could not be browsed on Internet Explorer, Netscape Communicator, and StarOffice browsers, although the file could be downloaded from a Web site via Internet Explorer (see Figure 3) and automatically opened on Lotus 1-2-3 software when it was available on the same computer (see Figure 4). Therefore, H1 was rejected.

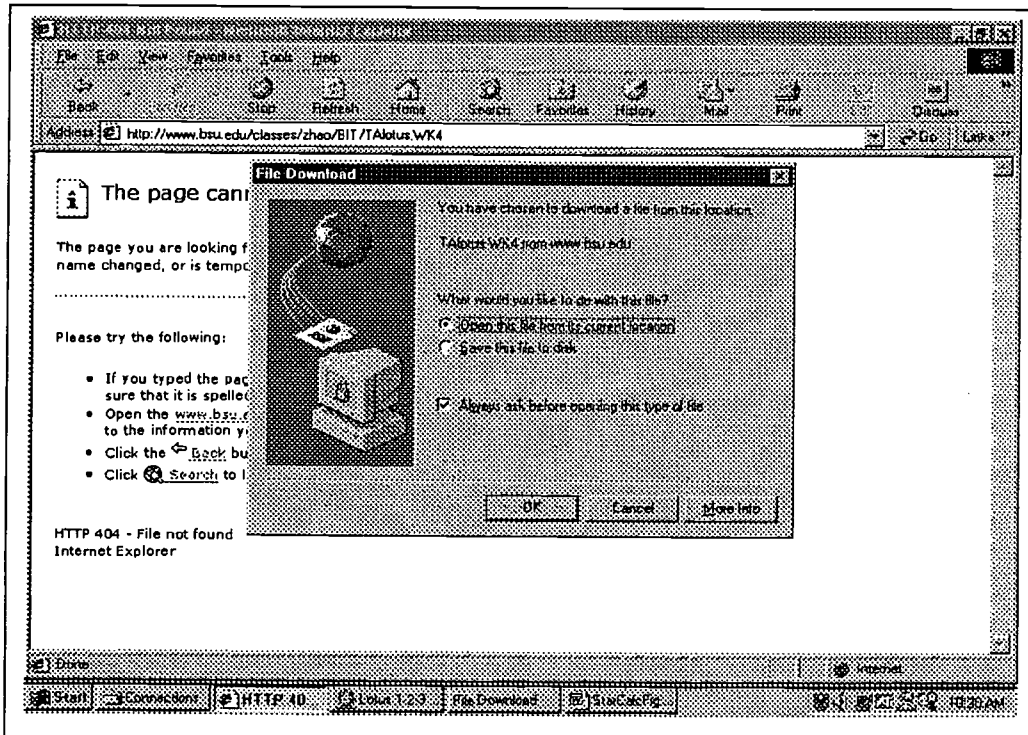
Figure 1  
Spreadsheet Design of Financial Trend Analysis



**Figure 2**  
*Spreadsheet Formulas of Financial Trend Analysis*



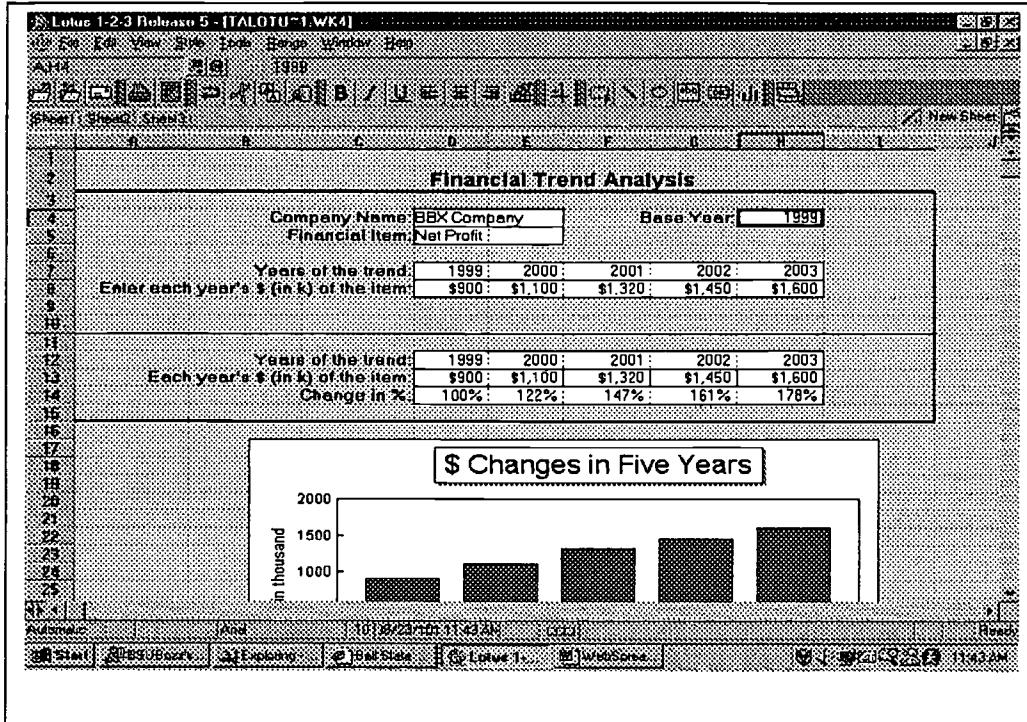
**Figure 3**  
*Downloading Lotus 1-2-3 File from a Web Site*



BEST COPY AVAILABLE



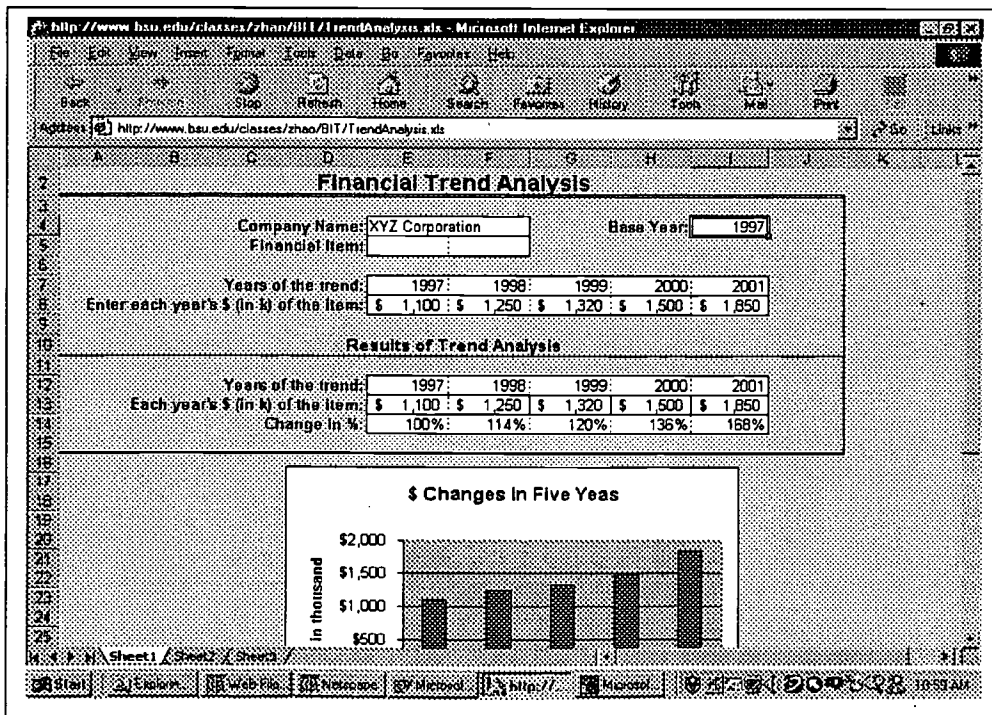
**Figure 4**  
*Lotus File of Financial Trend Analysis on Lotus 1-2-3 Spreadsheet*



H2 stated that Microsoft Excel spreadsheet software can develop Web-enabled interactive financial calculators. Microsoft Excel 97 and 2000 were used to develop the financial trend analysis tool. Two files were created and saved as Microsoft Excel 97 & 5.0/95 Workbook and Microsoft Excel 97-2000 & 5.0/95 Workbook, respectively, with .xls as the file extension. During

the intranet and Internet testing, the Excel files could be browsed and used interactively on Internet Explorer when Excel software was installed on the same computer (see, for example, Figure 5), but not on Netscape Communicator. When using StarOffice browser to access the files, they could be browsed on a read-only mode and could not be used interactively. Therefore, H2 was accepted conditionally.

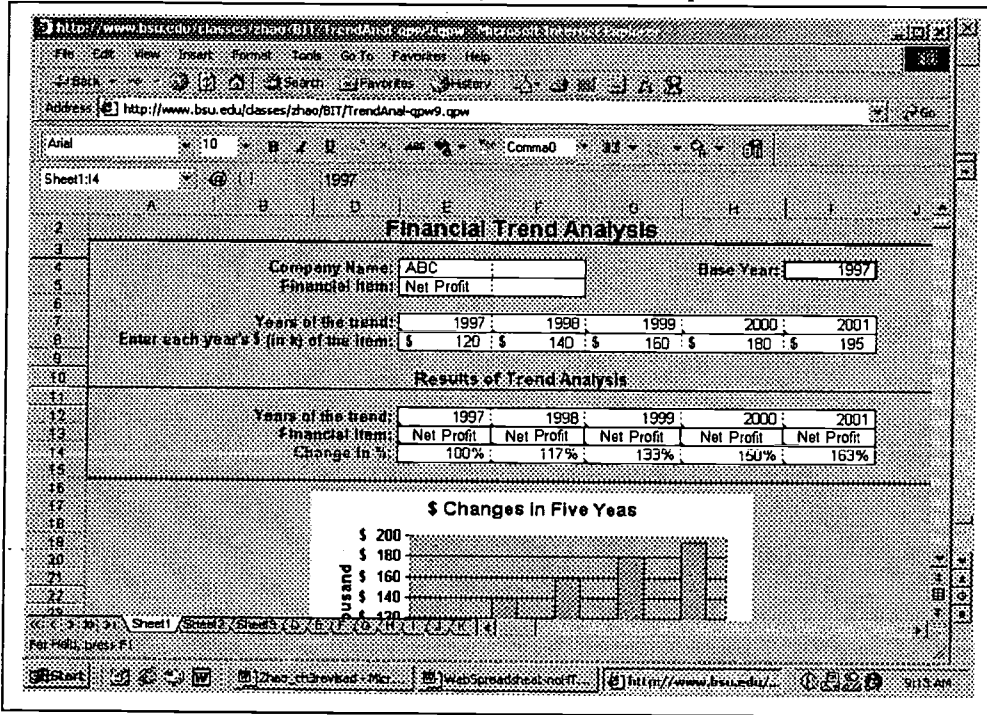
**Figure 5**  
*Excel File of Financial Trend Analysis on Internet Explorer*



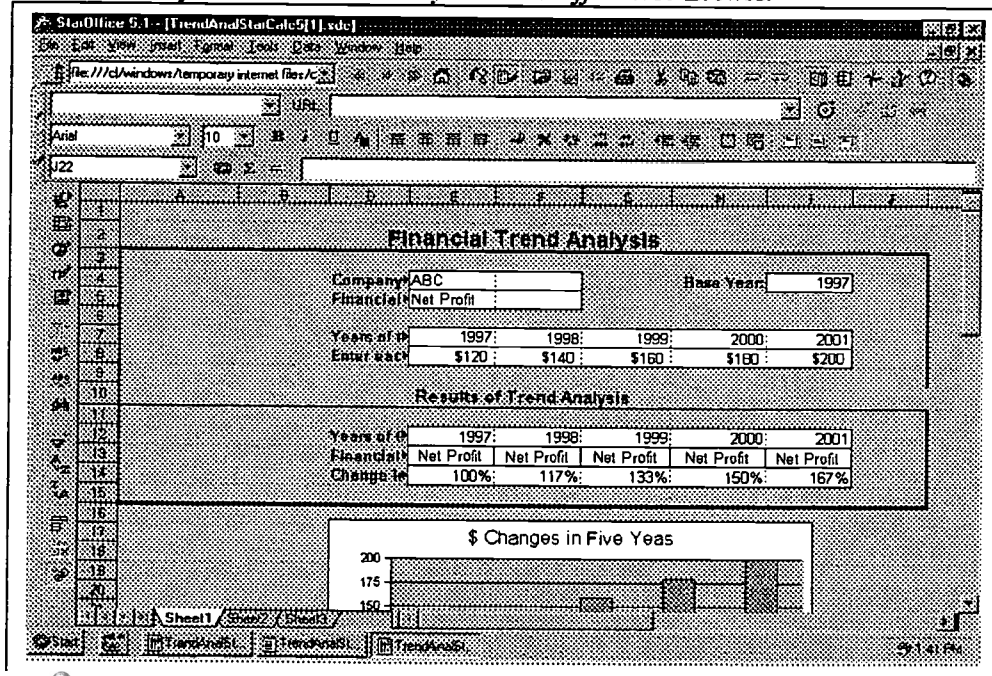
H3 stated that Quattro Pro spreadsheet software can develop Web-enabled interactive financial calculators. Quattro Pro 9 of WordPerfect Office 2000 was used to develop and save the financial trend analysis tool as a **Quattro Pro 9** file with .qpw as the file extension. During the intranet and Internet testing, the Quattro Pro file could be browsed and used interactively only on Internet Explorer when Quattro Pro software was available on the same computer (see Figure 6). Therefore, H3 was accepted conditionally.

H4 stated that Sun Microsystems StarCalc spreadsheet software can develop Web-enabled interactive financial calculators. StarCalc 5 spreadsheet software was used to develop and save the financial trend analysis tool as a **StarCalc 5** file with .sdc as the file extension. The test results indicated that (a) the **StarCalc 5** file could be accessed on Internet Explorer that, in turn, activates StarOffice browser and transfers the file to the browser as an Internet temporary file for use (see Figure 7), (b) if accessed directly from the StarOffice browser, the file could only be browsed as a read-only file, (c) the file could not be browsed and used interactively on Netscape Communicator nor Internet Explorer. Therefore, H4 was accepted conditionally.

**Figure 6**  
*Quattro Pro file of Financial Trend Analysis on Internet Explorer*



**Figure 7**  
*StarCalc File of Financial Trend Analysis on StarOffice Web Browser*



## Summary and Conclusions

Excel 97/2000, Quattro Pro 9, and StarCalc 5 can be used to develop Web-enabled interactive financial and other calculators without HTML and script languages. Excel and Quattro Pro spreadsheet applications can be browsed and used interactively only on Internet Explorer when the spreadsheet software are available on their respective computers. By contrast, StarCalc spreadsheet applications can only be browsed and used interactively on StarOffice browser as temporary Internet files.

While browsing and using Excel applications on Internet Explorer is as easy as any other Java-based Web applications, browsing a Quattro Pro file on Internet Explorer requires opening the file and moving the cursor with the arrow-down and -up keys on the screen to bring out the application.

Although Lotus 1-2-3 spreadsheet applications can not be browsed and used interactively on any Web browser, Internet Explorer can automatically transfer them to Lotus 1-2-3 software when it is available on the same computer.

Based on the findings of this study, the following conclusions are made:

1. Web-enabled interactive financial calculators and spreadsheet applications can be developed without using HTML and script languages.
2. Excel spreadsheet applications are more user-friendly than Quattro Pro and StarCalc spreadsheet applications on the Web for users to browse and use interactively.
3. Internet Explorer has more interoperability than Netscape and StarOffice browsers do when hosting Web-enabled spreadsheet applications.
4. Since such Web-enabled spreadsheet applications require compatible spreadsheet software on client computers, they are more appropriate for organizational intranets because the applications developers know which spreadsheet software is most widely available on employees' computers.

## Business, Pedagogical, and Theoretical Implications

Developing Web-enabled spreadsheet applications without HTML and script languages can greatly reduce the complexity of developing Web calculators. This approach enables not only Web developers but also business professionals to develop Web-enabled calculators at high speed and low cost and then easily publish them on organizational intranet and Internet. Therefore, this approach is far more time efficient and cost effective than the traditional HTML and scripting approach.

With this non-HTML and non-scripting approach, business educators can easily teach students to develop a wide range of Web-

enabled, interactive spreadsheet applications such as loan payment calculator, retirement planning, financial forecasting, investment growth analysis, bankruptcy prediction, growth rate analysis, and dividend discount modeling.

According to the theory of creative intelligence (Gerdner, 1983, 1993, 1995; Sternberg, 1988; Sternberg & Lubart, 1991), innovative ideas such as developing Web-enabled interactive financial calculators without HTML and script languages can widen students' vision and stimulate their creative thinking in generating innovative ideas and conducting experiments for new product development.

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# Employment Attributes

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## Abstract

The purpose of this study was to compare employment attributes for two different groups: members of business student organizations and non-members of business student organizations.

In a comparison between the members of business student organizations and non-members of business student organizations respondents, four of the 26 employment attributes were significant. Those four variables indicated that the members of business student organizations respondents rated themselves more realistic, more flexible, more willing to accept criticism, and ambitious.

## Introduction

Employment is so pervasive and central to today's way of life. A lot of thought goes into what makes good employees in specific occupations, i.e., knowledge, skills and abilities, but not what makes a good employee in general.

## Review of Literature

Historically, people knew automatically what was expected of them as employees. Skills and abilities were primarily learned on the job. In addition, employees were expected to be honest, clean, tidy, punctual, diligent, cheerful, and obedient. These qualities were an asset to any employer but only these qualities (Royal Bank of Canada 1993). Such qualities as initiative, questioning, creativity, and thinking were not desirable and discouraged as they could cause trouble and disrupt the organizational structure and operation.

Where once employers frowned upon employees who thought for themselves, the ability to reason is now a prerequisite for lasting employment. Today employees are often required to think critically and act logically to evaluate situations, solve problems and make decisions, and have the ability to identify and suggest new ideas to get the job done—creatively (Royal Bank of Canada 1993).

Schmitz and Lucas (1990) found in reviewing the literature that not all employee proficiency, in particular teaching, could be evaluated on high academic ability and achievement, as measured by grade point averages and standardized test scores. A broader range of personality traits and characteristics encompass the qualities of employees. Desirable attributes cited include sensitivity, enthusiasm, and responsibility (Wilson & Mitchell 1985); initiative, self-motivation, creativity, and a ca-

capacity for team work (Roose, Mitchell, & Rodman 1985); and perceived adaptability or flexibility, maturity, self-confidence, nurturance, enthusiasm, dedication, warmth, and energy or vitality (Clark & Fischetti 1987; Fisher & Feldman 1985; Houston 1987).

In many work environments today, employees may not function in a top down - boss to worker - situation but in work teams. In this environment, employees work together in a group setting goals, detailing plans, making budgets, and implementing plans. As a result the employees utilize their critical thinking skills as well as act as leaders depending on the situation. Therefore, leadership skills are a part of employment (Royal Bank of Canada 1993).

Leadership involves persuading other people to set aside for a time their individual concerns to pursue a common goal that is important for the responsibilities and welfare of a group (Hogan, Curphy, & Hogan 1994). Leaders look for the strengths and common goals of a group for cohesion and team performance (Huart 1995). Yukl, Wall, and Lepsinger (1990) listed fourteen broad categories of leader behavior. They include planning and organizing, problem solving, clarifying, informing, monitoring, motivating, consulting, recognizing, supporting, managing conflict and team building, networking, delegating, developing and mentoring, and rewarding.

Leadership in any business or profession means initiative—getting an operation off the ground, carrying it through in spite of discouragement, and concluding. This demands an array of personal qualities and motivations. This list may include vision, self-confidence, risk taking, curiosity, judgment, and a combination of qualities of the dreamer and practical builder (Royal Bank of Canada 1975).

Morris' (1991) research focused on personality attributes of adult and adolescent leaders. The Leadership Trait Inventory, which includes the following nine leadership traits: consistency, flexibility, creativity, knowledge or skills sense of purpose, compassion, clear priorities, integrity, and good listening was ranked by both groups of leaders. Adult and adolescent leaders both ranked integrity as number one. According to Bennis and Nanus (1985), integrity reflects the leaders personal identity. Effective leaders have positive identities, i.e., they are described as self-confident, self-assured, and self-actualized and are regarded as open, honest, and trustworthy.

Teschke (1995) noted in working with leadership styles that leadership skill development was a necessary element. Roueche, Baker, and Rose (1985) indicated that certain leadership skills and behaviors have been identified and can be acquired. The avenues for acquiring leadership skills and behaviors are numerous if one is employed. Various organizations and companies offer seminars, workshops, and training sessions. However, the opportunities and options to develop leadership and employee skills prior to employment are more limited. Formal education is the common route used; however, there are few formal courses taught where one learns the leadership and employment attributes necessary for employees. Some educational programs require practicums and internships at the collegiate level and community cooperative work programs at the secondary educational level. Students that participate in these programs are working on the job with good role model employees that emulate the desired behaviors. Another avenue that is open for developing leadership and employee skills is participating in professional, student, and or community organizations.

In summary, any given list of employability skills, employees need to demonstrate honesty, integrity, and personal ethics; a positive attitude toward learning, growth, and personal health; initiative, energy, and persistence to get the job done; and the ability to set goals and priorities in work and personal life. The characteristics that make a good employee and a good all-round human being are exactly the same (Royal Bank of Canada 1993).

### **Purpose**

The purpose of this study was to compare employment attributes for two different groups: members of business student organizations and non-members of business student organizations. The comparative analysis included demographic information comparisons and statistical analysis of employment attributes.

### **Limitation of Study**

The respondents of both groups attended a regional university in the southwest United States.

## **Population and Respondents**

A list of 711 business graduate addresses was obtained from the university foundation and alumni association. After eliminating two duplicates and determining 132 incorrect addresses, 577 business graduates received the initial questionnaire. One follow-up letter and questionnaire was sent. The total number of respondents from this group was 234 (40.6 percent).

An additional 1802 possible business graduates names were identified from an alumni directory developed for the university by an outside consulting firm in 1993. Nine individuals were eliminated from this list because they reported not being business graduates while undeliverable questionnaires indicated 563 incorrect addresses. Of the remaining 1229 graduates, 314 (25.5 percent) returned questionnaires after two mailings of a cover letter and questionnaire. A total of 548 (30.3 percent) usable questionnaires were returned.

### **Methodology**

A questionnaire was developed that included a series of employment attributes to be rated. Each respondent was asked to indicate numeric ratings that were most representative of their employment attributes in the current employment setting. The ratings ranged from one to five, with the rating system randomly arranged where some expected qualities were potentially a rating of five, while others were highly rated with a rating of one. Each pair of attributes described contradictory characteristics where the respondent could not be both at the same time, such as very athletic and not at all athletic. In addition, potential respondents were asked selected demographic data.

The initial questionnaire was subjected to a pilot test of 22 school-of-business alumni. Revisions were made on the basis of the comments received from this pilot group.

### **Data Analysis**

Descriptive statistics were calculated for each of the survey questions. Demographic variables were considered to be nominal in that there was no inherent ordering of the values within the variables. Employment attributes variables included interval measurement in that there were a meaningful distance between values. All nominal data were subjected to Chi-square analysis including Phi-coefficient modifications. All interval data were subjected to means analysis, including the t-test, to test the equality of two means. All data were subject to statistical data analysis using the SPSS Release 4.1 for VAX/VMS.

#### ***Data Analysis: Student Organizations***

**Total Respondents.** Of the 548 respondents 221, (40.8 percent) belonged to at least one business student organization.

**Business Student Organization Membership.** The respondents who were members of a business student organization indicated that the accounting club was second in importance with a participation rate of 27.6 percent of the respondents. Phi Beta Lambda (PBL) had the largest reported membership and included 29.4 percent of those who joined only PBL and another 25.8 percent who joined PBL and other business student organizations. All other business student organizations had memberships that were less than ten percent of the respondents

**Major.** Respondents who majored in accounting (58.9 percent) had the greatest participation rate in business student organizations. The least participation rate was business administration majors with 25.5 percent. Finance and marketing majors also had high participation rates of 45.8 percent and 53.3 percent, respectively. The variable major was significant at the .01 level for non-member respondents compared to members of a business student organization.

**Advice.** The most important variable of advice for members of business student organizations during their college career came from the faculty advisor in the student's major field. Student business organization members were more likely to solicit this assistance (53.6 percent) than non-member respondents (43.1 percent). The variable advice was significant at the .05 level for non-member respondents compared to members of business student organizations. The major characteristic of non-member respondents was the higher dependence on themselves for advice. These respondents (non-member) seemed much more inclined to be self-advised, (35.9 percent).

**Grade Point Average.** When the variable respondent's grade point average (GPA) was compared, the data indicated that business student organization member respondents had higher GPA's. Business student organization respondents (65.3 percent) had a GPA above a 3.00. Business student organization respondents compared to non-members were significantly different for the variable GPA at the .001 level.

**Gender.** The gender of all business student organization respondents was 48.9 percent male. Data from the 1990's indicates that membership was predominately over 70 percent female in business student organizations.

**Age.** Respondents under age 25 belonged to student business organizations (60 percent) in much greater percentages than other age groups in the study. The variable age of the respondent was significant at the .01 level for all business student organization respondents.

**Salary.** Respondents who were PBL members had higher salary than other non-member respondents. The data suggests that

salary was not different however, for business student organization respondents compared to non-member respondents.

### *Statistical Analysis*

As indicated in Table 1, t-test analysis indicated significant differences ( $p < .01$ ) for the variable of very unrealistic=1/very realistic=5 when means of members of business student organizations respondents (4.2591) and non-members of business student organizations respondents (4.0982) were compared. The t-test indicated significant differences ( $p < .001$ ) for the variable of not flexible=1/flexible=5 when means of members of business student organizations respondents (4.0500) and non-members of business student organizations respondents (3.8076) were compared. The t-test indicated significant differences ( $p < .05$ ) for the variable of accepts criticism=1/unable to accept criticism=5 when means of members of business student organizations respondents (4.2591) and non-members of business student organizations respondents (4.0982) were compared. The t-test indicated significant difference ( $p < .05$ ) for the variable of not at all ambitious=1/ambitious=5 when means of members of business student organizations respondents (4.2182) and non-members of business student organizations respondents (4.0583) were compared.

An analysis of the variables' means revealed that members of business student organizations respondents compared to non-members of business student organizations respondents rated themselves as being more realistic, more flexible, more optimistic, more accepting of criticism, and more ambitious.

### *Other Differences*

Although not significant, the means of members of business student organizations respondents were slightly favorable for several variables of which one was the favorable ranking. These variables included self-directed, not excitable in a major crisis, can make decisions easily, and meets deadlines. Members of business student organizations respondents had means that were slightly favorable for the variables for which five was the most favorable ranking. These variables included assertive, independent, dominant, active, organized, helpful to others, competitive, needful of others' approval, optimistic, team player, self-confident, does not give up, feels superior, tolerant, little need for security, specific, high levels of initiative, and leader. The authors in an unpublished study found that members of business student organizations respondents joined professional organizations for many of these reasons including mentoring and networking in much greater numbers than non-members of business student organizations respondents. Variables with low t-values indicate that there was little to no difference between the means of the members of business student organizations and non-members of business student organizations respondents.

**Table 1**  
*Comparisons Of Employment Attributes Means For Graduates Who Were Members Of Student Organizations Compared To Graduates Who Were Non-Members Of Student Organizations (n=548)*

Variable	Mean Member	Mean Non-Member	t-value	Signif.
Not at all assertive=1 Very assertive=5	3.8265	3.8123	-.21	.832
Very dependent=1 Highly independent=5	4.1727	4.1442	-.37	.708
Self directed=1 Needs constant supervision=5	1.8174	2.0000	1.68	.093
Very submissive=1 Very dominant=5	3.5136	3.4708	-.61	.542
Not excitable in a major crisis=1 Very excitable in a major crisis=5	2.6045	2.6080	.04	.969
Very passive=1 Very active=5	3.9136	3.8369	-1.06	.291
Unorganized=1 Very organized=5	4.0864	3.9479	-1.79	.075
Very unrealistic=1 Very realistic=5	4.2591	4.0982	-2.45	.015*
Not at all helpful to others=1 Very helpful to others=5	4.3500	4.2301	-1.87	.062
Not at all competitive=1 Highly competitive=5	4.0227	3.9601	-.79	.428
Not flexible=1 Flexible=5	4.0500	3.8067	-3.21	.001*
Not a team player=1 Team player=5	4.2909	4.1840	-1.58	.116
Indifferent to others' approval=1 Highly needful of others' approval=5	3.3227	3.2393	-1.05	.293
Accepts criticism=1 Unable to accept criticism=5	2.4773	2.6615	2.40	.017*
Pessimistic=1 Optimistic=5	3.8682	3.8098	-.71	.477
Can make decisions easily=1 Has difficulty making decisions=5	2.2648	2.3374	.76	.449
Gives up very easily=1 Does not give up=5	4.1553	4.1472	-.12	.903

*table continued*



Variable	Mean Member	Mean Non-Member	t-value	Signif.
Not at all self-confident=1 Very self-confident=5	4.0500	4.0552	.08	.940
Feels very inferior=1 Feels very superior=5	3.4045	3.4387	.57	.567
Intolerant=1 Tolerant=5	3.7000	3.5982	-1.30	.194
Not at all ambitious=1 Ambitious=5	4.2182	4.0583	-2.40	.017*
Very little need for security=1 Very strong need for security=5	3.6455	3.5061	-1.70	.090
General=1 Specific=5	3.7763	3.6902	-1.14	.255
Very little initiative=1 High levels of initiative=5	4.2009	4.0892	-1.77	.077
Follower=1 Leader=5	4.0182	3.9693	-.69	.491
Meets deadlines=1 Procrastinates=5	1.9908	2.1074	1.17	.243

\* Statistically significant at the  $p < .05$  or higher.

### Summary, Conclusions and Implications

The majority of the respondents in this study was or had been employed in education or business related occupations. Therefore, the employment attributes used in this study were supported by the literature relating to education (Wilson & Mitchell 1985; Roose, Mitchell, & Rodman 1985; Clark & Fischetti 1987; Fisher & Feldman 1985; Houston 1987; Morris, 1991) and business (Huart 1995; Yukl, Wall, & Lepsinger 1990; Roueche, Baker, & Rose 1985).

In a comparison between the members of business student organizations and non-members of business student organizations respondents, four of the 26 employment attributes were significant at the  $p < .05$  level or higher. Those four variables indicated that the members of business student organizations respondents rated themselves more realistic, more flexible, more willing to accept criticism, and ambitious. The non-members of business student organizations respondents did not rate themselves more favorable than the members of business student organizations respondents on any of the variables.

How an individual learns and acquires the employment attributes may need further study. All the respondents in this study came through the formal education route and each earned a Bachelor of Science or Bachelor of Arts degree. Many businesses, corpo-

rations, and educational enterprises offer workshops, seminars for employees. However, how one acquires these employment attributes prior to employment needs to be addressed.

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# Identification of Job Experiences of IS Graduates and Comparison of Graduates' and Professionals' Perceptions on the Importance of Skills Required for the Workplace

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## Abstract

Graduates with an Information Systems Technologies degree were surveyed to identify their job titles, salaries, primary job foci, major responsibilities, and perceptions about the importance of technical and non-technical skills necessary for the workforce. A second study, surveying members of the Association of Information Technology Professionals, identified trends, systems, policies, and skills required for the workplace. Responses of the graduates on the importance of specific technical and non-technical skills needed in the workplace were compared to responses of individuals in the profession. From all technical and non-technical skills, thinking, teamwork, desire to learn, personal characteristics, and personal attitude and motivation were ranked as the top five by both groups.

## Nature of the Study

The field of information systems is always changing due to the many technologies that are making an impact on end-user computing, electronic communications, e-commerce, office information systems, and other organizational business processes. These changes in the business environment are bringing about dramatic organizational redesign and reengineering. "As we embark on a new century, a powerful convergence of technological, economic, and social trends are altering the very nature of work" (Wagner, 2000, p. 2).

In a field such as information systems, it is becoming more and more obvious that educators must constantly enhance the curriculum with new technologies, and at the same time emphasize the importance of knowing how to learn and realize that education is a lifelong process. "Short term training is how today's holes must be filled, and refresher courses, reskilling and retraining will help to extend the usefulness of Information Technology and Telecommunications [IT&T] specialists. Universities and colleges must continue to focus on education and, to a degree, ignore the bellowing of industry that new undergraduates are not immediately useful. And business must recognize that education is not about knowing the answers. Training will provide the answers but education teaches people the skills to understand where they lack knowledge and how to find it. In an industry as fast-moving as IT&T, only education will do" (Head, 1999, p. 51). "Colleges and universities must be prepared to launch degree or certificate programs that can be deployed quickly [and] that are flexible . . ." (Knowledge and Skills, 2000, p. 4). The challenge facing educators involves identifying the trends and technologies, learning the skills and knowledge necessary to teach these technologies, and then

incorporating them into the curriculum. It is essential to provide students with a broad background that includes not only technical skills but people skills as well, in order to get and maintain a job. "Non-IT skills will distinguish the most sought-after IT people," says Arnold Brown, chairman of Weiner, Edrich, Brown, Inc. in New York. "What you have to know to make you stand out from the crowd is people skills—how to motivate people, resolve disputes, communicate" (Anthes, 2000).

All computer-related programs of study must constantly be evaluated and modified to remain abreast of the many changes, challenges, and trends occurring in the information technology environment and to offer a curriculum which encompasses the requirements of the current workforce. It is imperative that as information technologies continue to evolve, educators must continue to develop and enhance curricula that will help students obtain and maintain jobs.

## Purpose of the Study

The technological impact on business and industry continues to occur, and incorporating technology into the workforce broadens the scope of jobs and redefines responsibilities for workers. Workers must therefore be educated to meet the changing needs of the workforce. The proliferation of technology that has affected business and industry has impacted the educational arena as well. Educators must constantly identify the skills and knowledge required by business and industry in order to continue to update and enhance the curriculum. There are many ways in which educators can identify what is taking place in the workplace and gather individuals' perceptions of the importance of various technical and non-technical skills in the curriculum. One way is to survey individuals in business and industry; another is to survey

graduates who have been through the curriculum and then taken jobs in information systems. In order to survey individuals in business and industry, a previous study, conducted in the summer of 2000, surveyed members of the Association of Information Technology Professionals to gather information on trends, systems, policies, and skills needed in the workplace. The more recent study, conducted in the summer of 2001, gathered information from recent graduates regarding their job titles, primary job foci, responsibilities and ideas about the importance of technical and non-technical skills to be taught in the curriculum for success in the workplace. The perceptions of both groups regarding the importance of technical and non-technical skills were compared.

### Research Questions

Answers were sought to the following research questions:

1. What are the job titles, primary job foci, and responsibilities of Information Systems Technologies (IST) graduates employed in the field?
2. Do years of experience in the profession predict the relative importance assigned to technical and non-technical skills?

### Research Procedures

In order to identify technology trends, systems, and policies used in business, a national research study was conducted. A survey was developed for the study, reviewed by a panel of experts, and pilot tested by individuals in the field. The research project was approved by the board of directors of the Association of Information Technology Professionals. In May 2000, surveys were mailed to 620 randomly selected members. One hundred and ten surveys were returned to the researchers, and the results were tabulated from the 103 completed surveys.

In order to identify job experiences of graduates, types of companies employing them, as well as their titles, salaries, responsibilities, and so forth, a research study was undertaken during the spring of 2001. A survey instrument was designed, pilot tested, and field tested for graduates with an Information Systems Technologies degree. Adjustments were made to the initial instrument to incorporate suggested changes based on the pilot and field testing. In May 2001, surveys were mailed to all 115 graduates of the recently-implemented Information Systems Technologies Program at Southern Illinois University Carbondale. Sixty seven surveys were returned to the researchers, and the results were tabulated on the 66 completed instruments.

The responses for both studies were tabulated. Analyses were completed using the Statistical Analysis Systems, Version 6.11.

## Findings and Results

### Demographics

**Age and Gender.** Over half the respondents were between the ages of 23 and 25. Five percent were 22 years of age or younger; 53% were 23 to 25 years old, 23% were 26 to 28 years of age, and 19% were 30 or older. Of the 66 respondents, 53% were male and 47% were female.

**Employment Status.** When asked if they were currently employed full time, over three-fourths of the respondents (83%) indicated they were employed full time in an IST position. Nine percent indicated they were employed full time but in a position outside the IST field, and 5% were not employed full time but were seeking employment. The remaining 3% were either employed part time or were not currently employed but had been employed in the IST field after graduation.

In regard to years of work experience in the field, 58% indicated they had 2 years or less. Thirty five percent indicated they had 3 to 5 years of experience, and 8% had 10 to 11 years of experience. Those individuals with more than 3 years of experience had work experience prior to the completion of their degree.

**Length of Time to Obtain Employment.** Graduates were asked to indicate how long it took them to get their first IST-related job. Seventy seven percent of the graduates were employed in the field within three months of graduation. Fourteen percent accepted a position 3 to 6 months after graduation; 2% accepted a position within 6 to 9 months of graduation; 2% accepted a position after 1 year of graduation, and 5% marked the "other" category.

**Salary.** The largest number of respondents (18%) indicated the salary range of their first IST-related job was \$40,000 to \$44,999. Sixteen percent received a salary of less than \$25,000; 16% received \$25,000 to \$29,999; 14% received \$30,000 to \$34,999; 14% received \$35,000 to \$39,999; 16% received \$45,000 to \$49,999; and 6% were paid \$50,000 or more.

### Research Question No. 1

The first research question was: What are the job titles, primary job foci, and responsibilities of Information Systems Technologies (IST) graduates employed in the field?

The job title provided most often by the respondents (24%) was in the category of technical/end user support. Fifteen percent of the respondents' job titles were in the category of systems analysis, and 12% indicated they had a title related to networking/systems administration. Table 1 is a compilation of job categories for IST graduates.

**Table 1**  
*Job Categories/Titles*

Categories/Titles	Number	Percent
Technical/ End User Support	16	24.2
Systems Analysis/Design	10	15.2
Networking/Systems Administrators	8	12.1
Computer Programming	7	10.6
Information Management	5	7.6
Web Design /Development	3	4.5
Administrative Assistant	3	4.5
Graduate Student	3	4.5
Database Design /Development	2	3.0
Professional Development/Training	2	3.0
Not Employed	1	1.5
Other	6	9.1
Total	66	99.8

Graduates were asked to identify their primary job foci. Thirty four percent indicated their primary job focus was technical/end user support, and 18% responded that their primary focus was computer programming. Responses to this question can be seen in Table 2.

**Table 2**  
*Primary Job Focus*

Job Focus	Number	Percent
Technical/End User Support	19	33.9
Computer Programming	10	17.9
Database Design/Development	5	8.9
Networking	5	8.9
Web Design/Development	4	7.1
Systems Analysis/Design	3	5.4
Information Management	2	3.6
Information Security	2	3.6
Other	6	10.7
Total	56	100.0

Respondents were asked what type of job tasks and responsibilities they routinely performed. The tasks and responsibilities most often marked by graduates employed in the field were providing technical/end user support (59%), installing software (47%), and installing/maintaining computer devices (41%). One-third or more of the respondents also marked managing information (39%), analyzing systems (35%), maintaining/troubleshooting networks (35%), maintaining accounts (33%), and maintaining databases (33%). Respondents were given numerous choices and were asked to mark all that applied. Their responses are detailed in Table 3.

**Table 3**  
*Tasks Routinely Performed*

Task	Number	Percent
Providing Technical/End User Support	39	59.0
Installing Software	31	47.0
Installing/Maintaining Computer Devices	27	40.9
Managing Information	26	39.4
Analyzing Systems	23	34.8
Maintaining/Troubleshooting Networks	23	34.8
Maintaining Accounts	22	33.3
Maintaining Databases	22	33.3
Setting Up/Configuring LANs	18	27.3
Customizing Computer Programs	17	25.8
Writing Computer Programs	15	22.7
Developing/Redesigning Systems	14	21.2
Designing Databases	13	19.7
Maintaining Web Pages	13	19.7
Monitoring Security Systems	12	18.2
Creating Web Pages	11	16.7
Configuring/Maintaining WANs	7	10.6
Developing E-commerce Applications	7	10.6
Installing Security Systems	7	10.6
Other	10	15.2

### *Research Question 2*

The second research question was: Do years of experience in the IT profession predict the relative importance assigned to technical and non-technical skills?

In the first study conducted during the summer of 2000, members of the Association of Information Technology Professionals (AITP) were given a listing of technical (general content areas) and non-technical (people) skills and asked to indicate their opinion regarding the importance of each skill for a bachelor's degree in Information Systems Technologies as well as a position in the field.

The demographics of this group showed that the largest number of respondents indicated their job titles were information systems/managers/administrators (23%); the next three largest groups were chief information officers (14%), information system analysts (14%), and programmers/programmer analysts (10%). With regard to age, the largest number fell in the age range of 46 to 55 (42%); the age range above (over 55) and below (36 to 45) each had 26%. The majority of the respondents were male (70%). When asked how many years of experience they had in their profession, the largest number indicated they had 21 to 30 years of experience (43%); 10% indicated they had 1 to 10 years and 21% had 31 to 40 years of experience. The largest number of respondents had a bachelor's degree (41%) and 21% had a master's degree.

The graduates in the second study were asked to indicate the degree of importance of the same technical and non-technical skills for a bachelor's degree in Information Systems Technologies as well as a position in the field.

The surveys for both groups contained one section that was the same. In this section the respondents were given ten technical skills and eight non-technical skills followed by a horizontal line. Instructions were to place a vertical mark on each line to indicate the respondent's opinion regarding the importance of each area. The horizontal line represented a continuum from not important to extremely important. The marks were later converted to scores ranging from 1.0 to 5.0 (with 5 being the highest) for each respondent. The means were then calculated for each skill for both groups.

Both groups ranked five of the eight non-technical skills at the top of all 18 areas combined. Although these top five were in different order, they were the same five skills selected as most important by both groups. Those top five skills identified were thinking, teamwork, desire to learn, personal characteristics, and personal attitude and motivation. The top choice for both groups was thinking skills.

In order to determine if years of experience in the profession predicted the relative importance assigned to technical and non-technical skills, a t-test was run to compare the means of the two groups for each skill area. As seen in Table 4, the perceptions of the two groups varied significantly for the skill areas of computer hardware, computer software, records and information management, systems analysis and design, telecommunications/networking, personal characteristics, teamwork, and thinking.

**Table 4**  
*Importance of Technical and Non-technical Skills Based on Years of Experience*

Skill	Graduates		AITP Members		Comparison of Perceptions of Skill Importance	
	M	SD	M	SD	t	p
Basic Business	2.26	1.10	3.19	1.10	5.3396	0.0000
Database Design/Development	3.64	0.98	3.64	0.94	0.0088	0.9930
Information Systems and Technology	3.45	1.03	3.63	0.91	1.1836	0.2383
Computer Hardware Skills	4.10	0.87	2.89	1.00	8.1083	0.0000
Computer Software Skills	4.31	0.56	3.87	0.85	3.9787	0.0001
Programming Skills	3.86	0.95	3.90	0.77	0.3130	0.7547
Project Management	3.36	1.16	3.17	1.14	1.0554	0.2928
Records and Information Management	2.79	1.31	3.26	0.91	2.5510	0.0122
Systems Analysis and Design	3.84	1.03	4.16	0.65	2.2350	0.0277
Telecommunications/Networking	4.11	0.85	3.53	1.00	3.9222	0.0001
Basic Foundation and Analytical Skills	4.02	0.91	4.04	0.69	0.1622	0.8714
Communication Skills	4.35	0.75	4.29	0.54	0.5286	0.5981
Desire to Learn	4.48	0.55	4.35	0.54	1.5179	0.1309
Personal Attitude and Motivation	4.47	0.56	4.32	0.53	1.6512	0.1006
Personal Characteristics	4.48	0.49	4.33	0.51	1.9026	0.0588
Supervisory Skills	4.08	0.80	3.51	0.76	4.6718	0.0000
Teamwork	4.45	0.71	4.38	0.47	0.7527	0.4534
Thinking Skills	4.55	0.50	4.40	0.43	2.0254	0.0444

Note. df = 66, 102,  $p < 0.05$ .

## Discussion and Conclusions

Twenty four percent of the graduate respondents had job titles that were placed in the category of technical/end user support, and 15% were in the job category of systems analysis. When asked to indicate their primary job foci, 34% marked technical/end user support and 18% indicated computer programming. It is interesting to note that even though 24% had a job title related to technical/end user support, 34% indicated their primary job focus was providing technical/end user support. Systems analysis was the second largest job category (15%); however, only 5% marked this area as their primary job focus. Only 10% had a job title related to computer programming, but 18% said their primary focus was programming.

In regard to the types of job responsibilities and tasks they routinely performed, 59% indicated they provided technical/end user support. Installing software (47%) and installing/maintaining computer devices (41%) were two other often-marked tasks routinely performed on the job.

Even though the years of experience varied greatly between the two groups surveyed, both groups indicated they felt the non-technical skills of thinking, teamwork, desire to learn, personal characteristics, and personal attitude and motivation were the most important skill areas required to be successful in the field. Ninety three percent of the graduates had 5 years of experience or less, while 68% of the members of the Association of Information Technology Professionals had over 20 years of experience. When analyzing if years of experience in the IT profession predicted the importance of the skills assigned by the two groups, there was a significant difference in the skill areas of computer hardware, computer software, records and information management, systems analysis and design, telecommunication/networking, personal characteristics, teamwork, and thinking.

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# The Identification of Online Learning Motives in Use by Undergraduate Students

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## Abstract

The identification of online learning motives is an important component of effective course design. Effective learning strategies are usually selected based upon known motives in use by those participating in the learning activity. However, few research studies are conducted that identify online learning motives. Parson (1998) and Alexander (1995) agree that educators must evaluate how students learn using new technologies. This paper reports on the results of a study conducted at the University of Tennessee (UT), designed to identify learning motives used by online students. It is hoped the information gained will assist in the proper selection of learning strategies and to contribute to the base knowledge of this field.

## Introduction

### *Statement of the Problem*

In the rush to offer web-based, or Internet undergraduate curricula, most institutes of higher learning do not conduct research designed to identify online learning motives. Most rely on pre-existing research which describe in-classroom learning motives. This may be due to time constraints, lack of research funds, or other factors. Since little research exists in this area, the UT Human Resource Development faculty rely on learning strategies based on in-classroom learning motives, rather than those currently used by online students. Designing coursework using this procedure may be questionable in terms of selecting appropriate learning strategies and optimizing the learning experience.

### *Research Question*

What are the learning motives in use by undergraduate students enrolled in Human Resource Development online courses?

## Review of Literature

Motivation is one of the most overlooked aspects of curriculum design and development. Many learning models are developed to support the understanding and retention of course content. The Instructional System Design model, (Gagne, Briggs & Wagner, 1992) is but one example. However, little is written or researched concerning the motives that facilitate online learning. Therefore, a review of fundamental motivation theories and learning motive models is required before research into online learning motives is attempted.

## Motivation Theories

### *Needs Theories*

Bentham, Mill and Spencer (Hakim, 1997) theorized several social forms of hedonism during the 19<sup>th</sup> century. Motivation to learn was either derived from self-interest or societal needs. Knowledge became valuable for its own sake, and for the greater good of society, guaranteeing the continued success of Western civilization. During the 20<sup>th</sup> century, Freud and McDougall (Chung, 1997) believed man was motivated to learn by innate instincts; such as gratification, reproduction and survival. By the mid-20<sup>th</sup> century, motivation became more individually centered. Maslow (1954) established a hierarchy of individual personal needs based on his work as a humanistic psychologist. Personal needs ranged from basic biological needs to self-fulfilling, psychological needs. Maslow categorized needs into 2 groups: deficiency, or lower level needs (physiological or survival, safety, belonging, and self-esteem) and being, or higher level needs (intellectual achievement, aesthetic appreciation and self-actualization). When a need is not met, the individual will become motivated to meet that need. Once lower level needs are met, the individual is again motivated to meet higher level needs. The motivation to learn, and to participate in learning activities may be delayed until deficiency needs are met. They may be further delayed until personal needs are also met, perhaps to the level of self-actualization. In other words, participating in a college-level course may not occur until deficiency and self-esteem needs are met.

### *Incentive Theories*

Thorndike (1911) stated the law of effect (satisfaction strength-



ens the bond between stimulus and response) and the law of exercise (the frequency of response to a situation is directly proportional to the importance of the situation) effect the learning process. The laws are based on past experiences of satisfaction or discomfort, rather than present requirements for pleasure and satisfaction as stated by the hedonistic theorists. C.L. Hull (1952) developed an incentive theory which states the primary function of incentive is to pull the organism toward the attainment of a goal. As the importance of attainment increase, so does the incentive to attain. Incentive theories parallel course relevancy. Students who believe rewards will result from continued education, will identify learning motives that will facilitate their learning. Students will be motivated to enroll, participate, and successfully complete training that will realize monetary or personal rewards. As students demonstrate success in learning, they will become more apt to continue their studies.

### *Attribution Theories*

Attribution theories (Rathus, 1996) generally state that individuals attempt to explain success or failure by suggesting certain attributions which may be internally or externally generated. These attributes, or provenances, may be under the individual's locus of control, or the control of others. For example, motivation may be based on the desire to maintain one's image of self-worth. Consequently, students may look for ways to attribute the causes of behavioral outcomes, such as excellent grades or peer recognition to that which maintains their sense of worth. The effects of certain attributions may be a) heightened levels of self-efficacy, b) emotional reactions exhibited as shame or pride, c) enacted traits that lead to future success, or d) demonstrated efforts to succeed or fail.

### *Expectancy Theories*

Deci (1977) and Herzberg, Mausner, and Snyderman (1959) argue that motivation to learn may be derived from internal or external attributes, created from within or by others. The motivation to perform may be derived from personal satisfaction or reward, and is commonly referred to as intrinsic motives. Motives based on external forces that lead to public recognition, status, or rewards are known as extrinsic motives. Motives may also be derived from the influence of both forms, depending on circumstance and one's level of self-confidence in reaching a desired goal.

The motivation to learn begins with a desire to obtain a preferred outcome or incentive reward. If an individual perceives a barrier to learning, he or she will exert an extra effort to overcome the barrier if the rewards or outcomes are sufficiently desirable. The Expectancy Theory may be expressed as

$$\text{Motivation Forces} = \text{Expectancy} * \text{Instrumentality} * \text{Valence}$$

where motivational forces that result in an action or behavior are a function of three beliefs; expectancy, instrumentality, and valence. Expectancy is the belief that an individual's effort will

result in the attainment of desired performance goals. Instrumentality refers to rewards that are gained when performance goals are met. Valence refers to the value placed on the rewards. This is a function of one's goals, values and needs. Since the formula states that three factors are to be multiplied, a low value in either factor will result in a low motivation force. Therefore, all must be present in order for motivation to occur. In terms of a student's motivation to succeed at a particular task, he or she must believe that the effort put forth will result in an appropriate grade (expectancy), that an intrinsic or extrinsic reward will be forthcoming, as in an appropriate course grade (instrumentality), and the value placed on the task or reward is sufficient to put forth the effort, which may be intrinsic or extrinsic in nature (valence). If all three beliefs are present and equally strong, the likelihood of attaining the desired outcome is generally assured.

Vroom (1964) and Pajares and Miller (1994) propose that motivation is a function of the learner's expectancy to succeed at a particular task, and the value one places on the task. Vroom's expectancy theory is based on 4 premises.

1. People have preferences for various outcomes or incentives that are available to them. In the case of higher learner, these may include attaining a desired grade, publishing an article, or graduating with a desired grade point average.
2. People have expectations about their performance levels, such as maintaining a certain grade point average.
3. People understand that certain behaviors will be followed by desirable outcomes or incentive rewards, as in maintaining a high grade point average following induction into an academic honor society.
4. The action a person takes (or motive) is determined by their expectations or reservations. Students may avoid taking certain classes, and select others which meet their interests and affords some hope of completing with a desired grade.

Pajares and Miller (1994) suggest some expectancies are predictions of what may follow the various stimuli, known as stimulus-outcome relations. Other expectancies may involve what will happen if one follows certain behaviors, known as behavior-outcome relations. Additional expectancies may support self-assurance.

## **Learning Motive Models**

### *ARCS Model of Motivational Design*

Keller's (1983) research into learning motives and the mechanics of incorporating motivation into instructional design led to the development of the Attention, Relevance, Confidence and Satisfaction (ARCS) Model of Motivational Design. Like Vroom (1964), Keller believed that for effort to occur, the learner must value the task and believe he or she can succeed. Therefore, the task should be presented in a way that is engaging, relevant, and

in a way that promotes positive expectations for the successful achievement of the learning objectives (Small, 1997). Consequently, Keller developed the ARCS Model to provide a useful framework to improve the quality of design and motivation components of instructional materials. Keller recommends the Attention, Relevance, Confidence and Satisfaction Model of Motivational Design be combined with other instructional models, such as Gagne's (Gagne, Briggs & Wagner, 1992) Instructional System Design (ISD) model.

The following is an abbreviated summary of the ARCS Model, which consists of four basic strategies.

1. **Attention:** strategies that arouse and maintain curiosity and interest. Keller groups attention strategies into three categories: perception, inquiry and variability. Perception consists of questions that probe a learner's understanding. Inquiry may include problem-solving activities. Variability provides a variety of instructional delivery methods designed to maintain student interest.
2. **Relevance:** learning strategies that support learner needs, interest, and motives. Goal orientation is considered an important aspect of course relevance. Clearly stated learning objectives and purpose statements will ensure relevance for most learners.
3. **Confidence:** supported by clearly stated learning objectives early in the coursework. Learning responsibilities are supported by linking learner success to effort, the use of multiple achievement goals, and the setting of personal achievement standards.
4. **Satisfaction:** the learner is encouraged to find ways in which learning can be intrinsically enjoyable through feedback and reinforcement.

### *Theory of Intrinsically Motivating Instruction*

Malone (1981) presented a theoretical framework for intrinsic motivation while designing instructional computer games. He believes extrinsic motives; such as achieving high scores, instructor praise, and completing work on time is not sufficient for true learning to occur. Intrinsic motivators are believed to provide the necessary drive to consistently perform to above minimum standards. Change, feedback, and clearly stated performance criteria are classified as intrinsic motivators, whereas historically, these initiators were thought of as primarily extrinsic. Malone further argues that intrinsic motivation could be created by three qualities; challenge, fantasy and curiosity. Malone collaborated with Lepper (Lepper & Malone, 1987) to include a fourth motive, that of control. According to Duchastel, "Malone's CFC model provides interesting dimensions to consider in better understanding why WBI (web based instruction) can be intrinsically motivating and in seeking to enhance this aspect in the design of WBI." (1997, p. 182).

### *Motivational Framework for Culturally Responsive Teaching*

This approach to instructional design provides specific motivational conditions and strategies structured as teaching methods which increase the learner's motivation to learn. The framework can be superimposed onto existing instructional plans, or can become a source for future instruction. Wlodkowski bases his framework on two assumptions. The first assumption is "If something can be learned, it can be learned in a motivating manner." and the second is "Every instructional plan also needs to be a motivational plan" (1999, p. 22-23). According to Wlodkowski, inclusion, attitude, meaning, and competence must be present in every learning experience before a learner's motivation to learn can be realized. Establishing inclusion determines the degree to which a learning sequence provides an atmosphere of respect and connectedness. Affect, or emotional reactions to content and fellow students, is an important aspect of the inclusion motive. Inclusion activities usually occur at the beginning of the learning activity and may consist of shared reactions to an assignment, personal experiences related to the course materials, or small group activities designed to foster respect for individual opinions. Developing attitudinal activities may relate personal relevance and learner choice with favorable attitudes toward learning. These activities are also found at the beginning of the learning activity and may consist of small group discussions, student presentations that promote classroom discussions, and question & answer periods. Meaningful activities are usually designed into the body, or content areas of the curriculum and may consist of whole group discussions, identifying learner assumptions about the course content, and hands-on practicing of newly acquired skills. Requiring competence as a learning objective ensures that students have effectively learned something they value and can demonstrate the newly acquired skills or knowledge to others. Wlodkowski states that competence is "... the most powerful of all the motivational conditions for adults" (1999, p. 240). Therefore, avenues for learners to check for competence should be included throughout the learning process. Standards may be derived from external sources; such as standardized tests, or may be found within one's sense of achievement. Self-derived standards may differ from those established by others, therefore, learning activities should be designed where both are recognized and rewarded. Competence activities usually occur at the end of the learning activity to determine the degree to which learning has occurred, but may be included throughout the activity were appropriate. Activities may include oral, written or performance tests.

### *Summary of Learning Motive Theories and Models*

The learning motives developed by Vroom (1964), Pajares and Miller (1994), Keller (1983), Malone (1981), and Wlodkowski (1999) provide a useful theoretical framework by which learning motives can be studied, and appropriate learning strategies selected. Due to the similarities of learning motives found in each model or theory, it was determined that a unified learning

motive model be developed for use in this study. Learning motives of like definition were combined into five motives identified as representing generally recognized learning motives based on theory and/or application. The learning motives proposed by this author for study include a) personal feelings and emotions (affect), b) course interest, (c) self-competence, (d) course relevance, and (e) reinforcement. Personal feelings and emotions, such as self-doubt, anxiety, embarrassment, joy and achievement, may be negative or positive. By providing appropriate learning strategies, negative feelings and emotions may be minimized while not distracting from the course content (Keller, 1983). Task enjoyment, personal growth, a sense of belonging and acceptance are also considered part of the affective domain. Course interest may be in the form of curiosity, intellectual or sensory stimulation, challenging assignments, personal interest in the subject or maintaining heightened attention while performing lesson requirements (Keller, 1983; Vroom, 1964; Wlodkowski, 1999). Course relevance includes the value and importance placed on the course materials and concepts.

Although value and importance may be intrinsically or extrinsically derived, relevance is an important learning motive. Reinforcement may be in the form of formal or informal evaluations, such as tests or quizzes, feedback from peers and instructors, or through self-praise and posted grades (Keller, 1983; Malone, 1981).

Table 1 indicates the various learning motives identified by each model or theory under review, and the subsequent learning motives selected for use in this study.

## Methodology

### Sample

The sample consists of 45 undergraduate students enrolled in online courses offered by the Human Resource Development (HRD) Bachelor of Science degree program. The survey response rate was approximately 36%. The lower than expected response rate may be due to this survey being the first Master's thesis online survey to be conducted by the HRD Department. Response rates have risen for subsequent online surveys and questionnaires. The demographic information gathered indicates approximately 34% of the respondents are males, 66% percent females. Approximately 48% are married, 47% are single, and 5% are single-parents. 60% are full-time students, while 40% are part-time, and approximately 49% are fully employed, 40% are part-time employed, and 11% are not employed.

### Instrument

Of the six learning motive instruments currently in use, two were selected for possible use in this study; i.e., the Instructional Material Motivation Survey (Keller, 1987), the Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia

& McKeachie, 1993). The remaining instruments were either too narrow in scope, or did not meet the testing needs of this study. The instrument used in this study was based on the aforementioned instruments with several items added by the author. A pilot study was conducted to determine item correlation and reliability. Five items were rejected due to their propensity for misinterpretation, or item duplication as indicated by item correlation coefficients of  $r > .70$  during the pilot study. The final instrument consisted of 16 items using a Likert-type rating scale ranging from (1) "I Strongly Disagree" to (5) "I Strongly Agree." Each item was grouped into one of 5 key learning motives developed as a result of a review of literature. Several items were included under each learning motive to further define the levels of agreement. Four demographic items were included to determine learner gender, marital status, student status and employment status. A copy of the instrument may be reviewed in Appendix A.

### Implementation

The instrument was administered during the final weeks of the Spring 2000 semester at the University of Tennessee, Knoxville campus to all online undergraduate students enrolled in core HRD courses. The University of Tennessee's online portal, CourseInfo, was the administering platform. Students were asked to complete the survey on a volunteer basis and were not given extra credit, nor asked to complete the survey as an online assignment. Individual results were automatically retrieved and sent via e-mail to this author's secured e-mail site using Webmail in comma delineated form.

### Data Analysis

Descriptive statistical measures using SPSS Version 10 were performed to determine response means, ranges, standard deviations, variances, and frequency rates for each item and demographic category. Demographic correlations with each learning motive will be conducted during a future research project.

## Results and Discussion

As illustrated in Table 2, item analysis of frequency response rates indicate course relevance to be the most strongly agreed (SA) learning motive based on the average response rate for the 3 course relevance items, followed by reinforcement, self-competence, course interest and personal feelings and emotions.

Table 3 indicates items that were shown to have the highest levels of agreement. Analysis of the five learning motives under study indicates course relevance as having the highest level of agreement (88%) among online learners. Reinforcement (83%), self-competence (83%), course interest (81%), and personal feelings and emotions (75%) followed.

**Table 1**  
*Comparison of Learning Motives Among Theory-Based Learning Motive Models*

Expectancy Theories	ARCS Model of Motivational Design	Theory of Intrinsically Motivating Instruction	Motivational Framework for Culturally Responsive Teaching	Proposed Learning Motive Model
Valence	Satisfaction	Challenge Curiosity Fantasy	Inclusion	Personal Feelings and Emotions Course Interest
	Attention		Attitude	
Expectancy	Confidence	Control	Competence	Self-Competence
	Relevance		Meaning	Course Relevance
Instrumentality	Satisfaction		Inclusion	Reinforcement

**Table 2**  
*Learning Motive Group Frequency Responses and Average Levels of Agreement*

Item	SD	D	SWA	A	SA	Avg. Response	Group Avg. in %
Course Relevance	5	3	8	37	82	4.39	88
Reinforcement	1	12	22	33	57	4.10	83
Self-competence	2	7	13	32	63	4.16	83
Course Interest	6	8	29	65	72	4.05	81
Personal Feelings and Emotions	10	18	23	28	56	3.76	75

Note: SD=Strongly Disagree, D=Disagree, SWA=Strongly Disagree, A=Agree and SA=Strongly Agree.

**Table 3**  
*Items With Highest Levels of Agreement within Each Learning Motive*

Learning Motive	Item No.	Agreement Level in %	Description
Course Relevance	2	90	It is important for me to learn what is being taught in this course.
	3	90	Completing this course is important to me.
Reinforcement	11	96	Receiving frequent instructor feedback is important to me.
Self-competence	16	86	If I study appropriately, I can learn the material in this course.
Course Interest	4	96	I prefer course material that arouses my curiosity.
Personal Feelings & Emotions	10	85	It is important to know that I can voice my opinions without fear of embarrassing comments.

Item analysis indicates a preference towards course materials that arouse curiosity (Item 4) and the receiving of frequent instructor feedback (Item 11) by online learners, each receiving an average response rate of 4.80 out of a possible 5.0. Completing the course (Item 3) and learning course content (Item 2) was considered next in agreement at 4.58 and 4.49, respectively. Learning motives that were in least agreement among online learners were thinking about one's feelings and emotions (Item 8) and learning something that was surprising or unexpected (Item 5), followed by self-praise in the absence of instructor feedback (Item 12) and preferring a variety of lesson topics to maintain learner attention (Item 6).

The greatest variance in agreement levels occurred in Items 6, 9 and 10 referring to variety in lesson topics, feelings of accomplishment, and voicing one's opinions without fear of embarrassment. Items of least variance were Items 4 and 12, referring to curiosity and self-praise. Students generally prefer course materials that arouse their curiosity and to a lesser extent, praise themselves for work they have done well in the absence of instructor feedback.

The results of this study recognize course relevancy as a generally accepted online learning motive. Maslow (1954) may have argued that reaching a self-actualized state includes determin-

ing what vocation, or avocation is best suited for the individual. As a learner strives to become self-actualized, learning may take on a more relevant role. Relevancy appears to contribute to the process as learners strive to attain their vocational or personal goals through education and training. Thorndike's (1911) incentive theories were also supported by the survey results, as the relevant nature of course content may lead to professional and personal rewards. Intrinsic motivation supporters, such as Rathus (1996), Herzberg et al. (1959) and Deci (1977) may not agree that relevance is a learning motive, as they believe personal satisfaction (Item 9 of the survey) was a prime motive to learn. However, Herzberg and Deci agree that both intrinsic and extrinsic motives might be at work. Bentham, Mill and Spencer's (Hakim, 1997) motivation theories based on self or societal needs were also supported by the survey results, but to a lesser degree. It appears that self-interest is not as strong a motivator to learn as societal interest in course content, given the strong agreement levels indicated for course relevance (88% agreement level). However, the difference in agreement levels between course relevance and course interest is relatively low at 7%.

Keller's (1983) ARCS model is highly supported by the findings of this study. When comparing Keller's learning motives to comparable motives used in this study, each received average agreement levels greater than 83%. Course relevance as a learning motive was highly corroborated with Keller's relevance motive at 88% in meeting support needs, interests and motives. Reinforcement, self-competence, attention and satisfaction were also supported with average agreement levels of 80% among participants.

However, Malone's (1981) Theory of Intrinsically Motivating Instruction was not generally supported by this study. Fantasy, or a sense of surprise (70% average agreement level) was not considered a learning motive when compared to other, more robust indicators. Wlodkowski's (1985) Motivational Framework for Culturally Responsive Teaching identifies inclusion, attitude, meaning and competence as primary learning motives. The findings of this study supported each of Wlodkowski's motives except the inclusion motive, as indicated by the low item agreement levels obtained within the personal feelings and emotions learning motive (75% average agreement level).

### Summary and Recommendations

Course relevance plays an ever-increasing role in the design of course materials. Business communities are requiring cost/benefit analyses of existing and future training programs. Academic institutions, operating under ever-shrinking resources are re-evaluating their course offerings to ensure that what is being taught is needed and is useful. The findings of this study support these tenets, and should remain a guiding principle in the design and delivery of online course materials: Course material that arouses student curiosity, encourages frequent instructor feedback, facilitates the completion of their coursework, and support the belief that it is important to learn what is being taught are also indicated as generally agreed upon learning motives.

Therefore, complementary learning strategies should be incorporated into course design efforts that support each of the five learning motives tested in this study. Although personal feelings and emotions was not indicated as a viable learning motive, incorporating support learning strategies in this area may prove beneficial.

Unexpectedly, 96% of the population surveyed prefer course materials that arouse individual curiosities. This may be due, in part, to the rich learning environment offered by online learning. The Internet provides a wealth of opportunities to be curious, and to have that curiosity satisfied rather quickly (Duchastel, 1997). Conversely, Web browsing has become an issue with many online course developers and instructors. Not only is time and attention taken away from the task at hand, but browsing can become an addiction for many online learners. The impulse to browse can become heightened when students are required to visit certain websites related to their assignment, or project, that are information rich. The findings of this study may infer that if course content or delivery mechanisms are not sufficiently stimulating, the student may discover more interesting sites that satisfy their curiosity, sometimes serendipitously. However, when asked if the anticipation of learning something surprising, or having a variety of lesson topics and assignments was considered to be a learning motive, the responses were unexpectedly low. Perhaps syllabi should include clearly stated learning objectives and website visits that may require students to learn new ideas and concepts not included in the course outline. This may reduce the anxiety felt by many online learners when objectives and concepts to be learned are not clearly stated, or are expected to be self-discovered during the life of the course.

Online learners believe instructor feedback is also a learning motive. One reason may be due to the artificial learning environment online students find themselves in, otherwise known as cyberspace. Students may require greater amounts of instructor-student communication since the instructor is not generally available for one-on-one conferences. Although electronic methods of communication are available to the online student, many believe that one-on-one discussions are more productive (Issroff, 1997). Therefore, mid-semester conferences via video conferencing, or synchronous chat, may be the alternative to face-to-face consultations.

Personal feelings and emotions was not considered a viable learning motive, based on the results of this study. Perhaps a certain level of autonomy is being developed by online students who are becoming less concerned about other's personal opinions and more concerned about doing well in an online course, and exercising the skills and knowledge learned. Reacting to others' opinions or comments posted on the Internet may not promote the same level of feelings or emotions as that incurred in traditional classroom settings. Therefore, end-of-course evaluation surveys should be a bit more robust than level 1 or smiley face surveys. Immediate reactions to the course and its instructor may not be truly indicative, and should be retrieved after some time has passed.

## Implications and Future Research

### Implications

Although learning motives and strategies contained in this study are primarily based on traditional research, online applications are easily realized. According to Duchastel (1997), Keller's ARCS model can be transferred from the developing of traditionally delivered course materials to online delivery. Learner attention is easily maintained due to the preponderance of information and visual stimulation offered on the Internet. An issue of concern may be that this preponderance of stimulation may actually cause the student to become distracted. Therefore, maintaining appropriate levels of course interest will be the challenge for future online course designers.

Relevance is valued as an extrinsic or intrinsic motive, and is closely aligned with a learners' personal interests and career or academic goals. The Internet is rich in information and sensory stimulation. Subsequently, intrinsic or extrinsic relevance may become blurred in the future as students browse the Internet on a more regular basis.

Confidence and satisfaction relate to learner perceptions on achieving success and feelings about the achieved outcomes. Both motives are typically sequential in nature and are maintained over a period of time, i.e., greater satisfaction is realized when confidence levels are high. The sense of learner-control offered by Internet browsing has definite benefits for the curious student. The down side, as previously stated, may be that Internet browsing becomes counterproductive as time is consumed without tangible evidence of progress.

The identification of learning motives in use by online students is critical to the proper selection of supportive learning strategies. In the early days of online instruction, the hope was to replicate the course as closely as possible, including the textbook, and administer the course as if it were an in-classroom course. Although the approach may be cost effective, it may not be in the best interest of the student. Unique learning strategies may need to be developed to optimize the unique learning opportunities of the Internet, and the multi-medium of instructional technology. Subsequently, online course developers and instructors should seek new and innovative ways to support the learning motives identified in this study.

### Future Research

The relatively short history of Internet delivered curriculum precludes a rich research data base. Therefore, it is recommended that further research occur concerning the efficacy of various online learning motives and strategies. Research into learning motives used by certain demographic profiles should also be conducted. Continued research into the learning motives in use by online students, and the learning strategies required to support these motives, should occur on a frequent and regular basis. As the field matures, online learning motives may be changing

from traditional classroom motives without proper documentation or analysis.

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## Appendix A

### Online Learning Motive Questionnaire

Understanding learning motives is an important component of curriculum design and development. Research studies have identified a variety of learning motives in use in traditional classroom settings. However, little research exists on the motives used by students in non-traditional learning environments. Therefore, the following questionnaire is designed to partially fulfill the requirements of a Master's thesis whose purpose is to identify online learning motives, to determine if there are additional motives that may be unique to this learning mode, and to generally contribute to the research knowledge of online learning motives. Participation is voluntary. If you elect to participate, you must be at least 18 years of age.

Select the course number that you are currently enrolled in. If you are enrolled in more than one online course, select the course number that is applicable to this questionnaire:

HRD 320, HRD 325, HRD 330, HRD 452, HRD 455

Select the one response that best describes your thoughts or feelings related to each statement using the scale provided.

(1) Strongly Disagree (2) Disagree (3) Somewhat Agree (4) Agree (5) Strongly Agree

The following statements refer to course relevance:

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. The content of this course will be useful to me.                     | 1 | 2 | 3 | 4 | 5 |
| 2. It is important for me to learn what is being taught in this course. | 1 | 2 | 3 | 4 | 5 |
| 3. Completing this course is important to me.                           | 1 | 2 | 3 | 4 | 5 |

The following statements refer to course interest:

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 4. I prefer course material that arouses my curiosity.                     | 1 | 2 | 3 | 4 | 5 |
| 5. I have learned things that are surprising or unexpected in this course. | 1 | 2 | 3 | 4 | 5 |
| 6. The variety of lesson topics and assignments help keep my attention.    | 1 | 2 | 3 | 4 | 5 |
| 7. I prefer course work that is challenging so I can learn new things.     | 1 | 2 | 3 | 4 | 5 |

The following statements refer to personal feelings and emotions:

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 8. I often think about my emotions and feelings while taking this course. | 1 | 2 | 3 | 4 | 5 |
| 9. Completing lessons gives me a satisfying feeling of accomplishment.    | 1 | 2 | 3 | 4 | 5 |
| 10. I can voice my opinions without fear of embarrassing comments.        | 1 | 2 | 3 | 4 | 5 |

The following statements refer to reinforcement:

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 11. Receiving frequent instructor feedback is important to me.              | 1 | 2 | 3 | 4 | 5 |
| 12. I praise myself for work done well in the absence of instructor praise. | 1 | 2 | 3 | 4 | 5 |
| 13. I believe I can ask fellow students for help in this course.            | 1 | 2 | 3 | 4 | 5 |

The following statements refer to self-confidence:

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 14. I am sure I can do an excellent job on the assignments.           | 1 | 2 | 3 | 4 | 5 |
| 15. I am certain I can understand the ideas discussed in this course. | 1 | 2 | 3 | 4 | 5 |
| 16. If I study appropriately, I can learn the material.               | 1 | 2 | 3 | 4 | 5 |

#### Demographic Items

- |                   |           |           |               |
|-------------------|-----------|-----------|---------------|
| Gender            | Male      | Female    |               |
| Marital Status    | Married   | Single    | Single-Parent |
| Student Status    | Full-Time | Part-Time |               |
| Employment Status | Full-Time | Part-Time | Not Employed  |



# Learning Styles and Computer Success

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## Abstract

A quasi-experimental study was conducted to explore the relationship between computer students' learning styles and their final course grade as they participated in a collaborative environment. A total of 106 students in four sections of a beginning computer applications class took part in the study. Students were administered the Kolb Learning Style Inventory in order to determine learning style preference. A treatment group was randomly selected and these students were grouped together based on learning style. The control groups were assumed to be heterogeneous groups. Students were given a written and application exam. Results indicated that homogeneous groups performed better on the written exam.

## Introduction

As students enter the collegiate level computer applications class, they appear to already possess some computer skills. When queried as to where they obtained their skill set, the common reply is, "high school." Having taken a high school computer class does not guarantee success in the beginning collegiate level computer applications class, as measured by course grade. The purpose of the first college computer class is to equip students with skills that will serve as a tool and resource in their other classes, their careers, and their lives. Strassmann (1997) found that the cost of training computer users increases each year with \$100 billion spent in 1997. Chun (2001) reports that 60% to 80% of any Information Technology budget is spend on training and support, amounting to between \$250 and \$400 per day. Clearly, outlays of this magnitude should produce tangible results for businesses and users alike.

## Research Problem

The objectives of this study were to identify students' learning styles, collect demographic information and the student's grade to determine if a relationship exists among learning style, demographic variables, and grade in the computer applications class. Kolb's model of experiential learning (Kolb, 1984) is the basis for defining learning styles. Specifically, the study seeks an answer to this question: "Is there a relationship between preferred learning style and computer success based on selected student demographic characteristics?"

## Literature Review

The affect of learning styles on success is documented in the literature, but not frequently put into practice. Mumford (1992) believes that identifying and informing students of their learning style better helps them understand how they learn. Sloan

(1995) adheres to the belief that students learn in a variety of ways, but prefer one method of learning over others. Instructors tend to utilize a variety of instructional delivery techniques in order to reach students. Common techniques include: lecture, demonstration, application, problem-solving, small groups, large groups, discussion, role-playing, and case studies. Training method and individual characteristics affect learning outcomes (Bostrom, Olfman and Sein, 1990). Therefore, it is important to tailor instructional design to a person's preferred learning style. Adapting instructional methods to accommodate students' learning styles has led to improved performance (Bostrom, Olfman, and Sein, 1990). Shayo and Olfman (2000) examined software training for end-users, and their research focused on users' mental mode prior to training. Results indicated that mental mode has an impact on performance and motivation. The learning styles of students should influence their performance based on the type of training they receive. In addition, learners whose training closely matches their preferred learning style can be expected to perform best (Simon, 2000). Other research concluded that identifying and focusing on a student's learning style will increase the effectiveness of computer training (Fauley, 1991; Ruble and Stout, 1993; Larsen, 1992). Learning styles play an important role in how much a person learns (Bostrom, Olfman and Sein, 1990).

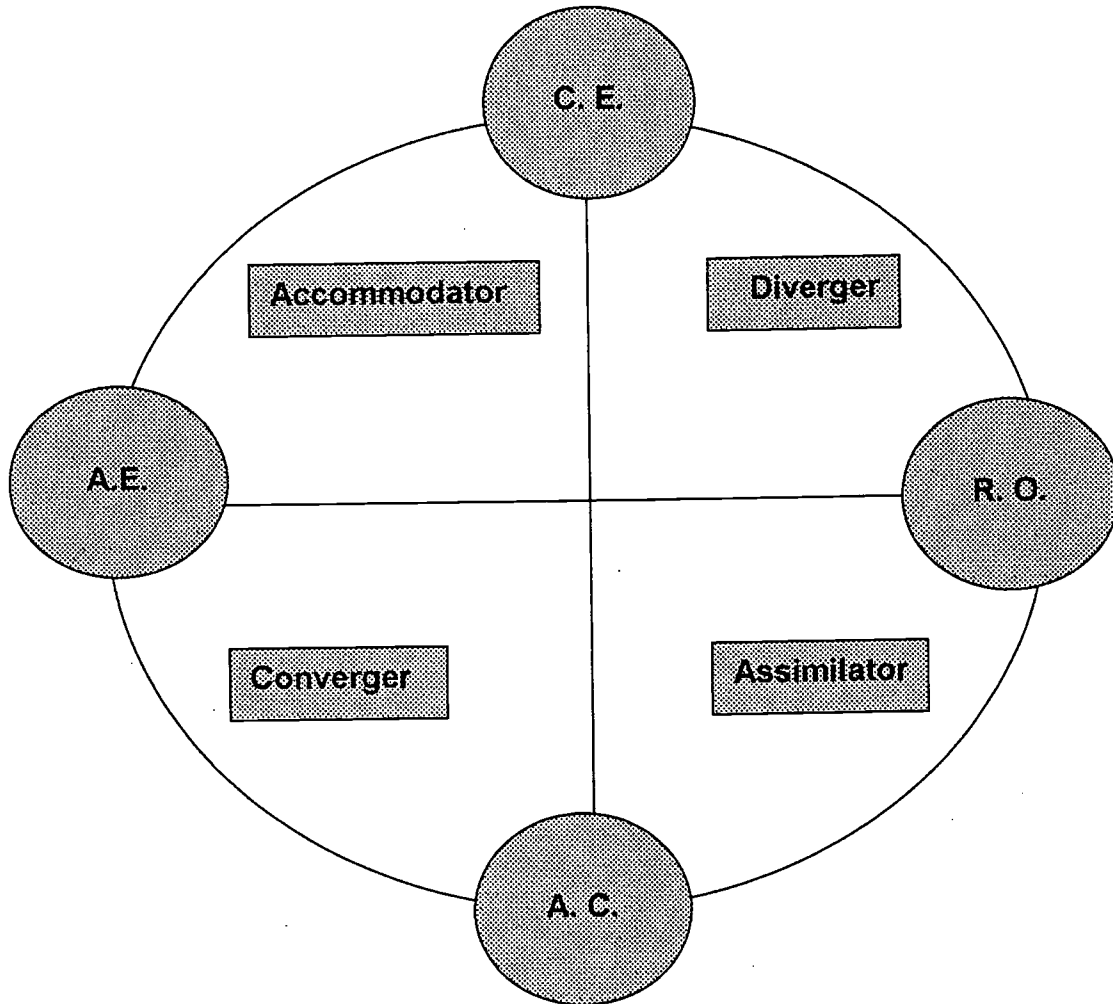
## Kolb's Learning Style Theory

Kolb's learning style theory is based on the belief that end users learn and solve problems by progressing through a four-stage cycle: (1) concrete experience (learning from feelings), (2) reflective observation (learning from watching and listening), (3) abstract concepts (learning from thinking), and (4) active experimentation (learning by doing). Learners then develop preferences for particular stages (Kolb, 1985). Constructs assigned to reflect learning preferences are: diverger, accommodator, converger, and assimilator. For example, convergers and assim-

lators are abstract learners while divergers and accommodators are analogical learners (Bohlen and Ferratt, 1997; Kolb, 1984; Bostrom, Olfman and Sein, 1990). Convergers solve problems by relying heavily upon hypothetical-deductive reasoning in order to focus on specific problems. Divergers solve problems by viewing the situation from many perspectives and rely heavily

on brainstorming and generation of ideas. Assimilators solve problems by inductive reasoning and prefer to create theoretical models. Accommodators solve problems by carrying out plans and experiments and then adapting to specific circumstances (Bohlen and Ferratt, 1997; Bostrom, Olfman and Sein, 1990; Kolb, 1984; Applying Learning Theory, 1999).

### Model of Kolb's Learning Style Inventory



## Methodology

Students in beginning collegiate-level computer applications classes served as subjects for this study. The intact classes of four sections were taught by the same instructor to increase reliability and validity of the study. Each class met twice weekly for 1 hour and 15 minutes during which time they received instruction in Windows, Internet usage, and Microsoft Office, specifically Word, Excel, and PowerPoint. One section was selected as the treatment group by writing down the numbers one through four on pieces of paper, putting them in an envelope, and then drawing out a number. The groups were administered the Kolb Learning Style Inventory, Version III (Kolb, 1985). Based on the results, participants in the treatment group were assigned to groups with individuals of the same preferred learning style. Students in the control groups were assigned to groups on a random basis. Thus, the treatment section was made up of homogeneous groups, while the control sections were made up of heterogeneous groups. All students completed the same tasks and activities in groups, and took the same tests individually. Demographic data was collected such as gender, age, year in school, major, hours worked per week, previous computer classes, and computer ownership. The information was treated as covariates, and data was analyzed using descriptive and inferential statistics. Every effort was taken by the researcher to ensure the participants' confidentiality. Human subjects approval for this study was granted by the researcher's institutional review board.

## Findings

Study results were based on 106 students; 28 in the treatment group and 78 in the control groups. The majority of students were 20 years of age or less ( $n=76$ , 71.7%), which is aligned with the finding that the majority of students were freshmen ( $n=59$ , 55.7%). An overwhelmingly majority of students had one year or more of word processing experience ( $n=82$ , 77.4%), no prior spreadsheet experience ( $n=40$ , 37.7%), no prior presentation graphics experience ( $n=58$ , 54.7%), and one year or more of Windows experience ( $n=83$ , 78.3%). T-tests were performed to determine if the groups differed on demographic variables and previous computer experience. Using an independent samples t-test and weighting, age and previous word processing experience was statistically significant ( $t=2.865$ ,  $p<.05$ ). Students were given a Word written and application exam. An Analysis of Covariance (ANCOVA) was performed on the data, with demographic variables being treated as covariates. Statistical significance was detected between prior word processing experience and grade on the written Word test ( $f=4.200$ ,  $p<.05$ ).

## Discussion

Students come to the first collegiate level computer class with some prior experience which was obtained in high school. This finding differs from previous studies of the last 10 years in which students had little prior experience (Hunt and Bohlen, 1991; Wiggs and Huter, 1994; Erthal, Wiggs, and Huter, 1996; Erthal,

1998). The trend of prior experience is expected to continue in the future. The subjects in this study tended to be 20 years of age or less and freshmen. Similar results were obtained from previous studies (Webler, 1992; Taylor and Mounfield, 1994; Wiggs and Huter, 1994; Erthal 1998). Students in the various groups performed equally well on the Word application test. However, students who studied in homogeneous groups performed better than their counterparts on the Word written exam. A study by Simon (2000) suggests that students would be expected to perform better when matched groups exist for studying purposes.

## Recommendations

The collegiate-level computer applications curriculum should be amended to reflect the fact that students have previous computer experience.

Committees that develop the high school computer curriculum and the college computer curriculum should collaborate with each other in order to eliminate redundancy.

Students should be grouped together according to their preferred learning style in order to increase their opportunities for success.

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# Recommended Computer End-User Skills for Business Students by *Fortune 500* Executives--2001 Report

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## Abstract

To determine the recommended computer end-user skills by U.S. corporations for business students now and toward 2005, this study replicated Zhao's (1996) survey of the *Fortune 500* corporations. The findings indicate that 28 skills were "strongly recommended" and 37 skills were "recommended." By contrast, in Zhao's 1996 report, only 11 skills were "strongly recommended," but 46 skills were "recommended." The dramatic increase in strongly recommended skills occurred mainly in the Internet/Web-related telecommunications and discipline-specific information systems areas.

To determine what computer end-user skills U.S. corporations recommend that business students possess upon graduation between 1995 and 2000, Zhao (1996) collected data from 83 *Fortune 500* largest U.S. corporations and reported the findings in the Summer 1996 issue of the Delta Pi Epsilon Journal. The purpose of this original study was twofold:

The primary purpose of this study was to provide business school administrators and educators with the research findings that they need to make necessary adjustments and keep their curricula current and futuristic. The secondary purpose was to inform business students of the computer end-user skills that U.S. businesses expect now and until 2000; therefore, they can choose appropriate elective courses for their academic programs. (Zhao, 1996, p. 157)

As we have entered the 21<sup>st</sup> century and U.S. companies have been integrating their computer information systems with the Internet and Web technologies (see, for example, Cronin, 1998, Kulman, 1999; Lake, 2000; Moore, 2000; Schonfeld, 1998), a need exists for updating Zhao's (1996) original study to identify what computer end-user skills U.S. corporations recommend that business students possess upon graduation now and toward the year 2005.

The present study replicated the original study in terms of problem statement, purpose of the study, and research methodology, with some needed modification to update the time span and instrument contents based on the literature review. Several recent studies reported the emerging computer technologies and needs for new computer skills. For instance, the 2000-2001 Occupational Outlook Handbook (Bureau of Labor Statistics, 2000) indicated that employers increasingly require employees to be able to use a variety of software applications, such as word processing, spreadsheet, database, and other job-related applications.

In addition, the expanding integration of the Internet and Web technologies by businesses has resulted in a rising demand for a variety of skilled professionals who can develop and support Internet, intranet, and Web applications. Similarly, *U.S. News & World Report's* 2001 Career Guide pointed out that technology and health care sectors are job machines over the next decade. In spite of current U.S. economic slowdown, high-tech jobs will grow by almost two million by 2008 (Boser, 2001).

## Problem Statement

The problem addressed in the present study was to determine what computer end-user skills U.S. corporations recommend that business students possess upon graduation now and toward 2005. In order to solve this problem, the following research questions were addressed:

1. What computer end-user hardware skills do business students need now and toward 2005?
2. What computer end-user software skills do business students need now and toward 2005?
3. What end-user telecommunication and workgroup software skills do business students need now and toward 2005?
4. What computer and Web programming skills do business students need now and toward 2005?
5. What end-user discipline-specific information systems skills do business students need now and toward 2005?
6. What recommended end-user skills are significantly different between human resource (HR) and information technology (IT) executives?

## Methodology

### Participants

A survey is conducted among the *Fortune 500* largest U.S. corporations (*Fortune*, 2000) because these corporations are the leaders in using computer information technology (Teitelbaum, 1996). Based on the feedback from the respondents of the previous survey, the participants of the present study included both HR and IT executives in charge of corporate recruitment, training and development in their corporations. To identify the names and addresses of these executives, a thorough search was conducted through the *Fortune 500* corporations' Web sites and *Standard and Poor's Register of Corporations, Directors and Executives* (2000). To guarantee that the sample would be within 5% variation from the true population value, Jaeger's (1984) formula for determining sample size was used, which results in 217 out of 500 corporations. Since both human resource and information technology executives of each corporation would be surveyed, the procedure resulted in an actual sample of 434 HR and IT executives.

### Instrument

The original four-page, Likert-response questionnaire was updated in both contents and time span based on the review of recent literature (see, for example, Biggs, 2001; Dyck, 2000; Leon, 2000; Lim, Dillion, Pethokoukis, & Charski, 2000; Nee, 2000; Nobel, 2000; Pfaffenberger, 2001; Rapoza, 2000; Yager, 2001; Yang, 2000) in order to solicit recommendations regarding computer end-user skills for business students now and toward 2005. The questionnaire contained five sections: (a) a profile of the respondents' company businesses, (b) basic computer hardware and software skills, (c) telecommunication and workgroup software skills, (d) computer and Web programming skills, and (e) discipline-specific information systems skills.

The basic computer hardware and software skills selected for this survey were the skills of using eight hardware components (keyboard, mainframe, microcomputer, minicomputer, modem, mouse, printer, and scanner); six operating systems (DOS, IBM OS/2, Linux, Macintosh, UNIX, and Windows); five productivity applications software (word processing, database, spreadsheet, presentation, and desktop publishing); six productivity applications suites (AppleWorks, Lotus SmartSuite, Microsoft Office, MS Office for Mac, StarOffice, and WordPerfect Office); and four graphics packages (Harvard Graphics, Microsoft Publisher, PageMaker, and Photo-Paint).

The telecommunication skills included using the Internet/Web, intranet, local area networks (LAN), wide area networks (WAN), and wireless/mobile Web applications for sending/receiving e-mail, downloading/managing/posting information, and Web-conferencing. The workgroup software skills were the skills in Lotus Notes, MS Exchange, and Novell GroupWise.

The computer and Web programming skills selected for this study were programming with Visual BASIC, C++/Visual C++, Java/Visual J++, JavaScript, VBScript, ASP, CGI, DHTML, HTML, Perl, WAP, XML, and programming in database, spreadsheet, presentation, and word processing software.

Discipline-specific information systems skills often used by specialized business professionals were identified as follows: (a) accounting: applications for accounts payable, accounts receivable, budgeting, fixed asset accounting, general ledger, payroll, and tax accounting; (b) finance: applications for cash management, credit analysis, and portfolio management; (c) marketing: applications for billing, data mining, direct mail, inventory control, order entry, sales analysis, and sales forecasting; (d) management: applications for decision support systems, expert systems, executive support systems, human resource management, and project management; (e) manufacturing: applications for computer-aided design (CAD), computer-aided manufacturing (CAM), just-in-time (JIT) inventory management, and production scheduling; and (f) management information systems (MIS): software for systems analysis and design, systems implementation, and systems maintenance.

To identify any other possible alternatives or additional comments, an "other" category was provided at the end of each question.

### Procedures

A systematic sampling procedure was used to identify 434 HR and IT executives in charge of corporate recruitment, training and development in the *Fortune 500* corporations. The 434 questionnaires were mailed with a personalized cover letter to each member of the sample in January 2001. A personalized follow-up letter was mailed with a backup questionnaire five weeks later to thank the respondents and to remind the nonrespondents to complete and return their questionnaire.

Of ninety-three responses received, 51 were usable. The nonusable responses were from respondents whose company policies did not allow them to answer any nongovernmental questionnaires or from companies' mail offices indicating that the addressees had retired or left the companies. The usable responses represent 12% of the sample and 10% of the population of the *Fortune 500* companies, which were relatively lower than the previous survey's 22% of the sample and 17% of the population of the *Fortune 500* companies.

Each completed questionnaire was edited and coded. Frequency counts, percentage distributions, and weighted averages were prepared. In analyzing the data, the midpoints of each scale range (the real outer limits) were used in determining the degree of recommendation for that skill; that is, mean weighted responses of 4.5-5.0 = strongly recommend; 3.5-4.4 = recommend; 2.5-3.4 = no opinion, 1.5-2.4 = not recommended, and 1-1.4 = not at all recommended. A one-way analysis of variance (ANOVA) was used to determine any significant differences of the recom-

recommendations between HR and IT groups. Significant differences among the five business groups were not tested because of their small sizes.

### Findings

The findings of the study are reported in the sequence of (a) the demographic profile of the respondents, (b) the respondents' recommendations for computer end-user skills, and (c) significant differences of the recommendations between HR and IT executives. Comparative findings from the previous survey are provided in Appendix A.

#### Demographic Profile of the Respondents

Among the 51 usable responses, 20 were from IT executives and 31 were from HR executives. As Table 1 illustrates, these executives represented five major industry groups covering a wide range of businesses. The largest group of respondents (29%) was the manufacturing and processing industries, followed by banking/finance/insurance industries (24%) and information/retail/wholesale (24%). The remaining two groups represented 13% and 10%, respectively.

**Table 1**  
*Demographic Profile of the Respondents' Companies*  
(N = 51)

Group	Types of Company Business	Frequency	Percentage
Group 1.	Manufacturing/Processing	15	29%
Group 2.	Banking/Finance/Insurance	12	24%
Group 3.	Information/Retail/Wholesale	12	24%
Group 4.	Transportation/Utilities	7	13%
Group 5.	Other <sup>a</sup>	5	10%
Total		51	100%

<sup>a</sup> Includes companies in construction, engineering, mining, and oil/gas.

#### Recommended Computer End-User Skills

The recommended computer end-user skills include skills in using hardware and software, telecommunication and workgroup software, computer and Web programming languages, and discipline-specific information systems.

**Hardware and software skills.** As Table 2 shows, three hardware skills (keyboard, microcomputer, and mouse) were rated as being "strongly recommended" for business students now and toward 2005. Four skills (printer, modem, scanner, and mini-computer) were rated as "recommended." By contrast, the skill of using mainframe computers received the least recommendation. As can be noted in Appendix A, the recommendations for hardware skills in this survey are similar to those in the previous one.

**Table 2**  
*Hardware and Software Skills Recommended for Business Students Now and Toward 2005 (N = 51)*

	Weighted Average <sup>a</sup>
<b>Hardware Skills:</b>	
Keyboard	4.8
Microcomputer	4.8
Mouse	4.5
Printer	4.3
Modem	4.2
Scanner	4.2
Minicomputer	4.1
Mainframe	3.3
<b>Software Skills:</b>	
<b>Operating Systems</b>	
Windows	4.9
DOS	2.9
UNIX	3.8
IBM OS/2	2.8
Linux	3.3
Macintosh	3.3
<b>Productivity Software</b>	
Word Processing	5.0
Spreadsheet	5.0
Presentation	4.9
Database	4.8
Desktop Publishing	4.3
<b>Productivity Suites</b>	
MS Office	4.9
Lotus SmartSuite	3.6
WordPerfect Office	3.4
Sun StarOffice	3.3
MS Office for Mac	3.2
Apple Works	3.0
<b>Graphics Packages</b>	
PageMaker	3.8
MS Publisher	3.7
Photo-Paint	3.5
Harvard Graphics	3.3

<sup>a</sup> Responses to a Likert-type scale where 5 = strongly recommended and 1 = not at all recommended.

Regarding skills of using operating systems, only Windows was rated as "strongly recommended," followed by UNIX as "recommended" for business students now and toward 2005. DOS dropped from the "recommended" category in the previous survey and joined IBM OS/2, Linux, and Macintosh in the no-opinion category.

When rating the productivity software skills, using word processing, spreadsheet, presentation, and database were rated as "strongly recommended" while using desktop publishing was perceived as "recommended" for business students now and toward 2005.

Among the productivity applications suites, Microsoft Office (4.9) was once again ranked at the top on the list of six suites, with Lotus SmartSuite (3.6) as a distant second. Concerning skills of using graphics packages, Adobe PageMaker, Microsoft Publisher, and Photo-Paint were rated as "recommended." While PageMaker moved up to the "recommended" status, Harvard Graphics has dropped in popularity since 1995.

**Telecommunication and workgroup software skills.** All the 11 telecommunication skills were recommended for business students now and toward 2005 (see Table 3). Among them the skills in using e-mail, Internet/Web, intranet, searching/downloading/managing/posting information, using wireless/mobile Web applications, and Web-conferencing received strong recommendations, with e-mail and Internet/Web at the top on the list. The skills of using intranet, wireless/mobile Web applications, and Web-conference were the new comers that had not existed in the 1995.

Regarding workgroup software skills, respondents rated skills of using Microsoft Exchange and Lotus Notes as "recommended," with "no pinion" on Novell GroupWise. Comparing the findings in the 1995 survey, it is clear that Microsoft Exchange has increased in popularity since then.

**Table 3**  
*Telecommunication and Workgroup Software Skills Recommended for Business Students Now and Toward 2005 (N = 51)*

	Weighted Average
<b>Telecommunications:</b>	
E-mail	5.0
Internet/Web	5.0
Intranet	4.9
Search information	4.9
Download information	4.9
Manage information	4.8
Wireless Web Applications	4.7
Post information	4.6
Web conference	4.5
LAN	4.2
WAN	4.1
<b>Workgroup Software:</b>	
MS Exchange	4.2
Lotus Notes	3.8
Novell GroupWise	3.4

**Programming skills.** As Table 4 illustrates, respondents recommended that BIT/MIS majors possess skills of using the following seven programming languages: Java/Visual J++, C++/Visual C++, Visual BASIC, JavaScript, XML, HTML, and VBScript. By contrast, they did not recommend those programming languages for other business majors. However, both BIT/MIS and other business majors were recommended to possess the basic programming skills in spreadsheet, database, presen-

tation, and word processing software. As can be seen in Appendix A, while the recommendations for the basic programming skills remained almost the same between the present and previous surveys, the Internet/Web-oriented programming languages have emerged with a growing importance for BIT/MIS majors since 1995.

**Table 4**  
*Computer and Web Programming Skills Recommended for Business Students Now and Toward 2005 (N = 51)*

	Weighted Average	
	BIT/MIS Majors	Other Business Majors
<b>Programming Languages:</b>		
Java/Visual J++	4.3	1.5
C++/Visual C++	4.2	1.2
Visual BASIC	4.1	1.5
JavaScript	4.0	2.0
XML	4.0	1.7
HTML	3.9	3.1
VBScript	3.6	1.7
DHTML	3.2	2.2
WAP	3.1	1.2
ASP	2.7	1.3
CGI	2.3	1.2
Perl	2.1	1.2
<b>Programming in:</b>		
Spreadsheet software	4.1	4.1
Database software	4.1	3.5
Presentation software	4.0	3.9
Word processing software	3.9	4.0

**Information systems skills.** Respondents were asked to rate discipline-specific information systems skills for various business majors. As shown in Table 5, skills in using 29 information systems in six disciplines (accounting, finance, marketing, management, manufacturing, and MIS) were rated as "recommended" or "strongly recommended" for students of respective majors now and toward 2005. When completing this section, respondents frequently commented that their companies use Web-enabled enterprise systems, such as enterprise resource planning (ERP) and supply chain management (SCM), which integrate various functional information systems along business processes and are accessible over corporate intranets.

### *Significant Differences*

The one-way ANOVA was used to determine whether the recommendations from HR and IT executives have any significant differences. Among 88 computer end-user skills, only eight skills (using mainframe, Mac OS, UNIX, WordPerfect Office, MS Publisher, decision support systems, executive support systems, and systems implementation) showed small degrees of significant differences between IT and HR executives' recommendations (see Table 6).



**Table 5**  
*Information Systems Skills Recommended for the Related Business Students Now and Toward 2005 (N = 51)*

	Weighted Average
<b>In accounting:</b>	
Budgeting	4.6
General ledger	4.5
Tax accounting	4.4
Accounts receivable	4.3
Accounts payable	4.3
Payroll	4.3
Fixed asset accounting	4.2
<b>In finance:</b>	
Cash management	4.5
Credit analysis	4.4
Portfolio management	4.4
<b>In marketing:</b>	
Data mining	4.5
Sales analysis	4.5
Sales forecasting	4.5
Inventory control	4.3
Billing	4.2
Order entry	4.2
Direct mail	4.0
<b>In management:</b>	
Decision support systems	4.5
Human resource management	4.5
Executive support systems	4.4
Project management	4.3
Expert systems	4.0
<b>In manufacturing:</b>	
JIT inventory management	4.2
Computer-aided design	4.3
Production scheduling	4.3
Computer-aided manufacturing	4.2
<b>In management information systems:</b>	
Systems analysis/design	4.5
Systems implementation	4.5
Systems maintenance	4.4

**Table 6**  
*One-way ANOVA of the Recommended Skills Significantly Different Between IT and HR Groups*

Computer Skills	IT Group		HR Group		*Significant at .05 level
	Mean	vs	Mean		
Mainframe	3.6	vs	3.1		*
Mac OS	3.6	vs	3.0		*
UNIX	4.2	vs	3.5		*
WordPerfect Office	3.7	vs	3.1		*
MS Publisher	4.1	vs	3.4		*
Decision support systems	4.7	vs	4.3		*
Executive support systems	4.7	vs	4.1		*
Systems implementation	4.8	vs	4.3		*

### Summary and Discussion

Similar to the findings of the 1995 survey of the Fortune 500 executives (Zhao, 1996), the respondents of this study recommended that business students possess computer end-user skills in each of these 10 types: computer hardware, operating systems, word processing, spreadsheet, presentation, database, desktop publishing, telecommunication and groupware, programming, and discipline-specific information systems related to students major.

However, while the 1995 survey identified 11 computer end-user skills as "strongly recommended," respondents of this survey rated the following 28 skills as "strongly recommended" for business students to possess upon graduation now and toward 2005:

**Hardware:** keyboard, microcomputer, and mouse.

**Operating system:** Windows.

**Productivity applications:** word processing, spreadsheet, database, and presentation, with Microsoft Office as the "strongly recommended" productivity applications suite.

**Telecommunications:** e-mail, Internet/Web, intranet, searching/downloading/managing/ posting information, wireless/mobile Web applications, and Web conference.

**Information systems:** budgeting, general ledger, cash management, data mining, sales analysis, sales forecasting, decision support system, human resource management, systems analysis and design, and systems implementation.

This dramatic increase in strongly recommended skills occurred mainly in the Internet/Web-related telecommunications and discipline-specific information systems areas. This finding supports, in details, the 2000-2001 occupational outlook (Bureau of Labor Statistics, 2000) and the studies (Cronin, 1998; Kulman, 1999; Lake, 2000; Moore, 2000; Schonfeld, 1998) that companies have been integrating their computer information systems with the Internet/Web technologies, and employers increasingly require employees to be able to use a variety of software applications.

The most frequent additional suggestions given by the respondents were these: (a) Business students must be able to use computer and Internet to be effective and efficient on the job. (b) Learning an enterprise software like enterprise resource planning (ERP) and supply chain management (SCM) software rather than stand-alone discipline-specific software can better prepare students for the workplace. And (c) upon graduation, students should also have life-long learning skills and be able to teach themselves new skills and knowledge under time pressure. While the first and third suggestions are similar to those in the 1995 survey, the second one indicates companies' new requirement for business schools and students.

### Conclusions and Recommendations

Based on the findings of this study, the following conclusions are made:

1. Upon graduation, business students should be able to use computer and Internet to do their work effectively and efficiently.
2. The following 17 computer end-user skills appear to be critical components of a computer education program for business students now and toward 2005: using keyboard, microcomputer, mouse, Windows, word processing, spreadsheet, database, presentation, e-mail, Internet/Web, intranet, wireless/mobile Web applications, Web conferencing, searching, downloading, managing, and posting information.
3. Microsoft Office, which includes Word, Excel, Access, and PowerPoint, seems to be the most appropriate productivity software package for business students to learn computer applications for business now and toward 2005.
4. Discipline-specific information systems would be better taught by using Web-enabled enterprise systems like ERP and SCM software so that students can have a better understanding of the interrelated business functions and processes and are able to develop effective problem-solving and decision-making skills.
5. Teaching students a process of how to acquire new knowledge and learn new skills continues to be more important than just teaching them a new software product.

Based on the conclusions, the following recommendations are made for business school administrators, educators, and students:

1. Business school administrators should ensure that their computer labs are equipped with a sufficient number of personal computers operating in the Windows environment and being connected to the Internet. While Microsoft Office should be installed on most school computers, ERP and SCM software need to be available in one or two labs.
2. BIT/MIS professors should continue developing students' life-long learning skills and ability to acquire new knowledge and skills under time pressure when teaching computer and Internet/Web applications.
3. Business professors in specific disciplines should consider integrating ERP or SCM software into related courses and requiring students to do their course assignments by using the software that are popular in their respective professions.
4. Business students should consider taking more computer and Internet applications courses as electives to better equip themselves for the marketplace.

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## Appendix A

### Computer End-User Skills Recommended for Business Students Now and Until 2000 (N = 83)

Skills	Weighted Average <sup>a</sup>	Skills	Weighted Average
<b>Hardware and Software Skills</b>			
<b>Hardware Skills:</b>			
Keyboard	4.8	WP6.0	3.9
Microcomputer	4.7	WP5.2	3.1
Mouse	4.7	Ami Pro	3.1
Printer	4.5	WP5.1	3.0
Modem	4.4	Write	2.9
Minicomputer	4.2	Spreadsheet	
Scanner	4.0	MS Excel	4.7
Mainframe	3.3	Lotus 1-2-3	4.2
<b>Software Skills:</b>			
<b>Operating Systems</b>			
Windows	5.0	QuattroPro	3.2
DOS	4.0	VP-Planner+	3.0
UNIX	3.6	Database	
IBM OS/2	3.4	MS Access	4.1
Macintosh	3.3	Paradox	3.4
VM/MVS	3.1	FoxPro	3.3
VMS	2.9	dBASE V	3.1
VAX	2.8	dBASE III+	3.0
<b>Word Processing</b>			
MS Word	4.2	dBASE IV	3.0
		Desktop Publishing/Presentation	
		MS PowerPoint	4.3
		Harvard Graphics	3.6
		PageMaker	3.4
<b>Telecommunication and Groupware Skills</b>			
<b>Telecommunications:</b>			
E-mail	4.8	Provide information	4.3
Internet	4.6	WAN	4.0
LAN	4.6	<b>Groupware:</b>	
Download files	4.5	Lotus Notes	4.0
Find information	4.5	MS Exchange	3.4
Transfer files	4.4	Novell GroupWise	3.2
<b>Computer Programming Skills</b>			
<b>Programming Languages:</b>			
C or C++	3.5	Pascal	2.6
BASIC or Visual BASIC	3.3	<b>Programming in:</b>	
COBOL	3.2	spreadsheet	4.1
FORTRAN	2.8	database	3.9
RPG	2.7	word processing	3.9

*continued*

Skills	Weighted Average <sup>a</sup>	Skills	Weighted Average
<b>Information Systems Skills</b>			
<b>In Accounting:</b>		Direct mail	3.7
Budgeting	4.3	Order entry	3.7
General ledger	4.2	<b>In Management:</b>	
Accounts receivable	4.1	Decision support sys	4.4
Accounts payable	4.0	Executive support sys	4.2
Fixed asset accounting	3.9	Human resource mgt	4.2
Payroll	3.9	Expert systems	4.0
Tax accounting	3.9	<b>In Manufacturing:</b>	
<b>In Finance:</b>		JIT inventory management	4.0
Cash management	4.3	Computer-aided design	4.0
Credit analysis	4.1	Production scheduling	4.0
Portfolio management	4.1	Computer-aided manufac	3.9
<b>In Marketing:</b>		<b>In MIS:</b>	
Sales analysis	4.3	Systems analysis/design	4.4
Sales forecasting	4.3	Systems implementation	4.3
Inventory control	4.1	Systems maintenance	4.0
Billing	3.7		

<sup>a</sup> Responses to a Likert-type scale where 5 = strongly recommended and 1 = not at all recommended.

# The Status of High-End Technology Skills Taught in Business Teacher Education Programs

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## Abstract

Business educators have been leaders in staying abreast of new technologies in order to better prepare students for today's workplace. For this reason, others look to business educators for help, and often instruction, in using technology in their own classrooms or offices. This research report discusses the technology course offerings in business education curriculum in NABTE institutions, the training methods used in learning new skills, and the differences based on the location of programs within NABTE institutions.

## Introduction

Over the past several years, business educators have been redefining their programs and their curricula. New technologies have impacted the way courses are taught in business education classrooms and have impacted the content of these courses. Business educators have been leaders in staying abreast of new technologies in order to better prepare students for today's workplace.

Other faculty and personnel realize that business educators are leaders in the use of technology. For this reason, others look to business educators for help, and often instruction, in using technology in their own classrooms or offices. Often times, business educators become the computer lab managers, district/building technology coordinators, and the "convenient" expert to help others with equipment/software troubleshooting and equipment/software selection.

## Purpose of Study

As business teacher education programs design curricula, department chairs and program coordinators must determine the needs of business and industry and the needs of the future teachers as they enter the classroom. These needs include basic business knowledge as well as the communication skills, interpersonal skills, and technology skills required of business students as they enter business and industry jobs as well as the skills required of future business teachers as they begin their teaching careers.

Are business teacher education programs meeting the technology needs of business teachers? This research report will present the findings of a research survey pertaining to the following

1. Which high-end technology skills are reportedly taught in NABTE business teacher education programs?
2. What differences are found in NABTE business teacher education programs based on the location of the program within the institution (ie., College of Business, College of Education, etc.)?

## Review of Literature

A review of literature indicates that most studies identified specific software competencies needed by business educators. Specific hardware and technology needs were revealed by only a few studies. Learning approaches of new technology and software were identified by some studies.

Chalupa (1993) determined that experienced business educators and preservice business education majors were most comfortable using word processing software and least comfortable using spreadsheet software. The study also revealed that both groups learned software from sources other than formal courses.

Groneman and Buzzard (1995) surveyed certified computer educators in Kansas and reported that 69 percent of the respondents listed "installing software on hard disk drives" as a needed competency (p. 16). "Establishing a hard disk drive directory system" was reported as a needed competency by 61 percent of respondents (p. 16). The survey also identified competence in word processing and spreadsheet software as more important than competence in database software. "Training students to use networks" was reported as a needed competency by 44 percent of respondents while "training teachers to use networks" and "using LANs" were reported as needed competencies by 39 percent of respondents (p. 18).

Redmann, Kotrlik, Harrison, and Handley (1999) surveyed secondary business education teachers in Louisiana and found that the secondary business education teachers believed their knowledge and skill in word processing was above average. However, they rated their knowledge and skill as average in Windows, spreadsheet, graphics, database desktop publishing, and grade book. The respondents were asked to report their sources of training, and 93.3 percent reported self-directed learning/personal experience as their source. Written materials were reported as a training source by 85.4 percent of respondents and inservice training was reported by 83.5 percent (p. 44). Respondents listed university/college courses and university/college workshops as sources of training by 74.1 percent and 55.1 percent respectively (p. 44).

As the literature has shown, most teachers reported as having competence in software applications. However, a need still exists to identify specific hardware and network competencies needed by business education teachers on all levels.

### Methodology

A descriptive research design was developed for this research project. The researchers constructed a survey instrument consisting of two sections: demographics and technology information. The instrument was initially reviewed by business teacher education faculty at several universities to insure validity.

Representatives of National Association for Business Teacher Education (NABTE) Schools and Universities were utilized in the study. The member schools were identified in the December 1999 *Business Education Forum*. These NABTE member schools represent all areas of the United States. The researchers sent 138 surveys to each representative of the member school. Each NABTE school received a cover letter and a survey. After doing one initial mailing and a follow-up mailing, a total of 81 usable responses were received. A response rate of 59% was determined.

### Data Collection

Business teacher education programs were housed in a variety of places. Forty-eight percent of the programs were housed in colleges of business, 31% were housed in colleges of education and 21 were housed in various other colleges. Enrollments of the programs ranged from 21% of the programs with 1-5 students, 39.5% of the programs with 6-10 students, 18.5% of the programs with 11-15 students and 21% of the programs with more than 15 students. Seventy-nine percent of all business education programs have revised curriculum in the past three years.

### Curriculum

With 78% of programs revising their programs in the last three years, the typical business education program has added more

technology courses. Multimedia courses were incorporated into curriculum in 80% of the institutions surveyed. Web design courses were popular choices with 76.5% of the programs instituting the course in their curriculum. Other technology components utilized by business education programs were telecommunications (68.6%), networking (57.6%), hardware management (34.1%), and groupware (18.6%).

Participants in the study also stated that hardware was the one area that should be added to curriculum, followed by groupware, web design, and other skills.

### Training

Training in these technologies comes in a variety of **methods**. The most **reported method** for the participants to learn was using self-directed **training**. The second **most reported method** of training was through programs offered by the institutions. Certification training ranked last as a **method of training** in all technologies except networking and hardware.

### Differences Among Location of Program

Chi square analysis yielded differences among types of training in the hardware course among the three colleges where business education programs are housed. Hardware training by the university and self-training in hardware were significantly different among the three groups at .05. The use of one-on-one training in hardware differed significantly among the three groups at .01.

An interesting finding of the research was the difference in National Council for Accreditation of Teacher Education (NCATE) accredited programs among the three types of institution homes. Although 81.7% stated that their programs were NCATE certified, there was a significant difference among the three department homes at the .05 level. The "other" category of department reported more programs not NCATE accredited than both of the other two categories combined.

### Conclusions

Based on the findings the following conclusions were drawn.

1. Business education programs are changing curriculum often and are changing curriculum to reflect the need to have more technology skills.
2. Business educators are training themselves to acquire new technology skills.
3. There are differences among institution homes in the types of training in hardware.
4. More business education programs housed in the "other" category do not have NCATE certification.

**Business education programs appears to be in a constant flux to keep abreast of new technology that should be taught to students entering the field. Although business educators are much less stressed when faced with new technologies compared with educators from all disciplines (Alexander, 2001), the reality of self training may eventually change that fact. Most institutions seem to recognize the need for training and are trying to provide training for those in need.**

### **Recommendations**

Additional studies should continue with the focus of the types of training to achieve these technology skills. An interesting question would be to **determine whether** educators learn the technology before it is added to the curriculum or is the learning of technology a product of “just in time learning” to prepare for teaching? Another area of exploration would be to **determine the** motivation to change the curriculum. Is the change in curriculum a result of industry needs or of secondary teaching needs?

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# The Survey of Office Roles and Responsibilities in China

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## Abstract

Globalization is a trend influencing every business office. Academia and practitioners need to be aware of the office competencies needed for various types of office positions in different countries. As an attempt to explore the office roles and responsibilities performed by office support personnel in China, a mail survey was conducted in the southeast region of China in 1999. Two research objectives guided the research project. Fifteen conclusions were made based on the research findings as a result of descriptive data analysis procedures, two-tailed independent samples *t* tests, one-way ANOVA tests, nonparametric equivalent of ANOVA, Kruskal Wallis Tests. Suggestions for office education practices and recommendations for further research effort were also provided.

## Introduction

Globalization influences nearly every business office. International managers need to know the characteristics of office support personnel in a foreign country. Educators need to know the office competencies needed for various types of office positions, in terms of the duties and tasks that are frequently performed in their assigned countries. In short, there is a great need for empirical research to provide data about these issues.

China is known as a nation with a rich culture, a large population, and a long history. Its unique culture, ideologies, political regimes, and economic systems make China the "sharpest contrast" to the West (Shenkar & Ronen, 1987, p. 564). The importance of China in world business is becoming more recognized. *The Economist* (1994) ranked China's gross domestic product (GDP) as the world's third largest in 1992, 40% of the US's GDP. By 2020, China's economy is forecasted to be the world's largest, 40% larger than that of the United States. Some analysts estimate that the 21st century will be the era of Asia, particularly of China (Wong, 1995).

Secretarial science, as a profession, has existed in China for a long time. However, the nature of the job and the responsibilities vary greatly with different institutions. Formal office education only started in the 1980s, but has been developing rapidly. Based on Liu's study (1997) from 1981 through to 1996, roughly 200 books were published in this field in China. Since 1983, at least 32 professional journals and magazines are published regularly. A number of associations and research societies emerged in many areas of the country. Meanwhile, office support personnel working in businesses and foreign investment and joint venture enterprises has become a new force in the old traditionary. However, many executives have difficulties find-

ing qualified office professionals to work in their businesses. A number of them had to recruit their office support personnel from regions such as Hong Kong (Liao, 1997). Researchers and educators are trying hard to make adjustments in the office education programs and curricula to prepare this needed work force.

American business practitioners have always shown great interest in China and its \$200 billion consumer market (Wong, 1995). The rapid growth of two-way trade between the United States and China has demonstrated China's growing importance in today's global market. By December 1999, the total value for imports and exports between the United States and China reached 7.76 billion U. S. dollars, which rendered China the fourth in the list of U. S. top trading partners (U. S. Bureau of the Census, 1999). As more and more American executives take their firms into this market, they are looking for ways to enhance their competitive advantages in China. They are looking for the qualified office professionals and support personnel to work in their business offices. Unfortunately, Western managers appear to lack the knowledge of general office practices in China. Therefore, studies in this respect have great implications for those practitioners who conduct business in China.

A literature review has revealed little information on research in office work in China. There are several reasons for the scarcity of studies relating to Chinese office management. The complexity of the multinational environment, the considerably higher monetary and time costs involved in cross-cultural studies, and the operational difficulties make it more difficult to conduct (Adler, 1984; Wind & Perlmutter, 1974). In addition, difficulty in getting access to empirical data from China has further hampered China-related study (Ralston, Gustafson, Terpstra, & Holt, 1995; Birnbaum-More, Wong, & Olive, 1995; Shenkar, & Ronen, 1987). All these factors make the present study a challenge as well as a promising task.

## Purpose and Objectives

This research project explored the office roles and responsibilities performed by office support personnel in China. Specifically, this research project was mainly designed to achieve the following two objectives: (1) Identification of the characteristics of office support personnel in China, and (2) identification of the office competencies needed for various types of office positions, in terms of the duties and tasks that are frequently performed in China.

## Review of Related Literature

Since the 1980s many studies have examined the office roles and job responsibilities for office support personnel in the United States. A number of them concentrated on the changes caused by office automation and the changes in office information technology.

Erickson and Asselin (1986) conducted a study to identify and prioritize the competencies that would be required of clerical personnel working in automated offices. Competencies identified include communication and language skills, office automation skills, management skills, and numerical and record-keeping skills.

Goodrich (1989) examined the impact of office automation and staffing patterns of office employees through an interview study. Her study indicated that automation has had a favorable impact on the way work is accomplished and on the work environment. She believed that office support workers would be doing more creative work, together with more traditional routine tasks.

Along with the changes in office technology and office systems, office professionals began to be regarded as information systems workers. Everett and O'Neil (1990) surveyed the knowledge, skills, and attitudes essential for information systems workers. Their comprehensive study reported on 657 respondents who indicated that essential competencies for information systems workers included communications, interpersonal, and technological skills, management, problem-solving, entrepreneurial, and business skills.

On the other hand, other researchers paid more attention to the change patterns in job competencies. Capelli (1993) examined clerical jobs in 211 firms and suggested that in clerical jobs, an even split between raised and lowered skill levels and decreasing skill levels were associated with office automation. Marino (1993) found that office support personnel are performing few higher-level information processing tasks. However, the same study supports the view that office support workers are expanding the range of support skills beyond word processing, to include spreadsheets, databases, desktop publishing, and graphics.

Gonzenback and Davis' (1994) research identified tasks performed by office support staff; the tasks performed by the largest of respondents were filing/records management, photo-

copying, answering the telephone, and handling the mail. Computer tasks included word processing, computer-aided transcription, spreadsheets, and databases. The research concluded that basic competencies such as telephone techniques, handling mail, and greeting visitors continue to be relevant in office education. To these basic competencies should be added computer tasks that are also needed in office support roles.

McEwen (1996) in her survey of 215 office support personnel in the northwest region of the United States, identified skills performed in office support positions using a list which included administrative skills, customer/human/public relations skills, end-user computer skills, and professional behaviors. Her research supported the earlier findings by Goodrich (1989) that most tasks that were prevalent in traditional offices are still relevant in today's more technologically-based office environment. Her research findings also supported the trend toward office support personnel taking on greater responsibility. In her study, most respondents were involved in activities such as coordinating personnel, scheduling, research, and customer relations. Another important finding in her study was that computer skills still appeared to be at the very basic level such as printing documents and using word processing software. This finding also supported the research findings of Sullivan (1993) and Marino (1993).

McEwen (1996) also discovered that professional behaviors such as following oral and written instructions and maintaining confidentiality of files were very important in office support positions. Dependability was a critically important professional quality. Office support workers in various types of positions have similar professional backgrounds. Compared with the other relevant research studies, McEwen's study (1996) demonstrated the most recent status and trends of office roles and responsibilities.

In China, research in the area of office roles and responsibilities is still rare. Based on the literature available, secretarial responsibilities in China were first categorized into 12 sections in the 1980s: Document writing, collecting and summarizing, information provision, research and investigation, supervision and evaluation, handling of complaints and correspondence, organizing meetings and conferences, document management, record management, management of confidential documents, safekeeping seals, and administrative management (Chen, 1987). Based on this categorization, Xin Li (1992) regrouped and classified secretarial responsibilities into ten categories: Written communications (including document writing, document revising, and other writing responsibilities), meeting and conference management (including all the meeting related activities and business travel related activities), information research, supervision and investigation, coordination, handling of correspondences and complaints, management of confidential documents, record management, front-desk reception, and other assignments. These categorizations covered almost all the office support functions and responsibilities in China, although there are some differences in wording and classification method.

Zhang's article (1997) adopted an historical perspective and believed that the secretarial functions and responsibilities in China should be first analyzed according to its three developmental stages: Beginning stage, developmental stage, and present stage. In the beginning stage, secretarial responsibilities mainly referred to two big functions: Document collection and document distribution. In the developmental stage, the responsibilities expanded to include document writing, record management, handling of correspondence and complaints, and seal safekeeping. In the present stage, office support responsibilities are further expanded to cover information processing, editing and publishing, research, supervision and evaluation, seal management, meeting and conference management, coordination (internal and external relationships), participation in decision-making, and other services (administrative duties and assigned tasks).

Based on the review of the relevant literature, it is not hard to recognize the similarities in secretarial competencies identified between China and the United States. However, no empirical study on a large scale has ever been conducted to explore the true nature of secretarial responsibilities in China.

### **Methods and Procedures**

This study used the mail survey research design. Descriptive research methods were used to describe the general use of office technology in China. According to Good (1972), one major purpose of descriptive research is to investigate evidence concerning an existing situation or current condition. Therefore, descriptive research is appropriate for satisfying a major purpose of this study. Population and sample description, instrumentation, data administration procedures, and statistical tests used in this study are described in the following section.

#### ***Population and Sample Description***

The present study investigated office personnel presently involved in various office jobs in Zhejiang Province and Shanghai City. Because of the non-existence of the membership list of National Secretary Association at that time, random sampling procedures using local telephone books were adopted for generating the list of the office managers for accessing the needed subjects. Five hundred subjects were finally reached, 300 were from Zhejiang Province and 200 from Shanghai City. The data administration and collection in China for this project was made easier with the coordination of Professor Zhong-cheng Lu and the Department of Administrative Management at Zhejiang University, one of the largest universities in China.

Located in the southeast coast, Shanghai and Zhejiang Province belong to the most economically developed areas in China. In those areas, the office professionals and support personnel are much larger in number, and development of the office profession is more advanced, too. More importantly, there are a greater number of businesses and enterprises of private venture, joint and foreign investment enterprises. Because of the afore-

mentioned factors, investigation in those areas of the country was deemed to be appropriate.

#### ***Instrumentation***

Beryl McEwen (1996) developed a research instrument to estimate the impact of selected variables on office roles and responsibilities. The instrument provided a vehicle for conducting such research, as well as the necessary information for making a meaningful comparison. Therefore, McEwen's instrument was adopted for the present research. Since the present project used a Chinese population, the instrument was translated into the Chinese language by the author. To achieve in-depth understanding of the present office roles and responsibilities in China, a few items were added to the instrument. They included "Category of Institutions," "the Number of Employees," and "Nature of Capital Investment of Your Institution." Preliminary literature review showed these variables have a dramatic impact on the nature of office work in China (Xia, 1997; Liu, 1997).

In an effort to validate the Chinese version of the instrument, a pilot study was completed among 20 office managers and professionals involved in an office management seminar in the Hangzhou College of Commerce in China in May 1999. They were asked to complete the trial questionnaire and comment on the design of the instrument. A few items were adjusted according to their feedback. In addition, experts from four college secretarial science departments in China were consulted after the pilot study to check the correctness and readability of the Chinese translation, as well as the layout and correctness of the questionnaire items.

The revised instrument has four sections: Nine short answer questions on personal data, 70 survey items on office skills and responsibilities, nine items on professional performance, and four individual characteristics items. All the items except those on personal data use a five-point Likert scale to collect data from the respondents. The scale is constructed in the following manner: Not Applicable, Never, Occasionally, Frequently, and Regularly. Each respondent is requested to check the appropriate response from the provided choices. Cronbach Alpha was computed to test the internal consistency of those survey items, based on the average inter-item correlation. An alpha value of .95 was obtained.

#### ***Data Administration Procedures***

A survey package in Chinese on the office roles and responsibilities was distributed on October 10, 1999, to 500 office personnel presently involved in various office jobs in Zhejiang Province and Shanghai City, with one follow-up to ensure the best possible return rate for data analysis. The survey package was composed of the following items: A cover letter, an instrument, and a self-addressed, stamped return envelope. The initial data collection was completed by November 10, 1999. Two hundred and fifty questionnaires were returned. A follow-up process started on November 25, 1999. One hundred question-

naires were mailed; only 10 were returned, yielding a return rate of 52 %. However, of the 260 responses, 88 respondents either did not identify their job titles, or failed to complete the office roles and responsibilities part of the questionnaires. Therefore, they were excluded from further analysis.

### *Data Analysis Techniques*

To achieve the purpose of this study, the software package SPSS 9.0 for Windows was adopted to perform all the predetermined statistical data analyses, and generate all the desired descriptive and inferential results.

Descriptive data analysis procedures such as computation of frequencies and percentages were completed to describe the characteristics of the respondents in this study. The results were examined for identification of any particular pattern. To identify the office skills and responsibilities frequently performed in China, descriptive data such as number of the respondents, and frequency in terms of percentages along the five-point Likert scale on all the skills items were computed.

### **Results and Discussion**

Descriptive data on the subjects revealed that of the 172 valid respondents, 57.6 % (N=100) were males, 42.4 % (N=73) were females. The percentage for the male respondents was slightly higher (7.8%). Gender by title cross tabulation reveals that for the job title of Office Manager, the percentage of males (68.8 %) almost doubled that of females (31.2%). Some research have reported that even though more female office workers are successful in various office surroundings, male office professionals have been recognized for their ability in making sound independent judgment, frequent business travels, and bearing much heavier work pressure (Chen, 1997; Hu, 1997). The gender percentage distributions revealed in this study, perhaps, reflects this tendency in hiring secretaries in China.

Eleven percent (N=19) of the respondents were below 25 years of age, 41% (N=71) of them were in the age range from 26 to 34, 34.1% (N=59) were from 35 to 44, 13.9% (N=24) were 45 and above. The largest age group in the present study was that of 25 to 34 (41 %). Compared with the aging trend in the office professionals here in the United States, it seems to suggest that the Chinese sample in the present study represents a much younger office worker population.

In terms of education, 2.3% (N=4) of them finished middle school, 11% (N=19) finished high school, 8.7% (N=15) finished junior college, 62.4% (N=108) had a college degree, 14.5% (N=25) were certified for holding an office job. One and a half percent of the respondents (N = 2) selected the category of Oth-

ers. Obviously, the percentage of the respondents (62.4%) with a college or higher degree in the present study was much higher. The fact that most office education programs are offered at college level in China can probably explain this phenomenon (Liu, 1997). In addition, the office profession as a respectable field in China has recently attracted a lot of young and well-educated people. This fact may also help to explain the phenomenon (Hu, 1997; Liu, 1997)

Twenty-seven percent (N = 47) of the respondents were from manufacturing industry, 17.9% (N = 31) worked in service areas such as banks, insurance companies, and other commercial institutions, 48% (N = 83) worked in the non-profit institutions such as governmental agencies, schools, higher education institutions, and other non-profit organizations. Six point four percent (N = 11) were from other fields.

One hundred and sixty-six respondents indicated the type of ownership of the institutions where they work, 6 did not reply on the ownership. The majority of the respondents were from state-owned institutions (75.1%, N = 130). Eight percent (N = 14) were from joint ventures or foreign ventures, and 13.3% (N = 23) were from organizations of private or collective ownership.

One hundred and sixty-two respondents indicated years of office work experience, with 10 not providing the information. Eighty-two respondents (47.7%) had office work experience of one to five years. Thirty-five of them had 5 to 10 years' office experience (20.3%). Twenty-three respondents worked in offices for more than 10 years (13.4%), and 22 respondents worked in offices for more than 15 years (12.8%).

One hundred and sixty-one respondents indicated their years of work at the current institutions, 11 did not reply on this question (6.4%). Sixty-two respondents worked at their current institutions for one to five years (36%). Forty-eight worked for 6 to 10 years (27.9%). Twenty-eight worked over ten years (16.3%). Twenty-three worked for over 15 years (13.4%).

One hundred and seventy-two respondents indicated their job titles. Fifty-four percent (N = 93) of the respondents were office managers. Nine point three percent (N = 16) were secretaries. Thirty-six point six percent (N = 63) were other office staff. Over half of the respondents held managerial positions instead of supporting roles. Their responses reflected their perception of the job skills performed in office support positions.

Table 1 lists the skills that are most frequently needed in office support roles. These indicate the competencies that are most needed by workers in office support positions in the present study.

**Table 1**  
**Skills Most Frequently Used In Office Support Positions (N = 173)**

Job Skills	Frequency on the Job (Percentage of Respondents)*				N/A
	Very Often	Often	Sometimes	Never	
Perform liaison work with other administrative and management personnel in the organization	64.7	26	7.5	0.6	1.2
Operate copying machine	46.2	28.3	14.5	9.8	0.6
Perform liaison work between organization and representatives of other organizations	31.8	45.7	20.2	1.2	0.6
Use a fax machine	39.9	35.3	11.6	12.7	0.6
Take dictation	30.1	48.0	12.7	6.9	1.2
Attend meetings and take the transcribe minutes	16.2	34.1	26.6	20.8	0.6
Prioritize/assign work	26.0	38.2	20.2	12.7	1.2
Draft responses to routine correspondence	24.3	35.8	28.3	10.4	0.6
Act as a receptionist at information desk	23.1	37.6	28.3	10.4	0.6
Gather, analyze, and interpret data to complete assigned projects	22.5	35.8	29.5	10.4	1.2
Prepare extensive reports	26.6	31.8	23.7	16.2	1.2
Assist callers and take complete messages	21.4	38.7	23.7	15.6	0
Develop and revise department's/organization's policies	22.5	35.3	24.3	15.6	2.3
Coordinate the development and maintenance of department's procedures manual(s)	22.0	33.5	26.0	15.6	2.9
Receive and route incoming telephone calls	22.5	30.1	26.6	20.2	0
Proofread for spelling, grammar, and punctuation errors	24.9	30.1	22.5	18.5	2.9
Problem solve and trouble shoot customer inquiries	16.8	38.7	27.2	14.5	2.3
Supervise technical/clerical staff	28.3	23.1	23.1	22.0	2.9

\* Those skills performed "Often" or "Very Often" by at least 50% of respondents.

From Table 1, the most used skills in the present study seemed to include more skills in the areas of administration, customer service, and public relations. Written communications and managerial skills seem to receive more attention than office equipment use and end-user computing skills. Information processing related skills get popularized only in the present stage of secretarial profession, while written communications and some administrative skills have long been recognized as fundamental job responsibilities in the office support profession in China (Zhang, 1997). This may help to explain the findings in the present study.

The skills listed in Table 2 are "Sometimes" performed by a fairly large percentage of office personnel. As such they may be classified as "Nice to Have" skills. A number of very basic end-user computing skills such as data entry, word processing soft-

ware use, printing final documents that are frequently used in the United States were used much less in China.

Table 3 lists the frequency in percentage of professional behaviors performed in office support roles identified by the respondents. In examining the responses of the Chinese subjects, it was found that all the behaviors are frequently performed by more than 50 percent of the respondents.

Table 4 displays the desired personal and professional qualities for office support personnel. Over 90 % of the respondents in this study considered the qualities investigated in this study "important," "very important," or "most important." While almost half of the respondents regarded each of the listed qualities "Very Important", a larger percentage of respondents considered "Dependability" most important.

**Table 2**  
**Skills Sometimes Used in Office Support Positions (N = 173)\***

Job Skills	Frequency on the Job (Percentage of Respondents)				N/A
	Very Often	Often	Sometimes	Never	
Sort/distribute incoming mail	24.3	24.3	28.9	20.8	1.2
Prepare requisitions and vouchers for purchasing equipment and supplies	22.0	26.0	31.8	19.7	0.6
Establish and maintain confidential files	21.4	34.1	18.5	22.0	3.5
Represent the manager through routine oral and written contact.	17.9	34.7	26.0	19.1	1.7
Schedule meetings and coordinate meeting agenda	16.2	34.1	26.6	20.8	0.6
Assist in resolving administrative problems	16.2	34.1	26.0	20.8	1.7
Print final documents	24.9	27.2	14.5	30.1	2.3
Use Chinese word processing software	21.4	29.5	17.3	27.2	2.3
Review and post daily attendance data	23.7	23.7	23.1	28.3	1.2
Key routine office correspondence (letters, memos, etc.)	21.4	23.1	26.0	27.2	0.6
Complete expense reports	20.8	24.3	26.6	26.6	1.2
Revise sorted documents	23.1	22.5	18.5	31.2	2.9
Maintain and update mailing lists	17.9	27.7	23.1	27.2	2.9
Data entry	16.8	24.9	24.3	30.6	2.3
Research and compile statistical data	22.5	35.8	29.5	10.4	1.2
Review and log incoming mail	24.3	24.3	28.9	20.8	1.2
Maintain office supplies	16.8	22.5	26.0	34.1	0.6
Handle customer complaints	11.0	27.7	33.5	22.5	4.6
Maintain diskette and index files	15.0	23.1	24.3	35.8	0.6
Desktop Publishing	18.5	23.1	14.5	39.3	2.9
Use personal computer to key variety of material	14.5	24.9	22.5	33.5	2.9
Maintain payroll and/or personnel records	19.1	20.2	17.9	40.5	2.3
Compile reports and distribute information	16.2	22.5	20.2	35.3	4.0
Assist with budget projections and control	11.0	27.2	23.7	34.7	2.9
Key legal documents, contracts, plans, etc.	14.5	17.3	26.6	39.9	1.2
Maintain up-to-date archive library, copying, deleting, and retrieving documents as necessary	12.7	20.2	28.3	33.5	4.0
Schedule appointments	12.7	21.4	26.0	35.3	3.5
Sign correspondence on behalf of the manager	12.7	17.9	29.5	37.6	1.2
Update files via personal computer directly into the main-frame	14.5	17.3	28.3	34.7	4.0
Canvass new accounts and/or contact existing accounts	11.6	23.7	28.9	26.6	9.2
Evaluate work performance, prepare and sign evaluations	8.7	23.7	30.6	31.2	5.2
Assist in preparing annual budget	13.9	18.5	22.5	41.0	3.5
Update and maintain job description index and file	13.3	20.2	20.8	41.6	4.0
Utilize personal computer to obtain information	9.2	16.8	31.8	37.0	3.5
Screen resumes	11.0	20.2	22.0	41.6	4.6
Conduct/plan on-the-job training	8.1	12.1	32.9	43.9	2.3
Post new job positions	8.1	12.7	30.1	45.1	3.5
Prepare and maintain database files	5.8	13.9	31.8	43.9	3.5

\* Those skills performed "Sometimes", "Often", or "Very Often" by at least 50% of respondents.

**Table 3**  
*Professional Behaviors Performed in Office Support Roles (N = 173)*

Professional Behaviors	Frequency on the Job (Percentage of Respondents)				N/A
	Very Often	Often	Sometimes	Never	
Follow oral and written instructions	39.9	49.1	5.8	2.3	2.3
Exercise independent judgment in interpreting and releasing information	24.3	57.8	13.9	2.9	1.2
Review forms and documents for accuracy	32.4	40.5	17.3	8.1	1.2
Use good judgment in selecting alternative courses of action	17.9	38.2	27.7	9.2	6.4
Assure security/confidentiality of files	35.3	46.2	7.5	6.4	3.5
Exercise discretion and judgment in handling sensitive issues	13.9	37.6	30.6	10.4	5.2
Set own work schedule	22.5	42.8	22.0	8.1	3.5
Monitor personal progress and performance	23.7	52.6	15.6	2.9	4.0
Practice personal time management	22.0	35.8	23.7	11.0	6.4

**Table 4**  
*Personal and Professional Qualities Desired in Office Support Personnel (N = 173)*

Personal/Professional Quality	Frequency on the Job (Percentage of Respondents)				N/A
	Most Important	Very Important	Important	Not Important	
Dependability	30.6	42.2	24.9	0.6	1.2
Initiative	19.1	47.4	30.6	0.6	1.7
Flexibility	19.7	45.1	28.9	4.0	1.7
Confidentiality	26.6	45.7	24.9	1.2	1.2

### Conclusions

The following conclusions were drawn from the findings of this study:

1. Males and females staffed office positions under investigation almost equally. However, more males than females occupy the position of Office Manager.
2. The office personnel investigated as a whole were young and middle-aged professionals. The office profession as a new field in China may explain the phenomenon.
3. Most office personnel under investigation received education beyond high school.
4. Many office personnel had one to five years' office work experience. The Chinese office personnel tended to spend many years in the same organization.
5. A few administrative office skills prevalent in the American offices were frequently used in offices in China. The most used office skills tend to be the administration skills, customer service, and public relations skills. Written communications and managerial skills seemed to receive more attention than office equipment use and end-user computing skills.
6. Professional behaviors were very important in office support positions regardless of job titles in China. These behaviors include following oral and written instructions, exercising independent judgment in interpreting and releasing information, reviewing forms and documents for accuracy, using good judgment in selecting alternative courses of action, assuring security/confidentiality of files, exercising discretion and judgment in handling sensitive issues, setting own work schedule, monitor personal progress and performance, and practice personal time management.
7. The office personnel in China considered dependability, flexibility, initiative, and confidentiality critically important professional qualities. "Dependability" was considered probably more important than the other qualities in China.

## Implications and Recommendations

Office education is a domain of knowledge beyond the boundary of a country. Research efforts in any country in this respect will add value to the knowledge base in office education. The findings of the present research here has the following specific implications for office education research and practices:

1. The present study provides some useful information for the general status of the office roles and responsibilities at the turn of the century in the Southeast region of China, in terms of administration, public relations, and end-user computer skills. The research results might be helpful to help identify the particular patterns of office competencies in that country.
2. The research findings in the present study, to some extent, provide information for identification of those office roles and responsibilities that are similar between China and the U. S., and those that are culturally specific to China (Adler, 1984).
3. For business educators, office research of this nature can be helpful in providing information as how to adjust and improve office education curriculum to adopt a global perspective. Thus, students can be better prepared for offices of next century.
4. Any office professionals preparing to work in China might find information on the specific office roles and responsibilities in that country helpful. They can use the information to guide their practices there and help them to function better.
5. Such information is also valuable to the managerial personnel here in the United States in recruiting the qualified office support personnel to work in China. On the other hand, it reveals the opportunities for on the job training over there.

To expand and deepen knowledge of office skills and responsibilities in China, the following recommendations are made for further research effort:

1. Multiple regression procedures may be applied to identify the relationships between the personal and professional factors and the office job responsibilities.
2. Replicate the research design and effort in other regions of China as an attempt for determination of the office skills and responsibilities universal in that country.
3. Identify office skills and responsibilities for different office job titles to guide training of professional office personnel for different positions.

Based on the literature and findings of this study, the following recommendations are provided:

1. A strong effort should be made to market professional office training to a wide range of potential students at all levels of the education system in China. Business and office education programs at the college level should investigate the need for continuing education among current office support workers. Special effort should be made to provide end-user computing skills training to middle-aged and older office personnel. Technology courses should be designed to enhance current skill levels of office support personnel especially in such areas as word processing, spreadsheets, databases, graphics, and electronic communication.
2. A careful review of business and office education programs should be made in China based on this and other studies to ensure that skills and competencies being taught are directly tied to the tasks and skills being performed in office support positions.
3. Office workers as a profession in China need to stress the importance of standardization and professionalism, and work with the college office education programs to establish certification programs for office support positions. Meanwhile, evidence of professionalism such as certificates should be considered the most important factor in job retention and advancement.

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# Viewpoints of Prospective and Practicing Malaysian-Based Businesspersons About Three Major Indigenous English-Language Accents

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## Abstract

Perceptions about three major indigenous English-language accents were gathered from prospective and practicing businesspersons enrolled in degree programs at Malaysian business schools. The well-established matched-guise technique was used to gather the data. Overall, the respondents ranked the studied English-language accent guises in this order: first, Received Pronunciation English; second, General American English; and third, Estuary English. One statistically significant difference was related to demographic characteristics. Attribute profile patterns constructed from respondents' mean ratings revealed individualistic patterns for all studied accents.

## Introduction

The dominant worldwide business language is English (Colback & Maconochie, 1989). It exists in many varied forms (Kameda, 1992). Astute businesspersons are increasingly wanting to know which English-language accent(s) might give them a competitive advantage over those who speak other accents (DeShields, Kara, & Kaynak, 1996). These businesspersons understand that they would benefit from knowing how both native and nonnative English speakers perceive English-language accents, the tools on which they rely as they transact international business (Scott, 1996). However, very little is known about perceptions of English-language accents from business-related perspectives.

The purposes of the study were (a) to identify perceptions of prospective and practicing businesspersons attending Malaysian business schools regarding major indigenous English-language accents and (b) to examine differences between these perceptions and selected demographic characteristics. The research questions were the following:

1. What is the rank order of major indigenous English-language accents?
2. What are the statistically significant differences related to perceptions of major indigenous English-language accents and selected demographic characteristics?
3. What are the attribute profile patterns of major indigenous English-language accents?

## Literature Review

A comprehensive literature search revealed only five studies and six reportings—Chiba, Matsuura, and Yamamoto (1995); DeShields et al. (1996); Scott, Green, and Rosewarne (1997); Scott, Green, and Rosewarne (1998); Scott, Green, Rosewarne, and Neal (1999), and Scott, Green, and Rosewarne (2000)—about perceptions of English-language accents from the viewpoints of prospective or practicing businesspersons. This confirms a major void in both the business and linguistic literatures. The authors of the latter study recommended that related studies be conducted in other countries and parts of the world.

In studies conducted in the Western region of the United States and in the Pacific Rim trading region with prospective and practicing businesspersons, Scott et al. (1997, 1998, 1999) found that the major indigenous English-language accents were ranked in this order: first, General American English; second, Received Pronunciation English; and third, Estuary English. In their 2000 study in the United Kingdom, the order of the first two accents was reversed, which recognized the reigning—although challenged—national British standard in its homeland.

The literature review showed that linguisticians have conducted a few related studies. These studies suggested research approaches, including the matched-guise technique, English-language accents, and demographic variables (e.g., Rosewarne, 1985, 1990). Few of the studies included a range of varieties of one language or native and nonnative speakers (e.g., Rosewarne, 1985, 1990).

Lambert, Hodgson, Gardner, and Fillenbaum (1960) created the employed matched-guise technique. Osgood (1964) improved the matched-guise technique when he devised the semantic differential scale rating procedure with bi-polar scales for reporting perceptions. Later, Williams (1974) questioned if researcher-supplied scales constrained respondents' perceptions and if nonnative English speakers fully understood the scale-label meanings. Wilson and Bayard (1992) noted that when semantic differential scales are used, male speakers are rated more favorably than female speakers on personality criteria. Based on more than 30 years of matched-guise research, Cargile, Giles, Ryan, and Bradac (1994) observed that respondents who use the matched-guise technique indicate definite and consistent attitudes toward those who use specific accents.

Giles (1970, 1971a, 1971b, 1972) investigated native speakers' perceptions about British English accents. Rosewarne (1985, 1990) found that advanced-level nonnative English speakers and that teachers of English as a foreign or second language and students residing in the United Kingdom ranked major indigenous English-language accents in this order: first, Received Pronunciation English; second, General American English; and third, Estuary English. Flaitz (1988) found that native French speakers of English usually preferred the British rather than the American accent model. Al-Kahtany (1995), Chiba et al. (1995), and Rubin and Smith (1990), among others, have repeatedly found that more-prestigious English-language accents receive consistently higher ratings than less-prestigious English-language accents.

Thus, the literature confirms that business-related research about perceptions of English-language accents is clearly needed (a) to help businesspersons derive maximum value from the English language as a competitive advantage and (b) to fill major gaps in the literature. Related studies provided methodological guidance.

### Research Methodology

The matched-guise technique is the most-used linguistic research technique for gathering data about accent-related perceptions. The repeated recordings of the same culturally neutral announcement delivered in various accents by one male phonologist (sound specialist) constituted the studied matched guises and the only study variables. The message was delivered in these major indigenous accents: General American English, Received Pronunciation English, and Estuary English. General American English is the standard United States accent spoken outside of the north-eastern and southern regions by well-educated natives. Received Pronunciation English is the regionally neutral, prestigious standard British accent popularly known as either BBC (British Broadcasting Corporation) English or the Queen's English. Estuary English is the increasingly popular British English accent phonetically intermediate between Received Pronunciation

English and the regional speech types of London and southeast England. Additional information about such accents is found in *The Cambridge Encyclopedia of the English Language* (Crystal, 1995). The three studied accent recordings came from the large number correctly identified by all accent validators.

Advanced-level nonnative English speakers provided adjectival impressions of the speakers of the study guises that were then manipulated to construct the labels for the 14 semantic differential scales, 8 of which were within Lambert's (1967) personality criteria categories. This ensured that the semantic differential scale labels were intelligible for both native and nonnative English speakers. Distractor guises, accent recordings that are not studied, were incorporated into the study (a) to expose the respondents to more voice variety and (b) to reduce the likelihood that respondents would realize that all studied accents had been recorded by the same phonologist. Using one speaker for all studied accent guises eliminated variables related to age, voice pitch, speech speed, and emotional reactions of respondents to voice qualities. Using taped guises eliminated variables related to physical appearance, paralinguistics, and physical context. The studied and distractor guises were randomly sequenced. A practice activity was devised so that respondents would know how to record their accent-related perceptions on the semantic differential scales. The research materials were pilot tested to ensure that they were defect free.

Data for the study were gathered at Malaysian business schools located in the Kuala Lumpur environs. These institutions were selected because they were representative of Malaysian business schools. Respondents from two schools were targeted for participation, with a researcher gathering the data during regular instructional sessions.

Students (a) learned about the opportunity to participate, (b) signed informed consent forms, (c) provided demographic information, (d) completed the practice activity, (e) listened to the taped guises, and (f) recorded their perceptions on semantic differential scales. For each of the studied and distractor guises, respondents recorded their perceptions by circling one number on each of the 14 scales for each of the accent guises. The related standardized item alpha was .82, which suggests high reliability in the responses.

Descriptive and inferential statistics were calculated using SPSS for Windows Release 9.0.1. Arithmetic means, standard deviations, grand means, and ranking order were determined for each studied accent. Multiple one-way analysis of variance with related Tukey (honestly significant difference) tests where applicable were calculated to assess differences between perceptions of the studied accents and the demographic variables. Attribute profile patterns were created by plotting and connecting the respective arithmetic mean scores on each of the 14 semantic differential scales for each accent.

## Research Findings

The research findings section is divided into four subsections.

### *Respondent Profile*

Exactly 80 undergraduate, 7 graduate, and 2 unclassified students from the sampled business schools provided usable study data. No evidence suggests that these 89 volunteer respondents were different from other Malaysian business students in any respect. There were 20 native, 67 nonnative, and 2 unclassified English-speaking respondents.

The typical respondent was a 20 through 24 year old nonnative English-speaking senior-level Malaysian female majoring in business administration. She was not working while pursuing her business education. She was proficient for business purposes in English and Chinese. She identified herself with Negeri Sembilan in the South Malay Peninsula. She had traveled outside of Malaysia.

### *Rank Order*

Respondents indicated their perceptions of each of the English-language accent guides by circling numbers that reflected their perceptions of speakers on the 14 semantic differential scales. Table 1 shows the ranking and grand mean data for the studied English-language accent guides. Respondents preferred the Received Pronunciation English accent guide with the General American English accent guide in second place.

**Table 1**  
*Ranking and Grand Means for All Respondents*

English-language accent guide	Rank	Grand mean	Standard deviation
Received Pronunciation	1	77.09	9.65
General American	2	68.57	13.75
Estuary	3	48.47	13.96

### *Demographic-Based Difference*

Respondents indicated their demographic characteristics by checking relevant categories. The demographic-related data were analyzed with the grand mean data for each English-language accent guide. Multiple one-way analysis of variance with Tukey (honestly significant difference) tests where applicable revealed one statistically significant difference at the .05 level. The statistically significant difference was for the General American English accent guide ( $F(2, 83) = 4.74, p = .01$ ). The perceptions of respondents who were undergraduate students were higher to a statistically significant degree than the perceptions of respondents who were graduate students for the General American English accent guide.

## *Attribute Profile Patterns*

Respondents indicated their perceptions about the studied English-language accents by circling numbers that reflected their evaluative responses to speakers on 14 semantic differential scales for each of the English-language accent guides. The arithmetic mean was determined for each scale for each of the studied English-language accent guides, and the data for each accent attribute were used to construct the overall accent attribute profile pattern. Figure 1 shows the attribute profile pattern for each of the studied English-language accent guides. Overall, the attribute profile patterns for the Received Pronunciation English and the General American English accent guides were similar. However, the respondents clearly differentiated among the studied English-language accent guides on each of the 14 semantic differential scales.

## Discussion

The discussion section is divided into four subsections.

### *Respondent Profile*

The respondent profile information closely matches what is known about students at the sampled and other major Malaysian business schools.

With the exceptions of ethnic group, working status, and country affiliation, the Malaysian-based respondents were more like those in the Scott et al. (1997, 1999) Intermountain West and Pacific Rim studies than those in the Scott et al. (2000) United Kingdom study. Demographic differences are to be expected since the samples are drawn from business schools in widely dispersed countries where different geographic, cultural, historic, economic, and political ties exist.

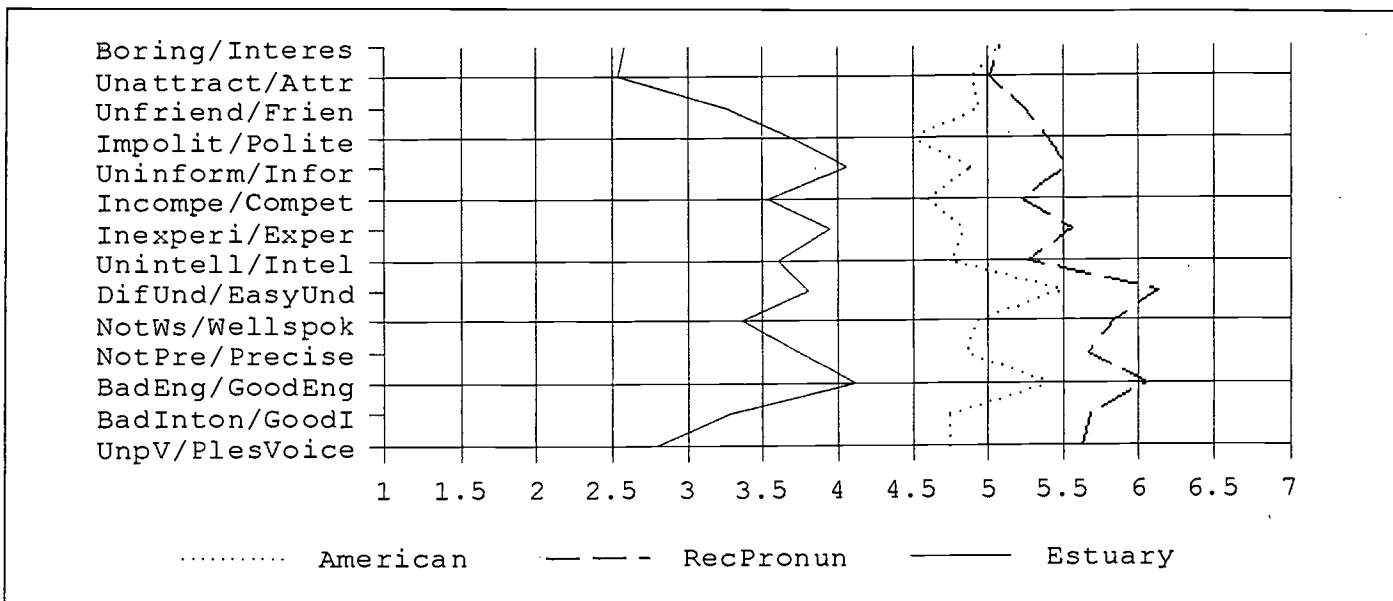
### *Rank Order*

The rank order subsection is divided into two parts.

**Ranking information.** Overall, the rank order of the studied English-language accent guides in this study of Malaysian-based respondents is more like that found in the Scott et al. (2000) study of United Kingdom-based respondents than in the Scott et al. (1997, 1998, 1999) studies of Intermountain West-based and Pacific Rim-based respondents. Since Malaysia is a former British colony and current Commonwealth member where Received Pronunciation English is widely taught, this similarity in rank order was not surprising. English has been used in parts of what is now Malaysia since the 1700s. The fact that 20 of the Malaysian-based participants, almost one fourth of the sample, reported themselves as being native speakers of English is noteworthy. Apart from reflecting the extensive use of English in Malaysia from an early age, this may result from the close educational, cultural, historical, and economic ties with what is now the United Kingdom.

**Figure 1**

***Semantic Differential Scale Attribute Profile Patterns for the General American English, Received Pronunciation English, and Estuary English Accent Guises for Malaysian-Based Respondents***



**Note.** Boring/Interes = Boring/Interesting scale; Unattract/Attr = Unattractive/Attractive scale; Unfriend/Frien = Unfriendly/ Friendly scale; Impolit/Polite = Impolite/Polite scale; Uninform/Infor = Uninformative/Informative scale; Incompe/Compet = Incompetent/Competent scale; Inexperi/Exper = Inexperienced/Experienced scale; Unintell/Intel = Unintelligent/Intelligent scale; DifUnd/EasyUnd = Difficult to understand/ Easy to understand scale; NotWs/Wellspok = Not Well-spoken/Well-spoken scale; NotPre/Precise = Not Precise/Precise scale; BadEng/GoodEng = Bad English/Good English scale; BadInton/GoodI = Bad intonation/Good intonation scale; and UnpV/PlesVoice = An unpleasant voice/A pleasant voice scale.

**Note.** 1 = extremely (negative characteristic); 2 = rather (negative characteristic); 3 = somewhat (negative characteristic); 4 = neither (negative characteristic) nor (positive characteristic); 5 = somewhat (positive characteristic); 6 = rather (positive characteristic); and 7 = extremely (positive characteristic).

**Note.** American = General American English accent guise; RecPronun = Received Pronunciation English accent guise; and Estuary = Estuary English accent guise.

A much larger difference existed between the first- and second-place accents in the Malaysian-based sample than in all of the other samples. This may be attributable to residual colonial influence and respect for the accent of the mother country. In all of the studies, the respondents most preferred the dominant English-language accent of their current country of residence and least preferred the Estuary English accent. This was also true in Rosewarne's (1985, 1990) studies of United Kingdom-based African, Asian, European, and Latin American respondents. The overall similarities in response patterns in all of the cited studies suggest a degree of stability in perceptions of English-language accents across cultural groups and countries over a time period of one and a half decades.

In spite of some differences in rank order in the cited studies, one thing is very clear: Respondents do not perceive the indigenous Estuary English accent very favorably. This calls into question its suitability for international business-communication purposes in spite of its growing popularity within the United Kingdom. Businesspersons who speak only Estuary English, especially its downscale forms, will likely be poorly received outside of and eventually inside of the United Kingdom because

of the growing globalization of business, which necessitates using a more universally acceptable English-language accent. Businesspersons who speak a more familiar, more easily understood, and more widely accepted major indigenous English-language accent such as Received Pronunciation English or General American English will have a competitive advantage over Estuary English speakers if other factors are comparable. Speaking a more internationally acceptable major indigenous English-language accent could enhance international competitive positions and professional opportunities for accent-savvy businesspersons.

**Usefulness implications.** The ranking information may be useful to businesspersons as they select a major indigenous English-language accent to facilitate domestic and international business. Business-communication teachers can also use the ranking information as they provide comparative information about English-language accents for business-communication purposes.

***Demographic-Based Difference***

The demographic-based difference subsection is divided into two parts.

**Demographic-related difference.** The fact that only one statistically significant demographic-related difference was found suggests that demographic factors have minimal overall influence on perceptions of major indigenous English-language accents. Why the perceptions of undergraduate students were higher to a statistically significant degree than the perceptions of graduate students for the General American English accent guise may reflect undergraduate students' decreasing acceptance of traditional British influence and increasing acceptance of American influence, in part because of the strong influence of popular American culture on young people around the world.

**Usefulness implications.** The demographic-related difference information may be useful to businesspersons in planning their communication strategies and messages. More specifically, businesspersons should realize that the General American English accent is perceived differently by prospective and practicing Malaysian-based businesspersons depending on their academic class rank.

The demographic-related difference information may also be generally useful to business-communication teachers as they instruct prospective and practicing businesspersons. More specifically, business-communication teachers might discuss how the General American English accent is perceived differently depending on the academic class rank of prospective and practicing Malaysian-based businesspersons.

### *Attribute Profile Patterns*

The attribute profile patterns subsection is divided into two parts.

**Profile pattern information.** The attribute profile patterns for the Received Pronunciation English and General American English accent guises are similar overall, although the former was rated somewhat higher on all of the semantic differential scales except the boring/interesting one, where they were tied. The attribute profile pattern for the Estuary English accent guise was similar to that for the Received Pronunciation English accent guise but usually had ratings about 1.5 to 2.5 lower on the semantic differential scales. The Estuary English accent guise was always rated the lowest of the studied major indigenous English-language accent guises in terms of the semantic differential scales.

In the Scott et al. (1997, 1999, 2000) studies of Intermountain West-, Pacific Rim-, and United Kingdom-based respondents, the overall attribute profile patterns were somewhat similar to those of the Malaysian-based respondents, although they were less alike for the General American English accent guise. Malaysian-based respondents rated the General American English accent guise and the Estuary English accent guise somewhat lower on most semantic differential scales than did respondents in the other cited studies.

The Malaysian-based respondents in the current study and the Pacific Rim- and United Kingdom-based respondents in the Scott

et al. (1998, 1999, 2000) studies perceived the Received Pronunciation English accent guise higher than the General American English accent guise in terms of well-spokenness, preciseness, and intonation.

The many similarities in perceptions of English-language attribute profile patterns in all of the cited studies suggest a degree of stability in perceptions across cultural groups and countries.

**Usefulness implications.** The attribute profile pattern information may be useful to businesspersons as they select the most effective major indigenous English-language accents to use given specific oral advertising goals. Businesspersons could select a highly rated English-language accent such as the Received Pronunciation English or the General American English accent to positively influence customers. They could positively shape consumers' perceptions by selecting not only an English-language accent that is highly rated by the targeted group but also one whose semantic differential scale attributes match the desired positive product image. Conversely, businesspersons could select a lowly rated English-language accent such as the Estuary English accent to negatively influence customers outside of the United Kingdom. They could negatively shape consumers' perceptions by selecting not only an English-language accent that is lowly rated by the targeted group but also one whose semantic differential scale attributes match the desired negative product image. This could be especially useful in comparative advertising statements that are disparaging about a competitor's products. To use accent-preference information skillfully, however, businesspersons must clearly differentiate between advertising for various marketplaces since what works well in one marketplace will not necessarily work equally well in another marketplace because of differing perceptions about English-language accents. This is particularly important in the marketing of services where intangible benefits often play a crucial role. For telemarketing purposes and for general administrative purposes, the accents of employees are crucial since customers are likely to link them with their overall perceptions of the business.

The English-language attribute profile pattern information may be useful to people who promote products and services—especially advertisers—and to the marketing teachers who train them. The information may also be useful to business-communication teachers as they provide prospective and practicing businesspersons with comparative information about the attributes of English-language accents perceived by prospective and practicing Malaysian-based businesspersons.

### **Business Educators' Implications**

The exploratory study has identified the perceptions of prospective and practicing businesspersons who are studying at Malaysian business schools regarding major indigenous English-language accents. The study data provide several implications for business educators.

## Research Recommendations

Malaysian businesspersons may need to choose an English-language accent to facilitate the conduct of business at home and abroad. As a result, business educators, especially those who specialize in business communication, may need to make prospective and practicing businesspersons aware of perceptions about major indigenous English-language accents. They should encourage native English speakers to select one of the two international standard forms of spoken English, Received Pronunciation English or General American English, as their professional and personal accent model. They should encourage others to select either the highly rated Received Pronunciation English or General American English accent as their professional and personal accent model since except perhaps for overseas students studying in Canada, Australia, or Ireland, one of these two accents likely served as the role model when English was learned. Business educators should encourage people who speak other English-language accents to modify their speech over time in the direction of one of these two international standards of the English language because of their widespread understandability and acceptability among English speakers worldwide. Ideally, business educators should serve as pronunciation models for their students by using speech that is close to one of the two international standards of the English language. When this is not possible, training in speaking and presenting skills for nonnative speakers of English should make use of recorded instructional materials that utilize these two accents. Whether standard British English or American English pronunciation is the target for a particular group of prospective or practicing businesspersons, the other English-language standard also needs to be presented for receptive purposes to facilitate message-comprehension skill development.

With a rapidly developing economy, Malaysian businesspersons increasingly need to market their goods and services internationally. As a result, business educators, especially those who specialize in marketing, advertising, and business communication, may need to make prospective and practicing Malaysian-based businesspersons aware of English-language accent preferences. Since only a few research studies address perceptions of English-language accents in business-related contexts, business-communication specialists, perhaps in partnership with linguists, need to conduct additional research to fill the void.

Malaysian businesspersons may need to refine their business-communication strategies and messages to reflect customers' preferences and the attributes of the chosen English-language accent(s). As a result, business-communication specialists may need to provide prospective and practicing businesspersons with information about the differences in perceptions of major indigenous English-language accents. Since little relevant information exists, more research must be conducted.

Although this exploratory study has provided basic information about the perceptions of prospective and practicing Malaysian-based businesspersons regarding major indigenous English-language accents, additional research needs to be conducted.

1. Researchers should replicate this study periodically with refinements as necessary to reflect the evolution of major indigenous English-language accents. Replication should occur every five to ten years since Rosewarne's (1985, 1990) studies indicate that accent preferences and ranking orders can change in relatively short periods of time. When data are available from comparable Malaysian-based samples, then the results can be compared diachronically, resulting in a longitudinal study of the evolution of perceptions about major indigenous English-language accents in Malaysia. Other business-communication status studies, including those by Green and Scott (1996) and Ober and Wunsch (1991), have suggested the value of gathering longitudinal data to understand better the dynamics of change for business communication-related phenomena. Replication could occur within the same or different business schools. Using different business schools and obtaining similar results would strengthen the contention that there is nothing unique about the sampled Malaysian business schools and their demographic characteristics that unduly influenced their students' perceptions about major indigenous English-language accents.
2. Researchers should replicate this study in other English-speaking countries with refinements as necessary to accommodate cultural differences. This would increase understanding about perceptions of major indigenous English-language accents around the world.
3. Researchers should replicate this study in major trading regions in the world with refinements as necessary to accommodate cultural differences. The European Union and North American Free Trade Association countries would be logical places for conducting additional research since United Kingdom- and United States-based data already exist.
4. Researchers should explore the short- and long-term ramifications of using various English-language accents for business-communication purposes. This might build upon the work of DeShields et al. (1996). This could help businesspersons to use the full potential of English-language accents more effectively than they currently do as a competitive advantage in both the domestic and international marketplaces, as well as to strengthen the related literature.

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**PART II**  
**REFEREED INNOVATIVE INSTRUCTIONAL PRACTICES**

# Does Business Education Fit into OCRE?

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## Abstract

Experiential and interdisciplinary experiences should be an important part of Business Education. The Business Teacher Education Program at the University of Regina includes OCRE – The Off Campus Residential Experience. OCRE began as an outdoor education experience for Elementary Teacher Education students. The transition to the Secondary Teacher Education Program and especially to the Business Education subject area was challenging. Four types of activities developed by the Business Teacher Education students demonstrate how a rural, experiential and interdisciplinary experience can be of value to Business Education students. These are authentic activities requiring authentic skills and knowledge.

## Introduction

Experiential learning and outdoor education have long been related to each other and have long been part of teacher education programs. OCRE - The Off Campus Residential Experience - has been part of teacher education at my University since the early 1970's. For two and a half days teacher education students and their professors move out to a retreat/residence in a rural area of our Province. There they work through a series of activities designed to develop community, experience interdisciplinarity and learn about the use of alternative teaching/learning environments. A great deal of preparation is done prior to OCRE as it is integrated into all the courses the students take during that particular semester. Follow up activities also take place subsequent to the actual event.

OCRE began as part of our Elementary Teacher Education Program where the emphasis on learning beyond the classroom easily fit with the project/child centered philosophy that pervades that Program. Early in the 1980's the Secondary Teacher Education program was reconceptualized and reorganized and the decision was made to include a Secondary Off Campus Residential Experience during the winter Preinternship semester.

The notions of experience, alternative learning environments, community and interdisciplinarity were acceptable to the Secondary Teacher Education faculty. However the practice of OCRE was sometimes a challenge to subject areas that did not lend themselves easily to outdoor, rural education. Business Education was one of those areas.

This paper describes how the Business Teacher Education Program was able to participate fully in the Secondary OCRE. The paper begins with a discussion of the context of teacher education in our faculty and a brief history of OCRE. Another section describes how the Business Education Subject Area has incorporated the OCRE experience as an important aspect of our program. It concludes with a reflection on how experiential and

interdisciplinary teaching and learning has changed our conception of the development of prospective Business Education teachers.

## The Context

An introduction (<http://education.uregina.ca/ece/undergrad>) to the teacher education programs at the Faculty of Education at the University of Regina states that our programs:

- foster rich professional and personal development
- develop collaborative and collegial professionals
- educate teachers as inquirers and curriculum builders
- practice student-centered learning
- provide support and close supervision in the field
- provide extensive, practical experiences in schools
- emphasize cross-cultural and multicultural awareness
- promote equity in the areas of age, gender, culture, race, physical and mental abilities.

The same introduction describes the Secondary Teacher Education Program as follows:

The Secondary Teacher Education Program is responsible for the preparation of teachers who will generally work in High Schools throughout the Province of Saskatchewan. Our program requires these students to declare and work towards a major teachable area as well as a minor teachable area as part of a four year B.Ed. or a two-year BEAD. Graduates of our program receive a Saskatchewan Professional A Teaching Certificate. The

Secondary Program faculty is made up of individuals belonging to the following subject areas: Educational Administration, Business Education, Educational Foundations, French, Mathematics, Music, Health/Physical Education, Reading/Language Arts, Educational Professional Studies, Educational Psychology, Social Studies and Science.

The faculty has developed a developmental teacher education experience that reflects our beliefs concerning how individuals become teachers. These beliefs grow out of our understanding of the research regarding professional growth and development, cognitive and social psychology, adult education and our experience with what has proven to be a highly successful teacher education program. A hallmark of our programs' development activity has been the Faculty's insistence on continual experimentation and innovation within the program and inclusion of new elements on an ongoing basis.

We believe prospective teachers should become familiar with the social, economic and demographic contexts of education in Saskatchewan early in their preparation, and that this familiarity should be extended over the course of their teacher education to include significant interaction with children and adolescents in a variety of schools. We believe our students need to develop extensive subject matter knowledge, pedagogical content knowledge and a capacity to understand themselves as developing professional teachers. We also believe they should participate in good ongoing working relationships with the subject area and other faculty members responsible for instructing, mentoring and guiding them. These various understandings, skills and abilities that enhance personal growth in our students as reflective, decision-making professionals take time to accomplish. Learning to be a teacher is developmental in nature and requires the support and facilitation of faculty members, cooperating teachers and the students' peers.

In order to meet our expectations and beliefs the program is highly dependent upon collaboration between faculty members from all subject areas as well as integration of course work especially between subject area oriented courses and generic courses offered through Education Professional Studies, Educational Foundations, Educational Psychology and Educational Administration.

The Business Teacher Education Program prepares teachers who will work in high schools teaching a wide array of Business Subjects. Through required and elective courses our students are prepared to teach Information Processing, Computer Applications, Accounting, Entrepreneurship, Career Education, Business Communications, Economics, Law, Consumer Education, Money Management among many other content areas.

As part of the Secondary Teacher Education program the Business Teacher Education Program must follow certain guidelines and expectations but within these appropriate emphasis can be placed on issues unique to our subject area. A major in Business Teacher Education requires that students take 30 credit hours (10 semester courses) in required and approved 'business related' courses. They must also complete 21 credit hours (7 semester courses) in Business Teacher Education (EBUS) courses.

Our students begin their program with an emphasis on content acquisition and familiarization with the education context in Saskatchewan. Content acquisition is accomplished through courses offered by the Faculty of Administration (e.g. Introductory Financial Accounting), The Faculty of Arts (e.g. Micro and Macro Economics) and the Faculty of Science (e.g. Computer Science). Students also take a course called EPS 100. This course overviews the state of education in Saskatchewan and has the students begin to consider the issues facing the institution of education and teachers. Students spend 7 half days in elementary classrooms as part of this course. They spend considerable time considering their place in the education system and reaffirming their decision to become a teacher. EPS sections are always made up of students from various programs (secondary, elementary, arts education, etc.) and with various majors and minors.

In their second year Business Teacher Education students continue acquiring 'content' knowledge through courses offered by the Faculties of Administration, Arts and Science in both their major and their minor. During this year they take EPS 200, which is a course that extends the students' practical capabilities as practicing teachers. This course demands that the students spend another 7 half days in classrooms but this time at the middle years level. At no time up to this point have students been expected to teach Business Education content – although they might if the opportunity arose – they are expected to be preparing themselves in fundamental teaching skills and strategies. EPS 200 is only taught to Secondary Teacher Education students but each section is made up of a variety of majors and minors.

During second year Business Teacher Education students also take 4 EBUS courses. They complete Methods of Teaching Accounting and Fundamentals of Teaching Keyboarding and Information Processing in the Fall Semester. In the Winter Semester they complete Orientation to Business and Vocational Education I (Communications and Information processing/Technology emphasis) and Orientation to Business and Vocational Education II (Basic Business emphasis). Throughout these courses basic instructional skills are reinforced, curriculum is addressed and the role and function of Business Education is considered. A subtext of these courses is to help the students develop into a collaborative teaching/learning community. This is enhanced by membership in the Business Education Student Society (BESS).

In the first semester of third year our students take EBUS 300. This is a curriculum course aimed at helping them develop as critical and competent curriculum decision makers. A cohort group is firmly established here as these students will continue on to Preinternship and then Internship together. Preparatory work for OCRE takes place during this course.

The winter semester of third year is called our Preinternship Semester. All students at this stage of their programs regardless of major take a complete semester in the Faculty of Education. They take 2 major courses (one usually focuses on instruction and the other on evaluation), an Educational Psychology course, an EPS course and a general course that includes a 17-day field placement, instructional modules and OCRE. An attempt is made each year to integrate the subject area courses with the EPS and EPSY courses with overlapping content, integrated assignments and common expectations during the three weeks of field experience. This "captive" semester is followed by a full semester of Internship in a High School Business Education Department and then by a semester of courses that completes the students' program.

### A Brief History of OCRE

Forsberg (1995) reports that The Off Campus Residential Experience began in 1969 as a summer program initiated by members of the Art, Music, Physical Education and Outdoor Education subject areas. Courses in each of these areas were offered and presented as an integrated experience. The courses were offered at Echo Valley Provincial Park. "The faculty coordinated the experience utilizing a team teaching approach which encouraged the integration of course content and facilitated a collaborative relationship between faculty instructors as well as those registered in the summer session courses." (P. 74).

OCRE was an attempt to integrate all subject areas through teaching/learning experiences in the out of doors. By 1972 all subject areas in the Elementary Teacher Education Program participated in this integrated program. In the fall of 1973 OCRE took place at what is now called the Echo Valley Conference Centre in the Qu'Appelle Valley. (Forsberg, 1995) This campus site has been historically called Fort San as it had been a tuberculosis sanatorium from 1917 to 1972. The historic buildings of Fort San (with their tales of hauntings, ghosts and unexplained phenomena), the beautiful surroundings and access to a number of small towns, old cemeteries, Indian Reserves, etc. made this site perfect for an activity like OCRE.

Pickard (1994) describes the Elementary OCRE as follows:

Winter OCRE provides various out-of-door opportunities designed to assist individuals increase their awareness and understanding of cooperative/process learning associated with teaching in, about and for the out-of-doors. OCRE provides for interpersonal reflection and

the opportunity to draw conclusions which link out-of-door experiences with other learning opportunities both at the university and in school classrooms.

Outdoor activities *about* the outdoors encompasses the learning of various concepts, relationships and phenomenon in the natural and man-made environment. Outdoor activities *for* the outdoors embodies the knowledges, skills and appreciations necessary for enjoying and participating in outdoor experiences and pursuits with implicit consideration given to the environment.

In seeking to enrich the aims and objectives of OCRE, it is fundamentally understood that what can be best learned in the out-of-doors through direct experiences, dealing with native materials and life situations, should be learned there. (Pickard, 1994, P. 13)

Pickard (1994) suggests that OCRE contributes to teacher education students':

- knowledge and appreciation of the environment and their relationship to it.
- understandings, skills, and appreciations needed to mentally, emotionally, physically, socially, and spiritually lead productive, creative, and enjoyable lives.
- skill and motivation to learn how to learn.
- ability to evaluate and improve their concepts of personal achievement and self-worth.
- skill and understandings required to work and learn cooperatively with other individuals.
- creative potential. (Pickard, 1994 P. 13)

Although some of the statements that describe the expectations concerning the outcomes of OCRE are related to team building and experiential learning, many of these expectations are more directly related to outdoor education. These statements include: "demonstrating the use of outdoors as a learning environment," "preparing appropriate materials and activities for the instruction of pupils in the outdoors." An important expectation of the Elementary OCRE is "To expand/reinforce sensitivity to and awareness of the natural environment and learn ways to promote and practice conservation." (Pickard, 1994, P. 1)

The Secondary Teacher Education Program was reconceptualized in the early 1980's which brought it more philosophically and practically in line with our Elementary Teacher Education Program. One of the changes was the inclusion of a Winter OCRE during the Preinternship semester (third year). The expectations of the Secondary Program's OCRE were stated as:

## I. GENERAL EXPECTATIONS

- To provide an opportunity for students to formalize specific learning outcomes through the interrelationships between various subject disciplines.
- To provide an opportunity for students to learn and practice group processes.
- To provide an opportunity for students in each group to develop their own internal working relations as a task-oriented group similar to the needs of a school staff.
- To provide an opportunity for the development of those professional attitudes which are prize objectives of the teacher training program, i.e., leadership, concern for pupils, responsibility in the use of the environment, creativity in the use of resources, responsibility for/and to colleagues.
- To provide an opportunity for students to understand the role experiential learning plays in the total educational process.

## II. EXPECTATIONS FOR STUDENTS

- To demonstrate the use of the out-of-doors as an experiential learning environment.
- To demonstrate how interrelationships can be developed.
- To demonstrate the kind of detailed planning and organization that is a prerequisite for safe and useful field experiences for high school aged students.
- To learn some of the skills necessary to appreciate the outdoor environment to its fullest.
- To continue to encourage the development of attitudes such as sharing, caring, responsibility, and respect for others and their property.
- To prepare appropriate materials and experiential learning activities in an interrelated fashion for the instruction of pupils in the out-of-doors. (Lang & Forsberg, 1998, P.4)

Secondary OCRE is comprised of three elements. The students experience an acclimatization day devoted to having them feel comfortable in the environment and to build a sense of an interdependent community. They move through this day in 'staff groups.' These groups have been established in their EPS sections and are structured to reflect the make up of a staff in a small rural high school.

The second element is a subject area day. The students in the areas are encouraged to develop activities which could

be used with pupils on a 'field trip' held by their school. These activities should take advantage of the setting, be experiential and interdisciplinary in nature. Some of the activities created and enacted by the Business Teacher Education students are described below.

The third element is taken up by students debriefing and reflecting on their experiences in the company of their staff groups. They discuss and explain the activities each of the subject areas were involved with and reflect on the level of experiential and interdisciplinary learning that took place during the OCRE experience.

A typical OCRE schedule is presented on page 101.

### Business Education's Participation in OCRE

As can be seen through the description above, Business Teacher Educators can easily subscribe to the ideas and theories underpinning OCRE in the general and abstract, but getting to the specific has proven to be an interesting journey. Perhaps the difficulties of the journey were compounded by the total lack of experience in outdoor education by both of the Business Education faculty members. Neither of us had very much experience in an out of doors setting. Neither of us camped or pursued other outdoor activities. And in the beginning we were at a loss as to how to guide our students.

The highlight of the first OCRE we participated in was setting up a tent on the top of a rise in the Valley facing north. As you may know the winds generally come from the North in this region and it was all we could do to keep the tent from blowing away. Conversation inside of the tent was impossible because of the noise of the wind and the tent sides flapping!

However we, and the groups of students in subsequent years, quickly realized that the environment lent itself to the kind of activities Business Educators are or should be interested in for their students. Once we, the faculty, overcame our hesitation and realistically looked at the opportunities we were easily able to assist our students in constructing activities that would be meaningful and fulfil both the demands of OCRE and of the subject area.

Four sets of activities stand out as I reflect back over the almost 20 years of OCREs in which I have participated. The first and the earliest of these activities was to develop an understanding of the Fort Qu'Appelle area in economic terms. During the curriculum course in the Fall the stage was set and the students began to collect information concerning economic activity in that part of the Valley. Data were collected from Statistics Canada, Provincial Government agencies as well as from local municipalities. Once this set of data was organized the students began to plan their OCRE activities. They decided to visit merchants in the area and conduct a short interview with the merchants and their customers. The interview focussed on the participants' knowledge of the economic resources available as

well as the consumer base in the area. Follow up activities to these interviews included sending a report to the merchants that participated which made recommendations concerning more efficient ways of using suppliers or of attracting increased business. Instructional units were also developed using the data collected to be used in marketing, economics and other courses.

Another similar project developed by a different group of students was to conduct an inventory of recreational activities in the area around Fort Qu'Appelle. Similar kinds of economic data were collected as in the previous project but this time the focus was on recreational activities available and consumer tastes and interests. An early trip to the area allowed the students to plan their onsite OCRE activity. They visited each of the area's recreational sites that were in operation at the time. They interviewed people that were using the site and asked questions concerning their interests in other types of recreational activities. The students also interviewed people in the street as well as members of the municipal councils and the local mayors. They subsequently submitted their final report to the Ft. Qu'Appelle town council. The report recommended a number of new recreational services and activities that were of interest to the local population. At least one, a bowling alley, was established within a year of their report. Again, because the focus was on creating opportunities for instruction, the students used this material to develop instructional units for inclusion in various Business Education courses.

A number of OCRE activities were centered around entrepreneurial activities created by the Business Education students. In each case these students created a product or service that was of interest to others attending OCRE. In each case preparatory activities were required as well as the typical instructional unit follow-up activity. One year the students decided they would become the official photographers for OCRE. They conducted a market analysis in the fall and discovered that many of the students who were about to participate in OCRE were interested in having their experiences documented. My students created a company that, for a fee, would ensure that a series of photographs would be taken of the client. They would then create a photo album that showed the client as a participant in that year's OCRE.

In a subsequent year the group of Business Education students went one step further. They decided they would video the OCRE experience and sell an edited compilation after the event was completed. This activity involved more than business skills. The students had to gain access to appropriate equipment, learn how to use the equipment, learn about documentary making and finally learn about editing. In both cases instructional units were developed for use in classrooms.

The last OCRE project to be described here is one that saw the Business Education students develop an interdisciplinary activity that was authentic and meaningful to all involved. The Business Education students created a scenario, based on a real

location in the Qu'Appelle Valley that had a land development company about to drain a swamp to create a large resort centred around a golf course. The Business Education students conducted economic assessments concerning this proposed land development deal. They consulted with the science and mathematics students to learn about how and why environmental impact assessments were done. They learned about the history and geography of the area by using the skills and knowledge of the Social Studies students and finally they learned about the possible social and health benefits of the resort from the Health and Physical Education students.

### **Reflections on Business Education and OCRE**

When I first came to this Faculty of Education I experienced the Elementary Program's OCRE. I had previously been an elementary teacher as well as a high school Business Education teacher and so I had considerable interest in the OCRE experience. Although I do not usually enjoy the out-of-doors, especially in our Canadian winters, I recognized that OCRE put our students into a position of having to integrate a great deal of knowledge and experience. It also provided the opportunity to interact with our students in a totally different way.

When the opportunity came for me to help decide if OCRE was to become a part of the Secondary program I supported the idea. On a theoretical basis anything which allows Business Education students to think more holistically and in a more integrated way was attractive to me.

It was interesting to watch the Social Studies, Mathematics, Science and Physical Education people enthusiastically get ready for OCRE. Their subject matter and their instructional practices were ready made for the OCRE setting and expectations. They were also easily able to fit into the outdoor education model provided by the Elementary orientation to OCRE.

Those of us working in the Business Education area had a problem. Although my personal area of interest is primarily the subjects in the Basic Business area, the interests of many of our students were computers and the office vocational end of Business Education. These interests were not easily transferred to the OCRE setting. This was especially true in the dead of winter. What could we do in a rural area, with snow up to our ears and the temperature well below freezing that would be of benefit to our students as prospective teachers? As noted above we had a number of OCREs where the stretch to fit into the outdoor education setting was very difficult. We tagged along with other subject areas, created make work activities for our students and let the students 'explore'. For a while we felt that we were being marginalized and excluded from an experience that most of the other students and subject areas valued.

We shifted focus. We invoked two of the important planks of the Faculty's philosophical platform – community/collaboration and the notion of the provisional try.

We began to realize that OCRE provided an opportunity for our students to become more than individuals taking classes together. We began to see them as the network of teachers that would take Business Education into the future in Saskatchewan. We also realized that these students would soon become our colleagues in Business Education. They would get jobs as teachers in the province, take their place in the professional organizations and assist us in our program by becoming Cooperating Teachers.

The OCRE experience allowed the continued development of connections among the students and between the students and the Business Education faculty. We had always encouraged the students to connect with one another but our concentration on this during the preparation and experience of OCRE has qualitatively changed how the student group develops. The faculty became consultants and colleagues during the OCRE project development. Although this was much more labour intensive for us the transfer of power to the students seemed to be very effective in both group development and student creativity and ownership of the projects.

We also discovered that if we didn't emphasize and support the 'provisional try' notion the students would hesitate to become creative. They would entertain safe, non-inventive activities that didn't seem to be as productive or as engaging as we or they would have liked.

The development of instructional skill in our program is built on the idea of provisional try. In our EPS courses students are engaged with theory in our classrooms, attempt the practice in the safe environment of a microteaching lab and then 'try' their very awkward skills in a real K-12 classroom. We invoked this mindset in the development of OCRE activities. We encouraged the students to attempt projects that they might have felt were beyond their grasp. We pushed them to accept failure and to find ways to learn from this failure. They began to understand that their development as teachers and particularly as Business Education teachers demanded the ability to go beyond the safe boundaries of what is already known and mastered. This sense of valuing independence and self directed learning is something we encourage from the beginning of our program. Business Educators who cannot accept the challenge of the unknown will still be teaching touch typing on manual typewriters.

Interdisciplinarity was another factor that we emphasized in the development of OCRE activities. We worked at broadening the scope of interest for the students from the manipulation of hardware and software to the ideas and issues represented in areas like Entrepreneurship, Management, lifestyle implications of Money Management, management of technology, social and personal implications of the use of technology, work experience, etc. This re-emphasis pointed immediately to the lack of discipline boundaries in the 'real-life' world. Our students created projects that demanded their interest and knowledge in other areas of study and other disciplines. This broader view permeates the work they engage in as preinterns and interns and as beginning teachers.

Business Teacher Education fits into OCRE. At first glance it seems like an awkward, artificial fit. However with closer scrutiny it can be seen to be a very productive if somewhat uncomfortable fit. OCRE allows our students and faculty to engage individually and collaboratively in the large issues confronting Business Education today. Our students see themselves as integrated within the school curriculum and environment in legitimate ways. They have an increased sense of ownership of their development as business teachers. They can place themselves as teachers that see beyond the confines of a particular discipline and they have the skills and experience to construct collaborative work groups that support their initiatives.

## References

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**UNIVERSITY OF REGINA  
SECONDARY O.C.R.E. TIMETABLE**

Time	Wed. January	Thurs. January	Fri. January
7:30-8:30	Travel to Echo Valley Conference Centre	BREAKFAST	* BREAKFAST 9:00 a.m. - Staff Groups (EPS) Developmental Tasks
9:00 -- 9:30	ORIENTATION (James Hall)	Subject Area Groups	
9:30 -10:30	ACCLIMATIZATION (EPS Sections)	Subject Area Groups	
10:30-12:00	X-C Skiing Section 10	Subject Area Groups	
12:00-1:00	LUNCH	LUNCH	12:00 LUNCH
1:00-2:30	Site Development Section 10	Subject Area Groups	1:00 Section Closure/Debrief
2:30-4:00	Outdoor Living Skills Section 10	Subject Area Groups	1:30 Travel Home
4:00-5:00	Reflection Section 10	Subject Area Groups: Debriefing	* Be sure your personal gear is packed and stored in the designated location. Please leave your room clean for the next group.
5:00-6:00	DINNER	DINNER	
6:00-7:30	REFLECTION	7:00 Social Activities (Student Planned)	
7:30-10:30	O.C.R.E. Improv Night (James Hall)		

# Examination of How Business Executives Use Proofreading by Co-Workers When Preparing Documents

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## Abstract

Even with today's advanced technology, manual proofreading is still required to ensure accuracy of documents. This study deals with how business executives utilize co-workers to proofread their prepared documents. Business executives were surveyed to assess their use of co-workers proofreading documents before sending out final copies. The focus of this paper is on the need to prepare business communication students to proofread not only their own writing but also others' writing.

## Introduction

Written communication skills are in great demand in business today. College graduates are expected to have good written communication skills along with all the technical skills. Many times communication skills are those skills that are not even advertised but expected by employers.

Included in all textbooks, manuals, articles, and books that present written communication is a step that is not always taught in communication courses. It is one of those skills that many instructors concentrate on more in keyboarding or word processing courses. Yet it is still an important component of writing. It is one of the steps in the writing process. This skill is that of proofreading.

Proofreading is not only a skill that needs to be developed when editing one's own writing but also a skill that is useful when helping others edit their writing. In the book, *Business and Management Communication: A Guide Book*, the authors state: "Many writers miss errors in their own documents. When possible, have someone else read your documents for errors." (Sorenson, Kennedy, and Ramirez 1997)

This statement leads to a discussion of how business communication instructors teach students to proofread not only their own work, but also that of others. Many times business communication instructors assess and comment on student writing but they also need to teach students to self-assess their own work and that of others. In the field of business, graduates will be expected to read efferently written documents. Reading efferently means to read for information and in business that is what is most important.

## Problem

Many business communication instructors use editing as part of instruction. This editing may include written comments on students' papers, peer editing, and other methods. In this study, the researchers reviewed written feedback by the instructor to students and peer editing. These two methods are the most widely used by business communication instructors that most resemble what will happen in the real world.

An important portion of these instructional methods is teaching students how to use written comments made by instructors or peers to improve their writing. Many times written comments are made on students' writing but the students are not given the opportunity to improve or make the changes suggested. Quite often students are asked to participate in peer editing but are not given guidelines or instruction in how to effectively read another's writing. These are issues that lead to what is happening in real world writing, or writing in the business world.

## Purpose

The purpose of this study is to review how business executives use others to help proofread their writing. This study will review not only the need for business communication students to know how to read and edit their own writing but what is needed when editing the work of others.

## Review of Literature

A review of literature on the subject of peer editing, proofreading and writing feedback on student papers, uncovered an array of papers, journal articles and studies. Many of these have been

done in the area of English but there are still those in the area of business communication.

On the topic of writing feedback, there are two viewpoints. One view is that feedback in the form of teacher comments is more beneficial when students are then allowed to conference and revise the piece. This allows students to make improvements. (Winter, Neal, and Waner 1996)

Winter, et al., (1996) point out in their article that "although students may read the comments written on their returned papers, they are rarely required to act upon them and actually make the revision (59)." The authors continue by stating that without requiring students to revise their errors or make improvements upon their paper, generally there is no improvement upon the students writing skills.

The conclusion of their study found that when asked to rewrite a paper, students were more likely to review the comments made by the instructor on the paper. They also found that comments were useful to all students regardless of ability. Therefore, Winter, et al., concluded that business communication instructors should continue to provide comments on students' papers. Of course, the continued use of comments is still most successful when students rewrite the paper. This suggests that further study needs to be done to help instructors improve the quality of comments on students' papers. (1996)

In an article by Quible (1997), several different methods for writing feedback were discussed. One method is writing comments by the instructor. As with Winter, et al., Quible feels there are advantages and disadvantages to instructor comments for writing feedback. One of the advantages states, "When written comments are acted upon and internalized, they can provide the students with a logical and pragmatic writing process (113)." This advantage is in agreement with the previous article, because only when students act upon and internalize written comments can they begin to improve as writers.

However Quible also provides the reader with disadvantages of written comments. Many of the disadvantages that are mentioned deal with instructor time, non-functional or counter-productive, students' perception of instructive comments (judgmental or punishing), and comments do not always mean that writing quality will improve. (121)

The final disadvantage given by Quible goes back to the earlier conclusion by Winter, et al., unless students are required to rewrite the paper, written feedback is not likely to be useful. This is the prevailing thought throughout most of the literature on instructor feedback to students' writing by using written comments. (121)

Quible continues his discussion of writing feedback methods with information about peer editing. Although there are advantages and disadvantages to peer editing, the information provided by Quible indicates that this form of writing feedback only works

when the instructor is involved in the process. In other words, when there is instructor involvement in how students are paired for editing, good writers with poor writers, etc. guidelines need to be established for peer editing. At the beginning of a semester, these guidelines may be very structure while students learn to effectively edit others' papers. As the semester progresses and students become more confident in their ability to edit others' papers, these guidelines or structured checklists may become less stringent. (120)

Quible concludes that although there is not one method that is more appropriate than another, it is best to consider all circumstances and personalities of the class to determine what might work best. He reminds the reader that the main purpose of feedback is to move students towards becoming better writers. (122)

During a review of literature, an article goes one step further to question what is being looked at when editing is done by business professionals versus business communication instructors. Seshadri and Theye (2000) wrote about a study they have completed that moved beyond opinion to actual hands-on experience. This study involved asking, "business professionals and business communication instructors to evaluate, critique, and score a sample of written reports on dimensions of both global and specific quality." (11) These evaluations were then compared. The comparisons allowed the researchers to determine the criteria for effective business writing. The criteria were for business context and the comparisons were between the two groups, business professionals and business communication instructors. The findings showed that business professionals looked at the quality of writing differently from how the same written pieces were viewed by the business communication instructors. (20)

Although there is more literature on how to give feedback on student writing, Seshadri and Theye begin to look at the differences in editing or reviewing writing from the classroom viewpoint and that of the business environment. When reading this article, the question of how important is teaching students to read their own writing, or rather edit their own writing might be. A part of many business communication classes is teaching students to proofread. When business communication instructors give written comments or feedback to their students, are they certain that these comments are understood? When having students do peer editing either orally or using written comments, have student been taught how to effectively edit another's writing? Does instruction of proofreading also prepare students to work with others' writing? When teaching students to proofread, are business communication instructors giving instruction on how to check for content? Are revisions being required after written feedback, whether that feedback is from peers or the instructor? What types of writing requires more feedback? How much time is spent on giving feedback to a written piece? How much of the grammatical and spelling errors are relied upon to be corrected by computer applications (word processing, spell check, grammar check, etc.)?

Business executives face time constraints that do not permit as extensive editing of their own work or that of others. What they will focus more on is the content rather than the mechanics of the piece. There are also certain pieces of writing that warrant having other proofread before sending them out. Although proofreading of co-workers writing is handled by business executives, there has been little or no training for this particular skill. Another consideration is that many rely on spell checks, grammar check, and other similar functions or software to help in their writing.

In completing a review of literature and discussion with fellow instructors of business communications, the researchers realized that questions began to arise about how to teach proofreading or students who will be entering the world of work. This included answering the questions previously mentioned. In considering all these questions, the researchers hypothesized:

Business executives spend time not only proofreading their own writing but that of others.

Proofreading is used for a variety of documents written in business and the degree of importance of the document helps determine when proofreading by a co-worker is necessary.

### Methodology

This section describes the research method used in this study and will be divided into the following sections: the instrument used, participants, data collection and data analysis.

#### *Instrument*

The survey method was used to collect data for this study. A panel of experts was used to review the device for content validity. The survey device included questions that used both a Likert-type answer and closed questions. The focus of the survey was to determine items that are proofread by co-workers before being sent out, time spent proofreading items written by co-workers within the company, and any training that workers might have completed for proofreading co-workers' work.

#### *Participants*

Participants in this study were limited to those employers hiring graduates at Eastern Kentucky University from the College of Business and Technology. Career Services provided a list of 60 businesses in the south, central region of the United States. Because e-mail was used to send and retrieve information, only those employers who provided e-mail addresses were chosen to participate in the study. The researchers decided upon the use of electronic mail for this study for speed of responses and ease for the participants.

#### *Data Collection*

Surveys were sent by e-mail to the participants describe above. Respondents were requested to use e-mail to reply to the survey. If this was not possible or desirable, respondents were given a fax number to send their responses.

Because of the speed of e-mail and fax transmission, respondents were given two weeks for the first response before the second notification was sent. This continued for four notifications. At the end of the eighth week, data was compiled.

#### *Data Analysis*

This section provides data from the seven research questions. Each research question will be given with the results and discussion. The response rate for this study was thirty percent.

**Q1: Do you believe proofreading skills are an important part of communication skills?** Ninety-one percent of those responding strongly agreed that proofreading skills were an important part of communication skills. While there was no responses for strongly disagree, disagree or no comment, nine percent responded that they agree to this statement.

This response clearly indicates that business executives believe that proofreading skills are important when discussing communication skills. The implication for instruction here would be that proofreading is just as important a skill when teaching communication skills as any other skill within this area.

**Q2: Do you have co-workers proofread the following before sending any of these items out?** Table one indicates that when sending e-mail, all those who responded do not have co-workers proofread before sending the e-mail. Ninety-one percent responded, however, that before sending out business letters, they do have co-workers proofread. Memorandums to co-worker(s) was one document that more responded that they do not have co-workers proofread before sending (71% - No, 29% - Yes). The response to having co-workers proofread memorandums to supervisor(s) was more balanced. Forty-three percent stated yes, while fifty-seven percent stated no. Another more balanced response was for flyers (62% - Yes, 38% - No). When preparing presentation materials, respondents stated that 96% would have co-workers proofread, while only four percent would not have co-workers proofread before making the presentation.

**Q3: If yes to any of the above, how many co-workers (other than the writer) actually proofread the document before it is sent out?** The majority of responses to this question (91%) indicated that one to three additional co-workers actually proofread documents before they are sent out. Eight percent indicated that only the writer/owner of the document actually proofreads the document before it is sent. There was zero response to four or more and depends on importance of the document.

**Table 1**  
*Do Co-Workers Proofread the Following Before Sending These Items Out?*

Item	Yes	No	Not Applicable
Business Letters	91%	9%	0%
Memorandums to co-worker(s)	29	71	0
Memorandums to supervisor(s)	43	57	0
Short reports	100	0	0
Long, formal reports	100	0	0
Brochures	67	0	33
Newsletters	67	0	33
Flyers	62	38	0
E-mail	0	100	0
Spreadsheets	38	62	0
Presentation materials	96	4	0

\*Information presented in percentage.

**Q4: On average, how much of an employee's workday is devoted to proofreading documents produced by someone else?** While only three percent of the respondents indicated that three hours per day was spent on proofreading co-workers documents, 58% spend less than one hour per day proofreading co-workers documents. Thirty-nine percent spend one to two hours per day proofreading co-workers documents.

**Q5: Have you had training in proofreading documents prepared by others?** Of the respondents, 67 percent reported having had training to proofread others' documents while thirty-three percent reported no training. The second portion of this question allowed those that had responded yes to the question to choose all that applied for a list of where they may have received training. Table 2 shows the results. More of those responding to this portion of question five, stated keyboarding is where they had received training for proofreading documents prepared by others. Word processing would be second, while business communication course in college and college writing courses would be tied for third. No one responded that his or her company provided training.

**Table 2**  
*Training in Proofreading Documents Prepared by Others*

Business communication course in college	8
College writing courses	8
Company training course or session	0
Keyboarding	11
Word Processing	9

\*Fourteen participants reported had training. They choose all that applied from this list. These numbers represent the number of responses to each.

**Q6: Do you rely on computer functions to assist you when composing a document? If yes, check all that apply.** Table 3

provides the results of this question. All respondents replied yes to this question and use one or more of the choices provided.

**Table 3**  
*Computer Functions to Assist When Composing a Document.*

Grammar Check	14
Spell Check	21
Auto Correct	5
Thesaurus	5
Other	0

**Q7: Please check the following software programs you are currently using.** Table 4 provides the results of this question. This question was to look at what software was being used by respondents. It was given to work along with question six.

**Table 4**  
*Software Programs Currently Being Used.*

Word Perfect	6
Microsoft Word	20
Microsoft Works	1
PageMaker	4
Quark Express	1
Other (Excel, PowerPoint, Adobe Photoshop, Illustrator, Apple Works)	2

\*Respondents were asked to check all that applied.

## Conclusions and Implications

Although this study was limited to those who had e-mail addresses and were listed with the Career Services office at one university, the results are still useful when discussing curriculum changes that might be needed in business communication.

This study indicates that proofreading documents (by co-workers) before the documents are sent is a practice that is used by a large majority of business executives. However, this survey indicates that learning to proofread was taught more in the keyboarding or word processing classes, rather than the business communication or college writing courses.

With one hundred percent responding that co-workers proofread short and long reports, the indication would be that this is an important skill to teach in a business communication course. It has equal importance to business letters and presentation materials, which both also had high ratings. Ninety-one percent of those responding to the survey indicated that they strongly agreed that proofreading was an important part of communication skills.

This study also concludes that business executives not only spend time proofreading their own writing but that of co-workers. Although not a great deal of a business executive's day is spent doing this activity, it still represents up to two hours of his or her day.

Literature reveals that it is not only important to comment on students' writing but also to allow for revision. With this study, survey results indicate that business executives do use others to proofread their work; therefore, revisions are done after co-workers make comments either verbal or written. It is important that business graduates understand how to proofread not only their own writing but also that of others to provide critiques of value.

### Recommendations

Based on the review of literature and analysis of data, the following recommendations for further research are provided:

1. When looking at items that are proofread by co-workers, are there differences in the types of documents proofread in different companies. Would the type of company make a difference on the response to the question and the documents that are proofread by co-workers?
2. Expanding this study to include companies from a larger sample should be conducted to see if the results would differ from those found in the current study, or if the results would remain similar.
3. A study assessing the training of business communication instructors in teaching students to peer edit, how peer editing is used in business communication, and what types of documents peer editing is used for in business communication courses could be done to evaluate instruction of proofreading co-workers documents.

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# Learning Styles and the Learning Curve: A Comparison of Knowledge Gained from Research Projects for Classes and a Research Project for Publication

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## Abstract

This paper compares the knowledge gained as a research assistant with knowledge gained during class projects. A brief review of learning styles, pedagogy and experiential learning is presented. First-person reflections about my work as a graduate assistant enhanced learning styles and illustrated the theory of a learning curve. Instructional strategies are discussed, including those reflecting cultural respect for international students, such as a process-based approach versus a procedural approach to learning. Recommendations are made regarding how to improve instructional strategies, with particular attention to international students.

## Introduction

The purpose of this paper is to compare the knowledge I gained as a research assistant on a research project to knowledge I have gained when doing class projects in my MBA program. A brief review of learning styles, pedagogy and experiential learning is presented prior to discussing how and what I learned during my assistantship. Finally, I reflect on how working as a graduate assistant enhanced my learning style and illustrated the theory of a learning curve (Morgan, Ponticell, and Gordon, 1998).

## Learning Styles

According to Hergenhahn (1988) learning is a relatively permanent change in behavior or in behavioral potentiality that results from experience. Learning styles illustrate ways we collect information, incorporate what we learned and finally process this information. What is easy for one learner can seem hard for another. We tend to remember and learn things best when we use our best learning style, and it could be visual, auditory or through experience.

Cambiano, De Vore and Denny (2000) discussed Dunn's (1984) learning styles, some of which are psychological characteristics, emotional characteristics, and sociological characteristics of an adult learning style. According to Dunn, Griggs, Olsen, Beasley and Gorman (1995), psychological characteristics of adult learning can be categorized into global or analytic. Global learners organize information by clustering into whole units. They learn through short stories, graphics and illustration (Dunn, et al., 1995:2). Global learners do not expect information to be arranged logically; they will even jump between ideas to get to the

bigger picture. Analytic learners, on the other hand, focus on single attributes one at a time and prefer to arrange the information logically. They tend to understand better when the information flows logically. Analytic learners like to follow a plan and to know the rules. Analytic learners can get frustrated when ideas or information is not structured.

Learning is a process that happens in stages. These stages are commonly known as the learning curve, where observed behavior is indicated on the y-axis and environmental stimulation is indicated on the x-axis of the learning curve. The observed behavior starts at the bottom at the baseline, then the curve increases through acquisition, and the peak of the curve is maintaining the acquired knowledge. The curve slopes down when a decline of what is learned occurs (Morgan, et al., 1998: 34).

## Pedagogy (Method)

There are models of instruction in adult training and instruction, including mastery learning (Morgan, et al., 1998: 16). John B. Carroll (1963) proposed that the degree of learning is a function of the ratio of two quantities: the amount of time a learner spends on the learning task, and the amount of time a learner needs to learn the task. In mastery learning, learners master one unit prior to beginning the subsequent unit.

## Experiential Learning

According to Sims, "Experiential learning involves a directed process of student initiates questioning, investigating, reflecting and conceptualizing based on experiences both in and outside the formal classroom setting" (pg.147). According to Dewey

"To learn from experience is to make a backward and forward connection between what we do things and what we enjoy or suffer from things in consequence. Under such conditions, doing becomes a trying, an experiment with the word to find out what it is like; the undergoing becomes instruction-discovery of the connections of things"(p140).

Learning through application is one effective way of learning. "Experiential learning focuses on learning through reflection on one's personal experience"(Goby & Lewis, 2000:1). Active learning methods encourage students to become involved with what they are attempting to learn by enabling students to apply theory to real-life situations in a dynamic manner. Experiential material can be in various forms. The form that is going to be discussed in this paper is research projects. When students learn through experience, the format is less structured. At the beginning the student may have a minimum level of knowledge and while completing the task, the student will gain a vast amount of knowledge. Experiential learning is more effective than lecture material and it is much easier to remember. Experiential learning requires students to perform activities that they may have never performed. However, these activities give students experience with application of knowledge they have gained already in classroom settings to a real world scenario.

### Cultural Differences

Experiential learning occurred when as a young lawyer I was under a more experienced lawyer as an apprentice. At least six months of experience of this kind of work is essential in Sri Lanka to become a lawyer. The knowledge I gained by attending law school was not linked to experience. It was more lecture-based. Even though most of the learning experiences I had at law school were through lecture, during my apprenticeship period I was able to apply the knowledge I gained and to be actively involved in the learning process. However, I did not know much about learning styles and did not realize that I was going through experiential learning.

The classroom learning process in Sri Lanka, at all levels of education, is lecture-based. Further, the culture of Sri Lanka and many similar countries is for students to show respect for teachers and other adults by limiting inquiries to only those needed for clarification. Teachers are held in very high regard, and students would not think of questioning the knowledge that they receive from a teacher. When joining college classrooms in the United States, the procedural, lecture-based format is more likely to occur in quantitative types of courses, such as computer and math classes. This gives many international students a greater comfort in those types of classrooms, because the format is familiar, and many times there is little emphasis on class discussion or inquiry. For more qualitative courses, such as some of the human resource and management classes in an MBA program, the content of the course is delivered as a process approach to learning, where students are expected to question and

challenge one another as well as the teacher. This process-based format is not only new to many international students, but is also quite scary because it conflicts with their system of values that are demonstrated through quiet acceptance of the teacher's knowledge. In addition, many of these types of classes assess the student's classroom discussion, which makes the consequences of not adjusting quickly to this new format somewhat costly for the student.

### The Research Project

As a research assistant, I was given the opportunity to assist a faculty member to do a research project where I gained a vast amount of knowledge. From this research project I learned that there are some major differences between class research papers and research papers for publication. For class research papers the students usually choose their topics. However, for research papers for publication the principal investigator chooses the topic. The data collection for classes is mostly secondary sources; in contrast, data collection for a publication is mostly primary sources.

The literature review for a class research paper is relatively narrow in scope, shallow in depth and is completed by the student. On the other hand, research for publication includes a review of all the literature necessary to support the topic under consideration. This results in a broad scope and an in-depth literature review that pursues many citations referenced in previous work. In publications the exploration of the works cited allows researchers to make connections from established ideas to the ideas proposed in the project. Since this was my first "real" research project, my first attempts at a literature review were inadequate even though I had obtained more (and better) references than I had done for previous class projects.

Through discussion with the principal investigator, I learned that I had to make connections through works cited and do a broader literature search. A thorough literature research is necessary in order to gain a broad perspective, and to figure out which parts of the project has been already researched and published. At this stage of the project I realized why it is important to do all the researching, which is to make sure that the particular research has not been done previously. Once all this is done, the researcher can determine how the current research project adds knowledge to the field of inquiry.

The next stage of the project was to design a questionnaire that could be used to collect data. At this phase it was important to learn about how to form questions that are understandable and what kind of questions need to be asked. It was interesting to learn that sometimes it is important to form the same question in two different ways in order to check for consistency. Even though I have interviewed individuals for research projects for classes, the style I have used is direct questions and answers. The major difference between the two projects was the attention



that was given to form the questionnaire. The data collection for classes is mostly secondary sources; in contrast, data collection for a publication is mostly primary sources.

When I wrote research papers for classes I tried to give them a title that was relevant to the research or class. Other than the relevancy it did not matter what kind of a title I chose. In contrast, the title in publications is very important and needs as much attention as the rest of the paper. The title should contain key words that will assist future researchers as they build their literature reviews.

### **Emotional Responses**

As a research assistant I went through several phases of emotional responses during the learning process. At first I was very excited about being part of a major research project. Even during the early stages of the literature search, I felt excited. Since I had acquired more and better references than I had for any previous class project, I felt proud of my work. It became discouraging, however, when it became clearer to me that my initial efforts were not sufficient for this type of research, and I went through a period of confusion and frustration. During this "low" period, the principal investigator could have increased formal instructions to direct my research process, but doing so would not have given me as much opportunity to learn through the experience of working through my frustrations. Instead, the principal investigator increased the frequency of our discussions about my progress, and guided me indirectly so that I would not become completely discouraged and "give up". When my search process seemed to be too far astray, I received suggestions about how to re-focus my search. Of course, had I been given direct instructions about what to get for the research literature review, I would have followed those instructions, but I would not have gained as much knowledge for myself. I would not have been able to internalize my learning. From the principal investigator's perspective, it would have been easier and faster to give specific instructions, but it would have sacrificed learning opportunities.

### **Application of the Research Project to My Personal Learning**

At first I had question after question about why we did certain things certain ways. The principal investigator handled these questions in different ways. Sometimes I was given straight answers whereas sometimes I was directed towards the correct path so that I could understand the reason at my own pace. I realized I am an analytic learner, who desires to follow a plan and to know the rules. The knowledge I gained being a research assistant helped me develop (and appreciate) a more global learning style. I now have a more complete set of learning skills that were shaped through the transformation of these research experiences.

At the point I was learning all these new materials, I had had few life experiences that I could use to interpret what I was learning. Most of my experiences were doing class research projects. During the learning process, I started comparing what I already knew to what I was learning. Even though sometimes I did not understand why we did things in a certain way, when we reached the next step the reasons were apparent to me. As I was going through the process of learning the literature and new models for the research project, I had a need to organize data and observations and then apply the information to each of those models. Since I learned everything through application, most of the learning that occurred was experiential learning. Personal experiences are harder to forget unlike things we learn in a classroom setting. Looking back, I think that this is the reason I am able to remember and value what I learned through this experience.

The theory of learning curve can be applied to the knowledge gained during the process of being a research assistant. According to Morgan et al, (1998) the first component of the learning curve is baseline. Baseline refers to the individual differences among learners when a person is first exposed to a learning experience. Next component of the learning curve is acquisition. At this level the explanation of the actual learning process happens. This is the stage where I gained the knowledge about literature reviews and the importance of citation review of previous work. The acquisition phase is usually quite long and extends to all of the knowledge gained throughout the project. After gaining knowledge is completed, the next phase is retaining what I have gained through the experience, or maintenance. An example of additional acquisition and my retention is completing this manuscript for submission to a conference. The final phase is extinction if I fail to retain what I have learned. Although this phase may occur partially if I do not pursue further research opportunities, the use of experiential learning suggests that I will remember more of my new knowledge (Goby & Lewis, 2000).

### **Conclusion**

Several instructional strategies are illustrated in this paper. The relationship between me and the principal investigator developed as a coaching model, where the teacher is a guide and collaborator in the student's learning. In particular, the contribution illustrated in this paper incorporates the contextual model, where my national culture and school system affected my learning process. The process-oriented learning process used in this research project contrasted significantly with the direct instruction instructional strategy that forms the basis of most learning in Sri Lanka (and many other countries). The literature search process, described in terms of my emotional responses to that process, illustrates the guided discovery strategy, where students learn through explorations.

This first-hand comparison of knowledge that I have gained as a research assistant is an illustration of how my initial learning

style was challenged by the experiential learning process. At first I was uncomfortable with the global learning style that is necessary to explore the research topic in depth as I pursued the clues revealed through references in other articles. My analytical style, however, complemented the global style, because I was able to organize the new information well. This experience has helped me gain confidence in my abilities. As a result my degree of learning (Carroll, 1963) has increased exponentially. Even though one research project may not have achieved mastery learning (Morgan, et al., 1998), it has served as a rich foundation for learning from other work and life experiences. Effective teaching is not merely delivering information. Effective teaching occurs when teachers truly understand the basis on which diverse learning styles and cultural differences are founded.

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# Online Course Delivery: A Qualitative Review of Policy and Theory Using WebCT

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## Abstract

There are challenges in making the transition from face-to-face teaching to using courseware to develop online courses that provide synchronous and asynchronous course delivery coupled with online assessment and student management. There are technology skill shortfalls for faculty and students and a steep learning curve for the people serving as course material developers.

The study consists of a qualitative research project to evaluate the efficacy of online courses offered by a public funded university. There were two primary goals for the study: (a) to evaluate and improve procedures, guidelines, and practices related to online delivery using WebCT, and (b) to enhance the usability, motivational aspects and interactivity of the online courses.

## Introduction

This study consisted of a qualitative research project to evaluate the efficacy of online courses offered by the Department of Workforce Education and Development. The participants were faculty, students, and graduate assistants who worked as WebCT course developers. The two primary goals for the study were: (a) to evaluate and improve procedures, guidelines, and practices related to online delivery using WebCT, and (b) to enhance the usability, motivational aspects and interactivity of the online courses.

Denzin and Lincoln (2000) describe the qualitative research process, "...qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meaning people bring to them" (p 3). This study used the "natural setting" of WebCT to interact with participants in both interview and focus group activities related to their experience with distance learning and WebCT.

There are few issues more polarizing than distance learning. At the first suggestion of implementation, the faculty instantly divides into two camps with one side feeling that online teaching has little or no benefit and the other side feeling that technology can do no wrong.

The result is that when the pro-technology group gets the go-ahead they often rush into implementation. They purchase technology in advance of course design and then have to force the curriculum to conform to the technology. The all too frequent result, according to LaRose and Whitten (2000) is that many web courses "...are little more than an expanded course outline with instructionally irrelevant graphics and an email address" (p 321). This thought is echoed by Levin, Levin, and Waddoups (1999) who felt that "...in online teaching, the most common

initial effort is to take the instructional format currently being used 'face-to-face lecture, most often' and transfer it to the online medium" (p 257). This results in another problem cited by LaRose & Whitten (2000) that "Although the Web is thought of as a highly interactive medium, Web lessons are often presented on static pages. The learner has no more interaction than turning pages of a textbook" (p 321).

While there have always been standards for course development, the question arose as to whether they were applicable to Internet-based courses. The National Education Association (NEA) and Blackboard, Inc. jointly commissioned the Institute for Higher Education Policy to evaluate 34 existing benchmarks for quality course delivery. Their analysis resulted in the addition of three new benchmarks and the elimination of 13 benchmarks that were judged to be non-essential.

Two of the benchmarks determined to be non-essential dealt with faculty incentives for innovative practice and rewards for effective teaching in a distance learning setting. The findings on those two benchmarks were:

As noted earlier, the faculty involved in distance education were dedicated, experienced, enthusiastic, and exhibited a high degree of professionalism. Although they preferred to receive professional incentives and institutional rewards, the vast majority of the faculty engaged in distance learning because they were excited about it, they found it intrinsically rewarding, and they were already recognized by their peers as good teachers.

The 24 remaining benchmarks are summarized in the seven groups shown in Table 1 and the foreword to the study describes the ongoing debate over distance learning:

The public debate over the merits of Internet-based distance learning too often consists of high-pitched vitriol and hyperbole. Proponents ooze with blind adoration, declaring that on-line learning can resolve all the problems confronting traditional education.

Opponents insist that courses taught on the net are incapable of living up to the standards of the traditional bricks and mortar classroom.

**Table 1**  
*Excerpts from Quality on the Line: Benchmarks for Success in Internet-based Distance Education. Prepared by The Institute for Higher Education Policy*

<b>Institutional Support</b>	<b>Reliable, centralized technology with adequate security</b>
Course Development	Minimum standards for development, design, & delivery. Learning outcomes and not available technology, determine the technology used to deliver course content. Periodic review of materials. Requirement for students to apply analysis, synthesis and evaluation.
Teaching/Learning	Students interact with instructor and each other. Constructive and timely feedback on assignments and questions. Students taught research and validity assessment methods.
Course Structure	Comprehensive student briefing/advice and assessment of technical skills, self-motivation and commitment to d/l before starting classes. Course objectives, concepts and outcomes in plain English. Access to sufficient resources. Agreed expectation of timeliness between student and faculty.
Student Support	Complete student information on all aspects of distance learning and information retrieval. Hands-on training on d/l skills. Readily available technical assistance during the course. Complaint handling procedure.
Faculty Support	Course development technical assistance and encouragement to use the assistance. Assistance with transition from classroom to online and with assessment. Instructor training and peer mentoring.
Evaluation and Assessment	Assessment of educational effectiveness using several methods and specific standards. Regular review of learning outcomes to ensure clarity, utility, and appropriateness.

In 1999, the NEA Representative Assembly approved the recommendation developed by the Professional Standards and Practices Committee. A portion of those standards reads as follows: The Association believes that, to ensure quality, distance education courses must:

Courses designed to meet the types of standards cited in these two lists should have no problem standing up to the best of traditional classroom courses.

**Related Literature**

- a) Be at least as rigorous as similar courses delivered by more traditional means.
- b) Meet accreditation standards.
- c) Have content that is relevant, accurate, meets state and local standards, and is subject to the normal processes of collegial decision-making.
- d) Meet the objectives and requirements outlined in the official course description.
- e) Have student/faculty ratios that ensure the active engagement of students and high academic achievement.
- f) Have appropriate procedures mutually agreed upon by the instructor and the institution for evaluation and verification that the student is submitting his/her own work.
- g) Have instructors whose qualifications are the same as those of instructors teaching in traditional classes and who are prepared specifically and comprehensively to teach in this environment.
- h) Be integrated into the mission and consistent with the overall offerings of the institution.
- i) Provide fair use exemptions for participants' access to copyright materials for educational purposes.

**Quality**

Like pathways on a campus, the Internet connects students to resources. Melody Thompson (2000) wrote "In distance education contexts, major consideration is given to incorporating activities and strategies to help 'bridge the distance' between students and instructor and between groups of students" (par 1). Further, developers and teachers should strive to "...reduce the psychological distance and increase the level of interaction..." (par 8).

Eastman, J., Nickel, T., Plessis, J., and Smith, L. (2000) stated, "Course development on the World Wide Web is often seen as an all-or-nothing arrangement" (p 40); and that a better alternative might be to "take an incremental approach beginning with enhancements to existing courses that use Web resources" (p40). Some of the enhancements they recommended are an online syllabus, threaded discussions, Web-quests, and email pen pals (p 40). Their four step incremental approach is as follows:

1. Individual faculty awareness (technology options and skills).
2. Faculty support (faculty attempt with technical safety net support).
3. Faculty develop a full course with T/A assistance (scaffolded support).
4. Departmental effort (online Masters program).

A common theme among developers of online courses is the necessity to develop guidelines before developing an online course. Oliver (2000) wrote, "Theoretically, the strengths of constructivism lie in its emphasis on learning as a process of personal understanding and meaning-making which is active and interpretive" (p 242). He lists three critical design elements for effective online learning environments:

1. Content (with authentic examples and context).
2. Learner support (scaffolding).
3. Learning activities.

Another key element described by Oliver (2000) is that courses should foster student interaction. One method is to enable "learners having difficulties to seek help by posting their problems to a bulletin board..." and "to create incentives for students to help their colleagues" (p 245).

### *Teacher Challenges*

The development process can be described as a full spectrum of possibilities coupled with a full spectrum of challenges. The possibilities as described by McKenzie (2000), are "Technology can enable teachers to accommodate a variety of orientations to learning, track student progress, remediate struggling students, and challenge advanced learners" (par 2). Gillette (1999), who describes himself as moderately technically competent, offers this thought about technical challenges, "...I still often felt overwhelmed by all the technical work required to create a successful online course" (p 22). After his first two months teaching an online course, Gillette (1999) wrote, "I often felt as though I were never teaching. I spent most of my time fixing various parts of the course which, as revealed through intensive student use, were obviously not designed properly" (p 25).

While Gillette felt moderately competent, typical faculty members possess the full range of technical expertise. McKenzie (2000) describes a model created by Scott Noon that outlines the stages of teacher technology efficacy:

- Stage 1: Preliterate end users (no experience, no opportunity or no interest in learning).
- Stage 2: Software technicians (use common applications, surf the web, use email).
- Stage 3: Electronic traditionalists (proficient in classroom technology using traditional materials).
- Stage 4: Techno-constructivist (integrates technology to complement and redefine instruction) (par 6).

The question that immediately comes to mind is, do we need technology to be constructivists? The answer offered by McKenzie (2000) is to take a "...hard look at data from the Bureau of Labor Statistics for the coming century. Seventy percent of the jobs available in the workforce will somehow be related to the acquisition and manipulation of digital knowledge" (par 12).

In an article on migrating from face-to-face to online teaching, Dabbagh (2000) describes four areas of challenge for faculty:

- a) Course content (the visual metaphor of WebCT fosters a linear path for course content).
- b) Technology (uploading assignments, threaded discussion and chat can cause frustration both for students and the instructor).
- c) Logistical and implementation (support faculty in utilizing innovative technologies in teaching and learning).
- d) Supporting classroom and online sections (can require extensive time commitment if the two are not integrated in their activities).

Bivens and Chute (1996) tell us that "...skillfully presenting a relevant learning experience that is well organized, appropriate to the learning context and very interactive is essential to enable the learners to achieve their goals and expected outcome" (par 6). The goals listed by Bivens and Chute for educators, though written for videoconferencing, still seem relevant for online courses. They are:

- a) Gain attention.
- b) Maintain attention.
- c) Encourage participation.
- d) Structure the learning context (objectives, chunk, categories and review).

### *Techniques*

Some still question the benefits of online instruction. Filipczak (1995) quotes Carol Twigg, vice president of Educom, who states, "much of the research over the last 50 years has shown that there is 'no significant difference' in the effectiveness of distance learning compared to face-to-face instruction" (p 112). Some of the techniques cited by Filipczak (1995) that enhance the efficacy of online instruction are:

- a) Question, probe, and interact with learners.
- b) Get learners involved in different types of activities.
- c) Have more dialogue with learners.
- d) Conduct pre-training.
- e) Chunk lessons.
- f) Focus on objectives and learners instead of technology.

Levin et al (1999) performed a study on use of multiple learning and teaching techniques. They stated that "Too often people use new technologies to build a uniform approach to teaching and

learning, based on the perceived advantages of consistency”; and that “For practicing teachers to become experts at using technology in their teaching, they need to learn how to use multiple instructional media in service of multiple instructional goals” (p 257). The department where the study occurred made the typical first effort by taking the existing course format (lecture) and putting it online with accompanying syllabus, lecture notes, and assignments. Levin et al (1999) contend that:

The comparison of multiple ways of teaching and learning encourage the examination of the instructional goals and resources available and suggest new ways to choose the technology, activities, format, contexts, and evaluation and assessment tools that are most appropriate for these goals and resources (p 256).

Multiplicity as described by Levin et al (1999) refers to using multiple:

- a) Contexts
- b) Instructional media and formats
- c) Learning activities
- d) Assessment techniques

Table 2 lists some of the alternatives that may be used either in class on with online courses.

**Table 2**  
**Multiplicity Techniques**

Project Groups	Assessment*
Reading discussion groups	Classmates
Real-time interaction (online office hours)	Instructor
Simulations	Oneself
Whole-class presentations	Peers
Electronic field trips	
Online reading and textbooks	
Lectures	

\* Provide a grading rubric

Levin et al (1999) acknowledge the extra effort required, but feel that “Multiplicity decreases efficiency in the short term, but encourages the development of powerful new learning and teaching environments in the longer term” (p 267).

Baylor (2000) recommends that students be given the opportunity to use new information instead of just attempting to memorize it in order to move it from working memory into long term memory. She describes “typical” training as “... a ‘talking head’ format, verbally transmitting a large amount of information with a selection of visual aids” (p 13). Baylor (2000) offers the following ideas for improvement:

- a) Consider different learning modalities and preferences
- b) Variety is motivational
- c) Information is encoded visually through images and semantically as text

- d) Interactive images are more readily coded
- e) Hypertext links permit user control

Thompson (2000) states, “The demographic and psycho-social characteristics of distance education participants interact to influence satisfaction, achievement, and persistence in their learning activities” (par 1). Thompson lists several elements affecting student satisfaction with distance learning:

- a) Need for control
- b) Learning styles
- c) Perception of social presence (degree to which an individual is perceived or experience as a “real” person)
- d) Levels of interaction
- e) Autonomy

Further, Thompson found that “A combination of motivation, use of a variety of learning strategies, and a preference for visual learning was most predictive of achievement” (par 3).

Benson and Wright (1999) concluded that “Online learning gives an excellent opportunity to foster high-order thinking skills, time management capabilities, interpersonal communication, and the capacity to process information” (p 66). One of the innovative methods used in their writing workshop was to have student papers submitted to peers for feedback and then rewritten prior to submission to the instructor. Benson and Wright (1999) stated, “... comments coming from a peer carry a different value, and perhaps increased credibility...” (p 64).

Thompson (2000) concludes, “To maximize distance education’s potential for interaction, instructors must make participants comfortable with the technology by modeling comfort with the system...” (par 8). Thompson further lists the following requisite abilities, synthesized from a number of research papers, for online teachers:

**Teacher skills -**

- |                                   |                                 |
|-----------------------------------|---------------------------------|
| Provide structure                 | Provide socio-emotional support |
| Establish a democratic atmosphere | Create a sense of shared space  |
| Model appropriate behavior        | Repair sessions gone awry       |
| Set an appropriate pace           |                                 |

**Teacher immediacy behaviors -**

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| Providing feedback in class       | Expressive speech (writing)          |
| Calling students by name          | Praise                               |
| Initiating student contact        | Awareness of student learning styles |
| Supplying student pictures to all |                                      |

Teacher competencies and behaviors linked to improved student learning in technologically mediated courses:

Good voice quality	Command of/interest in the course content
Clear presentation style	Obvious interest in the students
Ability to individualize pacing	Knowledge of basic learning theory
Ability to organize and manage learning materials and environment	
Ability to coordinate group activities	
Willingness and ability to work as a team member in planning and using technology	

### Research Design

The data were collected using a qualitative research design and WebCT courseware to perform online interviews and focus group discussions. The participants are 2000 and 2001 students, faculty, and course designers associated with creation and delivery of online courses using WebCT at a large midwestern university.

The purpose of this qualitative research project was to evaluate the efficacy of online courses offered by the workforce education and development department. The participants were faculty, students, and graduate assistants who worked as WebCT course developers. The two primary goals for the study were: (a) to evaluate and improve procedures, guidelines, and practices related to online delivery using WebCT, and (b) to enhance the usability, motivational aspects and interactivity of the online courses.

An application was submitted to the human subjects committee and approval was received on January 29, 2001. While waiting for approval from human subjects, a WebCT course shell was created for the research project.

The next step was to create a list of people involved in the WebCT project as students, instructors or course developers. Then initial contact was made via a cover letter to explain the project and determine willingness to participate. Consent forms were included for those wishing to participate. Participants were selected based on experience level and with a goal to maintain nearly equal amounts of students, instructors and developers.

After a review of current literature on distance learning, summaries of the articles were created, uploaded, and linked in the course content section of the WebCT research shell. Additionally, questions related to the articles and research topics were posted to discussion threads on the WebCT bulletin board. Participants were asked to respond to each article thread and to each other.

Next came the creation of the initial interview protocol. The questions were created and submitted for review to four faculty members. Two of the faculty members were particularly well versed in qualitative research and all were familiar with WebCT e learning.

Upon completion of the revisions to the protocol, one-on-one interviews with each of the 20 participants were conducted using the chat feature of WebCT. Bernstein (1983) tells us "We are always understanding and interpreting in light of our anticipatory prejudgments and prejudices, which are themselves changing in the course of history" (p 139). Therefore it is important to establish the biases of the researcher as instrument in this process. The bias could be stated as guardedly pro-technology with a full knowledge that technology frequently and inappropriately is given precedence over sound educational practices.

Denzin and Lincoln (2000) state "The qualitative researcher uses inductive analysis, which means that categories, themes, and patterns come from the data" (p 389). The metaphor of emerging data would be appropriate for this study. It was a continuous evolutionary process with the interview questions changing with each interview based on insights gained or dead-ends encountered during the interview. It was most assuredly a collaborative process with the goal of eliciting thoughts and attitudes about the effectiveness of online learning in this implementation.

After completing the interviews the data were retrieved from WebCT where the chats were recorded and saved. The data were transferred into Word for formatting purposes and then coding and theme development was performed on the documents to provide guidelines for developing the protocol for the focus group interviews. Again, faculty members reviewed the proposed questions and the questions were revised based upon the recommendations. Two additional facilitators were recruited to lead two of the four focus groups to provide enhanced validity to the discourse. The four focus groups were conducted using the chat feature of WebCT and three different group facilitators. The focus group data was then coded and analyzed for themes.

### Findings

The themes from the interviews and focus groups are summarized in Figure 1.

### Interviews

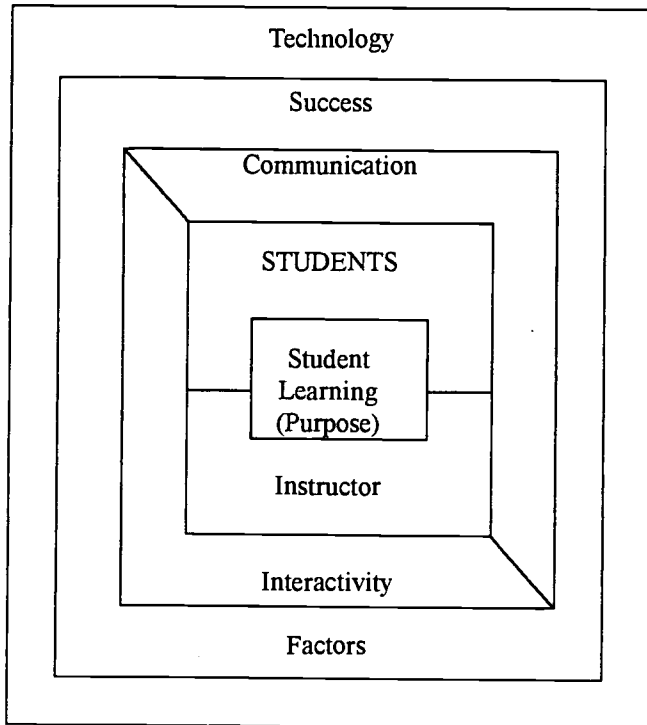
#### Communications

The Internet provides near instant access to a greater variety and quantity of information and of viewpoints than can be found in the classroom. To provide maximum benefit to the students, effective applications and activities must be employed and delivered via a technology that employs appropriate bandwidth.

Many distance learning sites rely upon text based lecture or data files despite the generally poor quality and readability of text online unless special applications such as Acrobat Reader PDF files or one of the types of e-book formats are used. Ideally, multiple communication channels would be employed to suit multiple learning styles.

There are two types of communication activities used with distance learning. They are asynchronous, which consists of any activity that does not require the sender and receiver to be online at the same time and synchronous which consists of any activity that requires real-time interaction between sender and receiver.

**Figure 1**  
*Thematic Representation*



Asynchronous interaction trades the instant feedback of chat for potentially measured responses. Asynchronous activities offer little immediacy but are flexible to suit a variety of schedules. The most commonly used synchronous activity is chat. Chat is more relaxed and less inhibited than class discussion. The anonymity of chat reduces intimidation and stereotyping but requires excellent verbal skills with lots of clarification among participants – words must be taken at FACE value. Both chat and bulletin board functions require precise written communications. Some online courses require students to maintain online journals to describe their activities and impressions during the semester.

### *Interactivity*

Online students perform better when they are provided with a high degree of interactivity that is geared to using the full range of web resources.

To foster interaction, the instructor and students need to be made human by using tools such as bios, photos, and personal web pages to humanize the connection. The students must also have the technical ability and frequent opportunities to interact with

other students and the instructor. The emphasis should be on one-on-one and small group interactions. Synchronous activities must be scheduled and given proper weighting in the grade scale.

As with any course, students need feedback on their performance in relation to course objectives. Instructors should provide prompt feedback to reduce student frustration and use multiple formative assessments that lead to a real-life final project. To promote interactivity, the students must be supported by easily accessible technical assistance and FAQs online.

### *Course Criteria*

The hallmark of effective online courses is clarity of course goals, competencies and assessments. When those are in place, the next stage of the process is the development of minimum student entry competencies.

Before any content is developed, it is also advisable to develop a comprehensive set of course standards. They should cover the criteria for great content, easy navigation, excellent communication and comprehensive resources. Course development is a process, so it must contain criteria for ongoing review and refinement of existing course sites.

In general, teaching methods and learning materials must be tailored to distance learning. Specifically, online courses should be more flexible and less linear to provide enhanced user control. The courses should be student centered and driven by education and not by the technology. More specifically, the courses need more depth of information and variety of activities. The activities should be creative, such as using chat for online debates or guest chatters/speakers or for panel discussions. The course, while being flexible, must also conform to a timeline, provide deadlines for assignments, and provide a reading guide for the text.

To ensure consistent delivery based on common competencies the instructors should work more as a team. Further, the methods and responsibilities for course maintenance needs to be specified.

### *Instructor*

To be effective in an online environment, teachers must be technically competent and innovative. Both instructors and students need entry-level computer and WebCT skills. A frequent suggestion was to have potential online instructors take a WebCT class online. Teacher and students need mentors to support their activities. Instructors should foster peer support among students and between instructors via email, chat and bulletin board resources. There should always be a Plan "B" for the inevitable technical failures. Instructors need appropriate support, release time, and compensation along with instructional and technical training. Instructors also have concerns over who owns online materials and about legal issues such as copyright.



## *WebCT*

WebCT is valuable because of the access, availability and flexibility of the online format. WebCT is challenging but becomes easier with frequent use and offers a dynamic environment that can be quickly and easily updated. A recurrent theme was that online learning is not for everyone and that educators need to have clarity about which populations they can best serve. Key among the concerns about students was a requirement for self-motivation and demonstrated time management skills. Also, typing ability and reading skills can impact on the effectiveness of online courses.

### **Focus Groups**

#### *Purpose*

Since learning is lifelong and cyclical, teaching must respond flexibly to the needs of traditional and non-traditional students.

Another key factor is that online doesn't have to mean through the wire. CBT on CD may be used for tutorials, program distribution, and high bandwidth, non-interactive materials. A variety of teaching modalities ranging from real-time, two-way audio and video down to the simplest of text based connections can be effective for a wide variety of situations ranging from students in an interactive video room to individual military members deployed overseas.

#### *Reducing Technical Problems*

Suggestions for enhancing student technical skills started with the creation of a one-hour pre-requisite course on basic computer skill and another on WebCT navigation. The support would continue into the course by letting the capable students mentor those in need of additional help. Further student assistance would come from other students through chat, pen-pal, and bulletin board options. The instructor could also create a support tree with email links that listed students and their specific areas of expertise.

#### *Course Delivery*

Whether on campus or online, it's the instructor that makes the course.

Classes best suited for online are those that require hands-on activities. Courses should offer quality materials, precision teaching, and application of learning.

Course standards should define and require quality participation in synchronous and asynchronous activities. Instructors should let students know about activity monitoring available in WebCT and then they should use it to identify potential problems. In most courses it is most effective to perform synchronous activities and follow-up with asynchronous discussion and

Flexible delivery doesn't mean open-ended – create deadlines similar to classroom courses. Include virtual attendance and assignment completion in the grading criteria. Ensure that students allot at least the same amount of time each week as they would with classroom courses.

To simplify navigation, standardize page layout and navigation links. Enhance the students' experience by using more multimedia. You also need as much supporting materials as you can get. Require students to verify resource links and to locate new links.

#### *Student Interactivity*

Online students must get to know each other before they will ask for help or collaborate with one another. Immediacy can be enhanced by humanizing courses using email, chat, bulletin board, photos, bios, and video. Use multiple group projects and assign students to varying roles in the projects. Use multiple chat room for discussion to avoid confusion and then join together in one room and share the results. Have students evaluate each other's performance against a rubric based on course competencies

##### Success Factors

Basic computer skills

Motivated and a preference for online courses

Send/receive email and attachments

Independent

Working full time (relates to commitment to success and purposefulness)

Comfortable with computers

Clean, precise navigation

Well-defined objectives include basis for achievement (assessment rubric)

Persistence

Technically competent – highly motivated

Work independently

Internet skills (search and retrieve – analyze and synthesize)

Ability to work with little guidance or direction.

### **Conclusions and Recommendations**

#### *Conclusions*

The three most important issues related to procedures are evaluating student entry level, providing the instructors with requisite technical and web-education skills, and a detailed plan for first storyboarding and then creating online courses.

Guidelines and standards for the physical elements of the courses are essential. They help our students make the transition from course to course within the university with a minimum of confusion and frustration.

Standardized practices for transitioning a course from the classroom to an online environment should be established. They could deal with release time, faculty training, and the steps required to select courses for online delivery. Additionally, goals for setting mileposts for the development process could be created.

Usability can be described as the ease with which a typical student can navigate through the course pages or to find a specific page, or to accomplish a task. Dissimilar layouts including color, workflow, icons or any number of small items can make navigation turn in to frustration for the students.

The key to motivation is providing a clear and challenging goal and then to provide formative assessment to let the students know they are on track and doing well. Motivation is also connected with interactivity. Every opportunity to provide one-on-one or small group interactions should be taken. Also, students prefer to have options on which path they will take to reach the goal. Therefore, a variety of learning opportunities should be provided to stimulate multiple learning styles.

Practitioners should thoroughly evaluate courses they plan to deliver online and clarify the competencies and assessment methods. They should thoroughly storyboard how they class materials will be delivered, what activities would promote better learning, and what assessment methods would be most effective given an online environment.

They should also ensure that all persons involved have adequate technology skills and that they can easily demonstrate the behaviors that they want the students to emulate. Additionally, adequate hardware systems, maintenance, and support systems must be in place prior to the start of any class.

Alternate delivery methods, including books and CDs should carry the routine data and programs required by the student. Only interactive and value-added activities should occur in real time and through the Internet delivery method.

### Recommendations

There was so much data from the interviews and focus groups that additional studies should be done based on any one of the three majors areas, which include students, teachers, and developers. Any one of the themes could be further evaluated from any one of the three perspectives. Similar participants could be used, but they should be asked to look at the issue from only one perspective and then to focus in on the details.

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# Strategies for Teaching Internet Ethics

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## Abstract

This article discusses new ethical challenges for schools related to use of the Internet, including appropriate use, privacy/security, freedom of expression, and copyright/intellectual property rights. Ten strategies for teaching online ethics are presented. Curricular materials and other related resources for teaching online ethics in business classes are suggested, including examples of school district/university policies, Internet resources, and sample lesson plans for teaching Internet ethics at various levels.

## New Ethical Challenges for Schools

Student access to the Internet is a relatively new phenomenon that has created a plethora of challenges for schools. Instant access to immense amounts of information available on the Internet has been a mixed blessing for both teachers and students, as a number of ethical issues surrounding the use of this information have become a concern to schools.

Ethics are rules of society that determine what behaviors are right and wrong. As ethics reflect the society that they regulate, they are not fixed but continuously change over time (Emmans, 2000). In the past ten or fifteen years, technological innovations have created new ethical challenges for schools such as "spoofing," or pretending to be someone else in an e-mail message or chat room; "spamming," or flooding e-mail accounts with junk mail; legal as well as ethical issues such as "hacking," or breaking into confidential files; illegally downloading software; and exposing children to obscene materials. Other ethical concerns related to technology are new versions of old problems; for example, plagiarism of term papers. Electronic information in schools is particularly vulnerable to various potential legal and ethical challenges such as unauthorized access, violation of copyright laws and intellectual property rights, plagiarism, and inappropriate use versus freedom of expression.

Teachers and administrators should not assume that students are cognizant of issues related to appropriate and inappropriate uses of information that is available on the Internet. Students tend to perceive that all information on the Internet is free, appropriate, and available for any type of use unless they are taught otherwise. In addition, the anonymity of the Internet tends to foster behavior that students would not otherwise engage in due to the fear of being caught. Although many colleges and secondary schools have written policies governing plagiarism and copyright violations, students may fail to extrapolate those policies to use of the Internet. Furthermore, research on Generation X and the Millennial Generation indicates that these students place little value on authority and tend to ignore rules unless they see a direct implication to their own life (Bodi, 1998).

## Suggested Solutions

The following ten strategies are suggested for teaching Internet ethics: establish an acceptable use policy; communicate ethical codes; model ethical behaviors and articulate values; encourage classroom discussion of ethical issues; reinforce ethical conduct and enforce codes of conduct; monitor students' behavior; secure computer systems and software; discourage Internet surfing; monitor e-mail systems and websites; and reinforce all school policies for technology.

1. *Establish an acceptable use policy.* The school administration, the library, the business education department, and other departments with computer labs should cooperate to develop a comprehensive acceptable use policy for the Internet and other computer resources. The acceptable use policy should clearly define the standards for acceptable use, as well as outline the consequences for specific types of violations (Crystal, Geide, and Salpeter, 2000). The acceptable use policy of Mankato, Minnesota Public Schools is an excellent example; this policy is posted on the Internet at [www.isd77.k12.mn.us/guidelines.h](http://www.isd77.k12.mn.us/guidelines.h). The Arizona State University acceptable use policy is a good example of an acceptable use policy for a university; this policy is posted on the Internet at [www.asu.edu/aad/manuals/acd/acd125.html](http://www.asu.edu/aad/manuals/acd/acd125.html). The Ten Commandments of Computer Ethics developed by the Computer Ethics Institute at [www.cpsr.org/program/ethics/cei.html](http://www.cpsr.org/program/ethics/cei.html) is an example of a policy that could be used for a school computer lab.
2. *Communicate ethical codes.* The school policy should be publicized by using multiple media, including disseminating print copies to all stakeholders, posting it on the school website, and printing it in the school newspaper. In addition, the policy should be posted in a prominent place wherever computers are located, including classrooms, computer labs, and the library. Students (and secondary school students' parents) should be required to sign an agreement to comply with the school policy on electronic ethics before students are permitted to use school computers. The agree-

ment should clearly articulate the school policy. As an additional reminder, an announcement or summary of the policy can be posted on school computer networks as an opening screen.

3. *Model ethical behaviors and articulate values.* All teachers should model appropriate behaviors, including avoiding using copyrighted material (for example, Disney cartoons) inappropriately in classroom handouts or as artwork in computer projects. Teachers should frequently discuss ethical issues such as plagiarism in class throughout the semester; for example, when research projects, term papers, or desktop publishing projects are assigned (Johnson, 1998).
4. *Encourage classroom discussion of ethical issues.* Teachers should engage students in lively classroom discussion of various ethical issues. Use actual or simulated cases and analogies to convey similarities between cyberethics and traditional ethical values. If students are taught to understand the purpose of a policy or code of behavior and how the policy or code can be applied to themselves, they are more likely to comply with it. One of the most effective strategies for convincing students to “buy into” a policy is to examine the reasoning behind the rules and allow the students to reach the desired conclusion themselves

A set of activities designed to foster students' acceptance of cyberethics issues was developed by the North Carolina Department of Education. The North Carolina Computer Skills Curriculum contains a number of excellent lesson plans on ethical issues for grades 1 through 8; the lesson plans for grades 7 and 8 are also age appropriate for high school students. These materials, which are reproduced in ERIC Document No. 405803 (1995), contain a list of materials needed, lesson time, teacher preparation activities, worksheets and other instructional materials, and instructional measures. The materials also contain several lesson plans on computer ethics that were developed by the Software Publishers Association. Other case studies on technology ethics for use in grades 4-12 were developed by J. M. Brown at the University of Michigan (1997).

5. *Reinforce ethical conduct and enforce codes of conduct.* Many business textbooks and keyboarding software include chapters and modules on computer ethics. Students can be given assignments that focus on these materials. Ethical conduct can be reinforced by Internet assignments related to ethical issues; for example, assign an Internet scavenger hunt for information on cyberethics. The teacher can show appropriate videos that reinforce ethical issues; for example, *A Shared Set of Values: Copyright and Intellectual Property in the Academic Community* published by the Association of American Publishers and the Software Publishers Association (1997). In addition to reinforcing ethical conduct, the teacher as well as the administration should severely penalize students who willingly violate the school rules for ethical use of the Internet.

6. *Monitor students' behavior.* Students' use of computers should be closely monitored, both visually and electronically. For example, the furniture in computer labs should be arranged in a configuration such as a U-shape that allows the teacher to see students' computer screens. Elementary and secondary schools should install state-of-the-art Internet filtering programs that screen out sexually explicit and other inappropriate materials. Filtering programs are not recommended for use in college and university libraries and labs, however, as these programs deny access to legitimate sites such as medical journals and other health information.
7. *Secure computer systems and software.* Schools should install security measures such as the use of passwords and restricted access to servers and school records. To ensure confidentiality, faculty as well as students should not be able access school records such as grades, financial information, or personnel files. Students should be prevented from illegally copying school software by the use of network protection software and special software restricting access to the information stored on computer hard drives.
8. *Discourage Internet surfing.* Students at the elementary and secondary level should not be allowed to engage in Internet surfing without close supervision, as filtering software is not foolproof. Even the best “firewall” or filtering programs permit access to many objectionable sites, including pornography. Computer assignments in labs with Internet access should be highly structured and closely monitored to ensure that students stay on task. All Internet assignments should be carefully structured to leave no extra time for students to deviate from the task.
9. *Monitor e-mail systems and websites.* Schools should monitor e-mail messages and student websites to prevent inappropriate use. Inappropriate e-mail messages may include obscenities, threats, libelous statements, spamming, and spoofing. Just as administrators have the right to search students' lockers for drugs and other items that violate school policies, they also have the right to search the e-mail system for messages that violate school policies. Many schools allow students to post items on websites; student and class websites should always be carefully monitored by the system administrator to prevent the posting of inappropriate information (Jacobson & Smith, 1998).
10. *Reinforce all school policies for technology.* Students and faculty alike should be made aware that violating any school policy becomes an ethical issue, even though an act in itself may not be unethical. For example, many schools have policies against using their computer systems, websites, or e-mail for certain purposes such as conducting a business, selling items, promoting political causes or candidates, or lobbying. A violation of any school policy, however, is grounds for disciplinary action. Therefore, faculty as well as students should be reminded of these policies by sending

“Did you know” e-mail messages and making announcements in faculty meetings from time to time.

### Conclusion

Technology has created a number of ethical dilemmas that schools must face. A proactive rather than a reactive stance is by far the best solution to these challenges. Teachers and administrators should work together to develop and articulate clear acceptable use policies for ethical use of technology. These policies should be systematically implemented and clearly communicated to all stakeholders.

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# Using a Course Management Program to Foster the Teaching/Learning Process in Business Communication Courses

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## Abstract

The paper offers insight as to how the course management program Blackboard can be used to foster the teaching/learning process in business communication courses. Specifically, we discuss how the various components of Blackboard are used to enhance student learning in our business communication courses. Blackboard components include announcements, course information, staff information, course documents, assignments, communication, external links, and student tools sections and their associated contents.

## Introduction

University faculties have always sought to improve the teaching/learning process. One way university faculty members can improve it for themselves and their students is through the use of a course management program such as Blackboard or Web CT. Specifically, in this innovative instructional strategy presentation we will discuss how we use the course management program Blackboard to foster the teaching/learning process in our business communication courses.

## Course Management Program Components

Numerous tools are available to users of Blackboard in supporting the teaching/learning process in business communication courses. Specifically, these tools include announcements, course information, staff information, course documents, assignments, communication, external links, and student tools sections and their associated contents. Each of these tools is discussed in terms of improving the teaching/learning process in our business communication courses.

### *Announcements*

This section is an effective way of providing students with updates on course information. We post various course announcements under this section. For example, we may want to post reminder announcements such as upcoming due dates on course projects or exams. A useful feature of the announcement section is that both students and instructors have a running tally of announcements posted over the semester.

### *Course information*

Much information can be provided to students via the course information link. Typically, we post course syllabi and policies here. In addition to standard information such as syllabi and policies information, the course information section is useful for providing access to both Web Gradebook and InQsit. Web Gradebook is our online grade recording system and InQsit is our web-based testing process. By using Web Gradebook, our students can monitor their progress throughout the semester and, with InQsit, they can register for an online test directly from our course Blackboard sites.

### *Staff information*

This section is useful for providing students with information about the instructor. For example, instructor e-mail and postal mail addresses, biographical sketch, and picture can be easily posted on this section of Blackboard.

### *Course documents*

We have found the course documents section to be very useful in our business communication courses. Specifically, we post sample projects and correspondence here for student review. Also, scoring guides, meeting logs, peer evaluation forms, and other course materials are posted under this section of Blackboard. We have found this approach beneficial to students as they have ready access to course information as needed.

### *Assignments*

Under the assignment section, we post our various business communication course assignments, offers several advantages. One, students who are absent from class or lose their copy of the assignment simply go to the course Blackboard site and print another copy. For example, students who may be absent from class for a university-sponsored fieldtrip or athletic event can access assignments and seek our guidance as needed. Two, some students benefit from looking ahead at assignments posted on Blackboard. Third, from a time-management perspective, our students and we benefit because less time is spent on distributing and/or obtaining assignments.

### *Communication*

The communication section offers a host of items useful when teaching business communication courses. Specifically, the e-mail option provides students with access to their classmates' e-mail addresses. This feature is especially useful when students are working in teams preparing company reports. In addition to the e-mail feature, students can also view the class roster with classmate contact information and participate in discussion board and virtual chat assignments accessed via the communication section of Blackboard.

### *External links*

Many topics in our business communication courses lend themselves to using Internet resources. For example, many useful resources related to cross-cultural issues, e-mail privacy, employment, Internet security, teamwork, trends in technology, and

workplace communication are readily available on the Internet. Blackboard offers a system of linking to these many resources. Specific to our Blackboard external links, we have created folders containing links to various university, employment information, financial information, government, and Internet search tool links. In addition to our students having direct access to Internet resources, it is much easier to direct them to web sites needed to complete course assignments that are linked directly to our Blackboard sites.

### *Student tools*

Under the student tools section, we have used several features to support the teaching/learning process. Specifically, students are encouraged to submit assignments using the digital drop box. Assignments submitted here are accessed, graded, and returned to students electronically. We also use this drop box feature when illustrating how businesspersons can use technology to collaborate on projects from different locations around the world. In addition, students use this section to update their information, complete a personalized calendar, and have access to the student Blackboard manual.

### **Summary**

As university faculty, we continually seek ways to improve the teaching/learning process. One way we have found to do this is by adopting and integrating one of the many course management programs such as Blackboard into our courses. In this innovative instructional practice presentation, we will illustrate how we have used Blackboard in our business communication courses to support the teaching/learning process.



**PART III**  
**RESEARCH AND TECHNOLOGY TRAINING**



# Conducting Longitudinal Research: An Action Research Guide to the Process

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## Abstract

Longitudinal research can often provide more depth than one-shot survey, experimental, or case study research. Longitudinal research allows for repetition, reflection, and confirmation of results, as the passage of time provides an accurate lens through which findings may be reviewed and the evolution of existing situations can be measured. This presentation will illustrate the process involved in conducting longitudinal research and provides a road map, which may be useful in conducting your own research.

## Introduction

For the most part, business education research tends to be of two types: quasi-experimental with control and experimental treatment groups and survey and correlation research. Both of these research paradigms offer a valuable snapshot of what is going on—either as potential for future changes or what is currently happening at the time of the research. This strength, however, only captures a slice of time and does not address the larger concerns of such research findings, which by themselves may be an aberration of the period in which the study was conducted. One remedy to this problem can be addressed by longitudinal research, which studies similar issues over time. Think of longitudinal research as covering trends (Gallup poll), panel (same people over time), or cohort (sub population, different people). This paper focuses on the cohort group.

### Why Consider Longitudinal Research in the First Place?

With the exception of the NABTE biannual surveys that assess the status of our field since the early 1980s, little such research in Business Education is conducted. When the results of research are used to modify or improve practice of any type, it is incumbent upon the implementation team to make sure that the results of this research are stable and not transitory in nature. Much rests on the quality of the data interpretation by the researcher, and earlier, of course, on the validity and the reliability of the data collection instrument(s). Moving even further back in time, the quality (and quantity) of the sample selected and the population from which it was derived is critical. So much relies on the quality of 'one-shot' research that making wide generalizations to the larger population or problem focus is subject to major error in both analysis and in interpretation. Think in terms of longitudinal research as being more of a movie than a single picture.

Longitudinal research, of course, does not completely obviate these problems as each of them can exist—in the first and in

subsequent surveys or observations. However, such problems can be more easily addressed when they are observed over time than in a single survey distribution. For example, the aforementioned NABTE survey, now into its 14th iteration with the results published in the 2001 *NABTE Review*, uses essentially similar questions and format with, of course, appropriate updates and modifications as it has since 1981 (Perreault, 2001).

### How Does One Prepare for Such a Research Activity?

Since this report describes recent research conducted by the author, I'll focus on the background and processes involved for this project. Remember, survey research, whether one shot or longitudinal, involves many of the same procedures and includes many of the same cautions.

**Begin with your strengths.** Since my early interest in status studies emerged from my (very) early work on my doctorate—growth and development of a professional organization—which led to my work on the original NABTE questionnaire, I had enthusiasm and some experience in the area.

The first project in this latest series, begun in 1979, considered the future of business education from the perspectives of our then-current state presidents along with what they considered to be their states' views on current problems, issues, and trends. Questions as to what they were doing and what they thought they should be doing were posed. State membership numbers, publications and frequencies, and related questions were also asked. With the results of this survey, it was clear that an ongoing and periodic study could investigate similar issues from time to time and from the varying perspective of then then-current state presidents. In addition, since it was apparent from the results of the first study that NBEA regions differed with regard to their views in these areas, it was logical to assess these ongoing differences as well (Bronner, 2000).

**Build on your history.** It's important to review your original instrument (and your analyses of the collected data) carefully as you refine your next instrument. While the questions and format should remain as close to the original survey as possible in order to maintain consistency over time, 'tweaking' is permitted to allow for appropriate revisions where necessary. In addition, you should determine the frequency of distributions with consideration for how often the survey should be conducted. Too often, trends can be missed; and issues that do not come up frequently may change and disappear.

At this point you should continue to involve a jury in the process of evaluating your instrument. Since I decided to continue this effort over a long period, in order to provide a degree of long-term perspective, I selected a five-year period between survey distributions, each with a new jury team. As such, each jury consisted of a representative from the five NBEA regions who reviewed the draft instrument, made suggestions and recommendations for improvements, and confirmed the face and content validity. No jury member served more than one time. Consensus was achieved for each of the instruments used in this ongoing study and minor tweaking was performed where recommended and appropriate.

Maintaining consistency is crucial if you plan to compare 'apples with apples' over a long period of time. However, nothing remains static, especially in our field, so certain questions were revised or added to respond to changes in national policy and with respect to major reports and publications. Such was the case in my 1988, version splitting funding problems into two sub questions—state and federal sources; and the trend, adding increased graduation requirements in 1994. As can be seen from the 2001 report, questions receiving notable responses in 1998 were not posed in the earlier versions as they were not considered to be of importance at that time. It was very important to maintain as much consistency as possible throughout this entire survey period, although as previously stated, some tweaking was done.

**Produce the Instrument Carefully.** Since a robust response is a primary requirement for any survey, it is important to consider all of the mechanics that go into such a document. This includes making sure that your covering letter is clear and adheres to all tenants of informed consent as well as encouraging a prompt and considered response. Offering respondents a summary of the results is a professional action and usually enhances response rates. Just remember to do so!

The instrument too, of course, needs to be formatted to encourage an appropriate response—leaving sufficient space for answers, insuring that directions are brief yet clear, and keeping in mind that pleasing the eye translates into responses. Since these instruments were somewhat lengthy (about 60 questions), it was important to staple each page carefully to make sure that the he-page responses were easy to see and mark. Using

slightly-colored paper for each distribution—and a slightly-different color for each of the two follow-ups—insured that the instrument would be easily seen and less-easily misplaced. Of course, a stamped, self-addressed return envelope was included. In each distribution, a personally-stamped envelope was hand affixed to personalize the package.

NBEA was especially helpful in at least two of the distributions as they provided mailing labels for each of the state presidents. This enhanced the delivery process as very few packets were returned for incorrect addresses; however, since elections of state presidents occur at different times of the year, some questionnaires had to be directed to the newly-elected officer, which added somewhat to the time and response allocation.

**Consider the Costs.** In addition to the costs of developing, duplicating, compiling, and mailing the package, remember to include the costs associated with response envelopes and for subsequent follow up mailings. In the case of this project, more than 50 packets were distributed in the first mailing, and two follow up mailings were conducted at an estimated total cost of \$200 for postage alone. Duplication costs added approximately another \$100; with envelopes (large 9 x 12 for the outgoing phases and either #6 or #10 for responses), another \$100. Additional expenses that should be considered include faxes, long-distance telephone calls, and, if necessary, data entry costs and—where appropriate—statistical software.

**Plans for Treating the Data.** First of all, maintaining consistency of your questions across surveys is crucial if you intend to compare apples with apples. As you develop the instrument keep in mind how you will treat the data obtained. If you are using numbers or numeric-type data, what categories are appropriate; if you plan on Likert-type scales, what descriptors will be used; if you plan to use groupings, what grouping elements and size will be used; if you need 'yes/no' responses how will they be treated; if you have short-answer responses, what categories will they fall into; if you have rankings, what will be the 'separation points,' and so on. Will you have to transform data by hand or will you use a statistical program that will do this for you; likewise, what are your plans for missing data. As you can see, good prior planning will ensure a smooth treatment process.

Since you will probably insure confidentially, coding for follow-ups should be done. This coding can be very simple, such as the number of the respondent on your master list, preceded or followed by a letter reflecting the mailing sequence. For example, A48 would indicate the code for your initial mailing to number 48 on your master list; B48 would identify the first follow up to the same individual. Finally, make sure to consider how you will treat non-response bias, if any. Color-coding subsequent follow-up mailings can also be helpful in keeping track of late returns. This follow up process will allow you to determine if there are any significant differences in responses between your initial mailing and subsequent mailings. Follow up responses

will usually more be reflective of non-respondents, so if there is little difference between these and those of the original respondents, you can be more assured that there is not a problem with non-response bias. Of course, just the opposite is true should there be significant differences between these responses and more analyses will be needed. If a sample is used, in order to generalize to the larger population, a minimum of a 50% response should be your objective. While these cautions serve each survey conducted, it is important to keep them in mind as you proceed with each longitudinal distribution.

### Competencies Needed For This Type of Research

There are a number of important competencies needed to conduct successful research; however, for longitudinal research, these basic skills are compounded by the fact that one must be committed to the project over an extended period. This means, of course, complete records and files must be maintained, consistency in data treatment confirmed, and a long view taken as the project is begun and before the project is completed. And when speaking of this, one should have an 'ending date' in mind to bring the activity to a successful conclusion and lend closure to the research.

Related issues to be addressed include the changing population of the respondents—and their shifting positions due to the environment during the time of each survey; the human subjects consideration may be thorny as well. Do you have to obtain approval from your human subjects committee for each of the instrument distributions or can one blanket approval suffice? And not the least of these issues, is when do you begin the treatment and analysis process? The writing of each draft? These issues, all of which are elements of conducting basic research, are compounded (or confounded) by the nature of the longitudinal construct. Most of all, you must have the dedication to persevere in this lengthy activity.

### The Sequence and the Steps of Conducting the Survey(s)

What to do when and why are always of critical interest in conducting research, and this is even more important in longitudinal research where the time frames differ. According to the survey guru, Don Dilman (2000), timing of survey mailings is important in enhancing response rates. Do schedule mailings during periods where your respondents are available and not overwhelmed. Faculty, for example, may be less inclined to respond to a survey during peak academic periods at the beginning or end of a term—or over the summer months. Likewise, mailings over holiday periods or during the tax season for these busy professionals will often go unanswered or discarded. This means, of course, that in longitudinal research, selecting a time frame appropriate for your respondent, and maintaining the consistency of that time frame over the many planned distributions is important.

Procedures for the collection of the returns—the responses and deliverables—must be considered not only for the original

mailings but for the follow-ups as well. A secure return location and frequent pick-ups are necessary to maintain ongoing control over each survey mailing. In addition, if you are using a sample, coding responses for the follow up process and deciding early-on if a 'replacement' procedure will be followed if your first respondent declines to participate or is not available is important. These are all essential factors in this ongoing process and must be considered for each of your mailings.

### Treating and Analyzing the Results

While it was mentioned earlier, it's important to repeat it again, carefully consider the treatment and analysis of your data before you send out that first package. The adage 'act in haste, repent at leisure' is never more true than here. The following recommendations may be followed for traditional surveys but consistency is crucial when dealing with longitudinal studies.

If you have conducted a pilot study, and it is strongly to be desired, you will have an idea of a number of important elements: postage costs, time-to-delivery, non-deliverables, response rates, and, perhaps most importantly, an idea of what you can expect in the nature of the results. The pilot study results allows you to glimpse what you can expect in future responses. As such, you should consider a pilot an essential component of your study and one should be conducted every time you send out another survey. This will serve to confirm the reliability of each distribution.

You've now collected the first batch of your returns and it's time to begin the treatment phase. This should begin by confirming returns against your master list and logging in the responses by date and, possibly, by time. Once that's accomplished, the following activities ensue:

**Review Instruments.** Make sure that each instrument received is complete with all responses marked. You may want to use colored ink or small post-it notes to identify missing or incomplete data. While these types of data may be addressed through the 'missing data' segment of your statistical program, should you be using one, you may be able to interpret or infer responses based on other completed elements of the instrument. In some cases, however, you may have to either eliminate the question entirely from the response or to use only partial data if provided (e.g. asking for a ranking of five items when only three are either ranked or simply checked off). Once this decision is made on the first instrument reviewed, all subsequent instruments with similar problems should be treated in a like manner. Likewise, when asking for numeric data such as membership totals, you may want to use the numbers that are provided until you have a sense that categories, rather than exact numbers, are more appropriate. The suggestion to 'take your time' here is a good one.

**Enter Data.** Should your instrument only have a limited number of numeric data points, using a statistical package

may not be crucial; however, for most survey research, I would recommend that the most recent version of SPSS (currently v.10 or v.11) be considered. You will find that the adage of 'pay me now or pay me later' is all-too true and the expense in time and energy of obtaining and learning how to use such a statistical program rises with the passage of time. When using such software, select your categories carefully and give them full titles whenever possible. Codes have a way of dropping out of sight and memory as time goes on, whether or not you use this type of software.

If you employ someone else to enter your data, remember that they will probably not be the same person to enter data during your next survey; thus, it is almost always better to enter these data yourself, despite the time involved. You lose control in the former case and gain ownership in the latter instance.

**Record Qualitative Information.** In most cases, you'll have a section for comments or reactions, which must be recorded in some fashion. It is probably a good idea to hold off on recording this information until you have read through a number of your responses in order to get a feel for the nature of these comments. They may change character with your follow-up responses and you will want to make sure that your categories are both inclusive and accurate.

It is a good idea to formulate and use some key words to highlight qualitative responses. You can use these key terms to categorize lengthy responses in order to return to them at a later time as you prepare your report. Some respondents may provide only a few words, some of which may be important; others of which may be critical. Lengthy responses, of course, may need summarization and/or interpretation in order to provide clarity and depth to the numeric data. Allowing space for such comments, of course, is a requirement earlier discussed. And these responses may well influence your future surveys by suggesting new questions or elements to them.

**Provide For Follow Up Responses.** Because you will not, in all probability, receive responses from all of your addressees, plan for at least two subsequent follow up mailings. These mailings should be planned about two to three weeks apart, following your original mailing in order to give sufficient time for your original returns to come in. If history is any guide, you should anticipate about 60% of all returns from the first mailing, another 30% from the first follow up, and a final 10% from the second follow up mailing. Remember to provide a new covering letter for each subsequent mailing and make sure that all of the instruments are provided, including a stamped, self-addressed return envelope. Color coding as well as using a traditional alpha/numeric coding process for each of your mailings will allow you to visually maintain control over each response.

**Statistical Treatment of the Results.** Treating the results of any survey follows a rather traditional pattern, based on

the nature of the research questions or hypotheses developed. These methods include, but are not limited to, descriptive statistics, t-tests, analyses of variance, correlation coefficients, and the like. These treatments are even more critical when you consider that subsequent surveys will be conducted and identical treatments will be involved for each survey.

In the case of the project described here, treatment included descriptive data such as response by state and region; numeric and ranking details of problems, issues, and trends; membership numbers and frequency of publications. Pearson r, Spearman, and ANOVA tests were also performed.

**Analyze the Results.** After you've treated your data, consider what it means. Remember that statistical significance does not always equate to meaningfulness. Consider the alpha level for the former—usually .05 (Kerlinger, 1986), and common sense for the latter. If you have developed hypotheses, significance is a relatively easy task. When dealing with qualitative data, then you must shift to interpretation of the comments in order to make sense of them. Changes in association membership over time, for example, may show statistical significance; however, they may not be meaningful in the larger sense. On the other hand, dramatic declines or other important changes may be both meaningful as well as statistically significant. Shifting trends, likewise, may be the result of outside influences such as changes in graduation requirements, or funding, over which we have little control. Only over a period of time can these trends be observed and analyzed; again, this is one of the advantages of conducting longitudinal research.

### Making Sense of the Findings

What does it mean? How can we interpret these results? What impact may they have on policy, on demands for our field, or for future curricular changes? This is the point at which a long-term view is possible only through the evaluation of earlier reports and how they have evolved. Here are a few suggestions:

**Rank the Findings.** There will be much to consider as your surveys evolve. Whether you decide to begin ranking the results with the second or third surveys or wait until the final survey is in hand, it's important to consider which of the many findings will be of sufficient importance to consider seriously.

**Follow up Individually.** Don't hesitate to contact your respondent(s) when you receive confusing (or interesting) information. It's a measure of your concern and interest and your respondent will appreciate your inquiry. It also adds a richness and depth to what may be rather 'cold' or impersonal data. And, it may clarify issues of confusion, which may exist at the time of the survey's completion.

**Maintain Contact With the Literature.** As you compile and analyze your data, continue to keep current with your related literature as this may offer insights not previously available during the original or subsequent distributions. What new developments have occurred that your findings may have anticipated or missed, and what new analyses may have been suggested that you might consider or readdress? These are but two obvious areas of review.

**Reflect On Your Findings.** We tend to see our particular tree very clearly but not so often the forest within which it grows, so take a step or two back and reflect on what it all means in the larger picture. What obvious changes have occurred over the passage of time? What unanticipated responses pop out during this review? To what degree did earlier comments mirror the present ones and to what degree did they vary significantly? Return to a 'global view' for your study and try to ascertain how things have changed or, perhaps more importantly, how things may have not changed over this period.

During this period, it's also appropriate to think about your next survey, in the event that this agenda will be continued. What changes need to be addressed in the next iteration; what new or modified sample needs to be involved; and how can you improve on the instrument, the distribution, and the treatment and analyses? By allowing time for this now, your next study will be that much improved.

### Final (or Next) Steps

We now come to the final, or next, steps in the process as there still is much to do before putting closure on your research. Attention should be directed to three of the following critical issues: replies to respondents, communication of the results, and recommendations.

**Reply to Respondents.** As noted before, you probably asked respondents if they'd like a copy of the results or a summary of the findings. Research ethics require you to carry through on this promise even though it may be one of the last things on your mind. Do it now! Since you'll probably be developing an article or research presentation based on your research, you'll need to develop an abstract of your work. This is the perfect time to include your respondents in this process. Prepare your abstract—usually from 125 – 350 words—and then mail it to each of your respondents along with a covering letter of thanks. They will appreciate hearing from you and learning how their contributions fit into the fabric of your results. Of course, you should do this

with each survey iteration, but you will have to couch your abstract in terms of 'ongoing research' or 'ongoing findings' since the complete work is still in process. Your respondents will thank you for your consideration and, in turn, will be even more eager to participate in future surveys addressed to them.

**Communicate Your Results.** Of course you will communicate the results of your research! This can be done in the form of one or more articles for publication; in the form of presentations at local, state, regional, national, or even international venues such as DPE, ISBE, NBEA/NABTE, or OSRA and/or in cross-professional events such as ACICS, AERA, PDK, and/or to your own faculty colleagues. Presentations, whether in writing or oral, can focus on the overall project and your findings, or on specific areas of audience interest such as method or data treatment. You have learned something—so make sure you communicate it.

In addition to the above, of course, it is also your responsibility to communicate your findings and recommendations to interested policy forums as appropriate. In the present study, NBEA officials, elected state and regional officers, as well as the *NABTE Review* were involved in this process. By communicating your findings and recommendations, your research makes a contribution to our professional field.

**Recommend Policy Changes.** It is very appropriate to make recommendations for policy revisions to those agencies most affected by your findings. If your findings suggest that changes in procedures would enhance productivity or performance, let the appropriate agency know about them. Should you find flaws or gaps in legislation that can be addressed by your elected officials, let them know about it. If professional practices can be improved as a result of your findings, communicate this to the appropriate offices or departments. It is often said that all good research usually leads to more research, but this can only be done if you communicate your findings and recommendations where they will do the most good. It is your responsibility to take charge of your research and to let others know what you found and what it meant.

Longitudinal research provides us with a panorama of activities and events, each of which can be captured by a snapshot of a single research activity. It is the broad, timeline perspective of this panorama that allows us to view problems, issues, and trends over this broad landscape of time. It is not an easy task; but it is one of immense value to our profession.

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# Needed Research in Business Education

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## Abstract

This study provided the basis for the Sixth Edition of *Needed Research in Business Education* sponsored by the Delta Pi Epsilon Research Projects Committee. The purpose of the study was to identify and prioritize by importance high-quality research topics of significance to business education. Two groups of business educators generated more than 100 research topics using an Affinity Diagram technique. The topics were aggregated, categorized, and rank ordered by using a two-round Delphi study. Descriptive statistics were computed, and the research topics were ranked by importance within categories and overall.

## Introduction

This study, which was conducted in several stages over a two-year period, began as a continuation of the *Needed Research in Business Education* series published by Delta Pi Epsilon.

Five previous editions of *Needed Research in Business Education* have been published by Delta Pi Epsilon in the past forty years. The first edition was published as Delta Pi Epsilon Research Bulletin No. 1, *Questions To Be Answered Through Research in Business Education* (1961). Successive editions were published as *Needed Research in Business Education* in 1972, 1978-79, 1988, and 1995. These editions, which were developed as a project of the Delta Pi Epsilon Research Projects Committee, were intended to stimulate and foster quality research in business education.

The first five editions of *Needed Research in Business Education* contained a lengthy list of research questions generated by Delta Pi Epsilon members who were asked to brainstorm with their colleagues and fellow DPE members to generate ideas for research topics. In the first five editions, the suggested research topics were arranged into various categories of research questions and edited by members of the Research Projects Committee; however, the topics were not prioritized. The current study not only has continued the tradition of generating a list of timely research topics but also has added an additional research procedure to prioritize the suggested topics. This procedure was added in order to create a list of "most important" research topics.

## Objectives of the Study

The study was designed to provide data intended to stimulate and encourage high-quality research in business education. The objectives of the study were two-fold: (1) to create a list of high-quality research topics of significance to business education in

the next few years; and (2) to prioritize the research topics and create a list of "most important" research topics in business education.

## Procedures

Data collection involved the use of two procedures: (1) generating the needed research topics by the use of an Affinity Diagram technique with two groups of participants, and (2) prioritizing the research topics by the use of a two-round Delphi technique.

### *Affinity Diagram Technique*

Two groups of more than 40 Delta Pi Epsilon members generated ideas for research topics at a Delta Pi Epsilon session at the Western Business Education Association regional conference and at the national DPE conference. Each group of business educators participated in an Affinity Diagram session to generate a list of "most needed" ideas for quality research topics for the millennium.

Affinity Diagram is a Total Quality Management brainstorming technique created by Kawakita Jiro as one of seven Quality tools in the "KJ" Method, which was developed to clarify problems by collecting verbal data from unstructured or disorganized situations and analyzing the data by mutual affinity (Minuzo, 1988). The Affinity Diagram technique is the major tool in the KJ Method for generating ideas and grouping them into categories. The collection and arrangement of verbal ideas in this technique allows the researcher to clarify and define a problem. In this technique, participants are asked to brainstorm ideas aloud and simultaneously record each idea on a card or "Post-it" note. During the brainstorming stage, participants are not permitted to oppose or to criticize anyone's ideas. Others' ideas are used to trigger related ideas for possible adoption. After brainstorming,

the participants cluster the ideas/notes into logical categories based on their affinity, or intuitive relationships among pieces of information, and then label the categories. This technique is often used to generate a large amount of information and reduce it to homogeneous groupings, which then can be prioritized in order of significance (Logothetis, 1992).

The researchers then aggregated the data generated by the two groups of business educators by eliminating duplicate items, editing the topics, and collapsing the data into one list of research topics. The topics were grouped into the following eleven categories: workplace skills/industry, instruction/curriculum, teacher preparation, technology, keyboarding/word processing, business communication, marketing/accounting/basic business, international business, distance learning, research methods, and ethics.

### *Delphi Technique*

The structuring of the Delphi group communication process involves provisions for controlled feedback of individual contributions of information and expert knowledge, assessment of these contributions by the group, an opportunity for individuals to revise their views, and anonymity for the individual responses (Ziglio, 1996). The process is designed to afford the researchers the opportunity to draw systematically on a wide reservoir of knowledge and expertise instead of relying on ad hoc communications with selected individuals. The Delphi process affords the researcher the opportunity to glean a consensus of expert opinion and potential answers to research questions through a singular process. In many Delphi studies, statistical aggregation of the group response is also a common feature. This means that where consensus is required at the end of the process, it is taken to be the median response of the panel and the spread of the interquartile range as the degree of consensus (Rowe, Wright & Bolger, 1991).

The Delphi panel consisted of a representative group of business education professionals at various levels in business education. The attempt was made to secure a Delphi panel of education professionals who demonstrated understanding of and concern for the status of business education by serving in various leadership roles throughout the profession of business education. Members of the Delta Pi Epsilon Research Projects Committee submitted candidates' names to the researchers. The researchers also contacted other qualified candidates. A pool of more than 30 candidates was developed, and 15 members were selected based on their willingness to commit to the entire Delphi process. The final Delphi panel consisted of educators throughout the United States from universities, community colleges, high schools, and state and county departments of education.

The entire Delphi study was carried out through the use of e-mail. After the researchers developed the Delphi survey instrument containing the research topics and scales for panel members to rate and rank the topics, it was pre-tested with four business rs. Feedback from the pre-test was used to improve the

format and clarify the instructions. The initial round of the Delphi study had panel members rate each of the research topics generated through the affinity diagram technique utilizing a questionnaire that asked respondents to rate each research topic on a scale of 1 to 5, with 5 = very important, 4 = somewhat important, 3 = of neutral importance, 2 = somewhat unimportant, and 1 = very unimportant. After rating each topic, the panel members ranked their top 10 topics, with 1 as their top choice, 2 as their second choice, etc. A 100 percent rate of return was received for the first round of data collection from the Delphi committee. In the second round of the Delphi procedure, participants were provided with a summary of the results from the first round and were asked to re-evaluate their original responses based on the computed means of the ratings and rankings provided by the entire group from round one. A 100 percent rate of return was also received for the second round of data collection from the Delphi panel. The results of the two-round Delphi allowed the researchers to prioritize the research topics in order of their importance both overall and within each category.

### **Data Analysis**

The researchers organized the research topics into eleven categories of similar focus. These categories included Business Communication, Distance Learning, Ethics, Instruction/Curriculum, International Business, Keyboarding/Word Processing, Marketing/Accounting/Basic Business, Research Methods, Teacher Preparation, Technology, and Workplace Skills. Descriptive statistics were computed for all research topics in each category. The research topics in each category were sorted in descending order of importance utilizing, as the first criterion, the mean rating score for each topic. The second criterion chosen for sorting the topics was the standard deviation scores of the ratings for each topic. The third criterion chosen for sorting the topics was the ranking frequency for each topic. Ranking frequency was the total number of times a topic was ranked in the top ten by panel members.

Ranking frequency was chosen as the third criterion for two reasons. First, not all panel members ranked each topic. They were asked to rank only the top ten topics they believed to be most important overall. Asking panelists to rank order more than ten items given a list of more than 100 topics decreases validity because of confusion relating to the diffusion of rank order in value distinctions beyond ten items (Linstone & Turoff, 1975). Second, the standard deviation of the ratings in this application (small sample size) is a more stable estimate of the standard deviation of the population than the sample mean deviation (Ferguson & Takane, 1989).

Next, the research topics were sorted overall in descending order of importance. The first criterion chosen for the sorting procedure was the mean rating score for each research topic. The second criterion chosen for sorting the topics was the standard deviation scores of the ratings for each topic. The third criterion chosen for sorting the topics was the ranking frequency for



each topic. Ranking frequency was the total number of times a topic was ranked in the top ten by panel members.

**Findings**

This section presents the rankings of the research topics in order of importance after two rounds of analysis by the Delphi

panel. The first eleven tables depict the final rankings by category of topics. The last table presents the overall ranking of the top ten topics without regard to category.

The ranking of Business Communication research topics in order of importance is shown in Table 1.

**Table 1**  
*BUSINESS COMMUNICATION - by Average Rating, Standard Deviation, and Ranking Frequency*

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Communication skills for the millennium	4.5	0.6	11
2	Developing students' speaking and listening skills in all types of business instruction	4.0	0.8	2
3	E-mail impact on workforce productivity	4.0	0.7	1
4	Are good editing skills essential for today's office?	3.9	0.7	1
5	Proper manners/rules for e-mail	3.7	0.9	0
6	Need for speaking/listening skills	3.7	0.8	0
7	Online resumes compared to traditional: what recruiters look for	3.3	0.9	0
8	Correct letter format	3.3	0.8	0

The ranking of Distance Learning research topics in order of importance is shown in Table 2.

**Table 2**  
*DISTANCE LEARNING - by Average Rating, Standard Deviation, and Ranking Frequency*

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Are there differences in achievement with distance learning vs. classroom teaching?	4.1	0.8	10
2	Comparing online learning vs. other delivery systems—different age levels	4.0	0.8	1
3	Computer instruction: the effects of online vs. traditional learning	4.0	0.7	1
4	Prevalence and efficacy of online methods courses	3.9	0.7	0
5	Impact of distance learning on the business curriculum	3.9	0.6	1
6	Contribution of distance learning in business education	3.9	0.6	0
7	Advantages and disadvantages of distance learning	3.6	0.7	1
8	Prevalence of dishonesty in distance learning	3.6	0.6	1

The ranking of Ethics research topics in order of importance is shown in Table 3.

**Table 3**  
*ETHICS - by Average Rating, Standard Deviation, and Ranking Frequency*

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Ethics on the Internet	4.1	0.6	1
2	Ethics in the classroom, in business, and business education	4.1	0.5	1
3	Ethics in our research: Is it present and what ethical standards should be followed?	3.8	0.7	0
4	Business ethics—how has it changed?	3.7	0.7	0
5	How can ethics be taught?	3.7	0.5	0
6	What is the impact of technology in fostering cheating?	3.5	0.7	1

The ranking of Instruction/Curriculum research topics in order of importance is shown in Table 4.

**Table 4**  
**INSTRUCTION/CURRICULUM - by Average Rating, Standard Deviation, and Ranking Frequency**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Are we teaching problem-solving skills in software instruction?	4.1	0.8	1
2	Is School-to-Career making an impact on high school graduation rates?	4.1	0.7	3
3	Relevancy—Is the business education curriculum reflecting the business world?	4.1	0.7	2
4	Is the business education curriculum attuned to the business world of the 21st century?	4.1	0.6	8
5	To what extent do business education classes at the secondary level focus on developing critical thinking skills?	3.9	0.7	2
6	How does technology instruction with group-support systems compare to traditional instruction?	3.9	0.6	0
7	What are effective assignments?	3.8	0.9	2
8	How can business teachers adapt instruction for special-needs students?	3.8	0.7	1
9	Is the business education curriculum attuned to anticipated changes in the business world in the 21st century?	3.7	0.9	2
10	Teaching and learning methods in a changing environment	3.7	0.9	2
11	How is active learning vs. lecture related to achievement?	3.6	0.6	1
12	Student-centered vs. teacher-centered learning in business education	3.6	0.6	0
13	Role of interdisciplinary studies in high schools	3.5	0.6	0
14	Is collaborative learning effective across age levels?	3.5	0.6	0
15	What is the service/social consciousness of business students?	3.4	0.8	0
16	The status of concurrent community college credit for high school business education courses	3.4	0.7	1
17	Business education standards for diverse student groups	3.3	0.9	0
18	Effectiveness of encouragement and support vs. discipline	3.3	0.9	0
19	The status of vocational and academic integration	3.2	0.9	1
20	Comprehensive guidance programs—impact on business education	3.2	0.6	0
21	Implementation of cooperative learning in business education	3.1	0.5	0
22	Recordkeeping in the modern office	2.9	0.6	0

The ranking of International Business research topics in order of importance is shown in Table 5.

**Table 5**  
**INTERNATIONAL BUSINESS - by Average Rating, Standard Deviation, and Ranking Frequency**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Global competencies: What does business want?	4.0	0.8	1
2	Integrating international business into all business classes	3.9	0.9	0
3	How does the global economy affect our teaching and curriculum?	3.9	0.8	2
4	Integrating with Language Arts for international business education	3.6	0.6	0
5	Need for International Business—a part of the business administration program or a program by itself?	3.5	0.7	0
6	Global studies—a place in business education?	3.5	0.7	0

The ranking of Keyboarding/Word Processing research topics in order of importance is shown in Table 6.

**Table 6****KEYBOARDING/WORD PROCESSING - by Average Rating, Standard Deviation, and Ranking Frequency**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Is keyboarding instruction still necessary?	3.9	0.7	1
2	The impact of voice recognition on keyboarding	3.8	0.8	1
3	Value of keyboarding for K-3 children related to later experiences on computers	3.7	0.8	1
4	How do you keep keyboarding relevant for high school students who have previously taken keyboarding?	3.4	0.6	0
5	How can word processing production skills best be developed?	3.3	0.6	0
6	Keyboarding speed—do employees still need minimum wpm skill?	3.2	0.8	0

The ranking of Marketing/Accounting/Basic Business research topics in order of importance is shown in Table 7.

**Table 7****MARKETING/ACCOUNTING/BASIC BUSINESS - by Average Rating, Standard Deviation, and Ranking Frequency**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Measuring the basic business competencies of students	4.1	0.7	1
2	Integrating basic business competencies into computer applications instruction	4.1	0.7	0
3	Basic economic understanding—how do we achieve it?	3.9	0.7	0
4	What topics should be included in a high school marketing course?	3.6	0.6	1
5	Identifying new personal finance skills needed by students	3.6	0.6	1
6	What is outcome of using Quickbook (Peachtree) vs. traditional accounting instruction?	3.3	0.8	0

The ranking of Research Methods research topics in order of importance is shown in Table 8.

**Table 8****RESEARCH METHODS - by Average Rating, Standard Deviation, and Ranking Frequency**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	The development of instruments for measuring business competencies	4.1	0.7	5
2	Sampling methods used in business education	3.9	0.8	0
3	Survey methodology with technology	3.9	0.7	0
4	Reliability and validity in research in business education	3.8	0.9	2
5	Quality and reliability of Internet research documents	3.8	0.8	0
6	The quality of research in business education	3.7	0.8	1

The ranking of Teacher Preparation research topics in order of importance is shown in Table 9.

**Table 9****TEACHER PREPARATION - by Average Rating, Standard Deviation, and Ranking Frequency<sup>1</sup>**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Teaching and learning methodology for business educators in a rapidly changing environment	4.1	0.5	0
2	Have competencies for effective teachers changed due to changes in the business world?	4.0	0.9	2
3	Preparing business computer teachers: Do they need traditional skills as well as computer skills?	4.0	0.8	0
4	Steps to build stronger business teacher education programs	4.0	0.5	1
5	Teacher training models—what should they include for education reform?	3.9	1.0	4
6	States with alternative methods of teacher certification—does it work?	3.9	0.7	4
7	Characteristics of most effective computer teachers	3.9	0.7	0
8	Certification and teacher shortage: Are the standards being lowered?	3.9	0.6	1
9	Professional skills needed by business education students	3.8	0.7	0
10	Shortage of business teachers—now and in the future	3.8	0.6	1
11	What is the perception of teaching as a career—how has it changed?	3.7	0.6	1
12	What do post-baccalaureate education teachers need?	3.6	0.7	1
13	Are teachers prepared to meet the needs of special-needs students?	3.6	0.5	0
14	How will the role of the business educator change, and how should it?	3.5	1.1	0
15	Students at risk and business education	3.4	0.5	0
16	The status of teachers' salaries compared to salaries in business—has it changed?	3.3	0.7	1
17	Flexibility in training—willingness to change	3.3	0.5	0

<sup>1</sup>One topic was deleted from Table 9 due to redundancy with another topic.

The ranking of Technology research topics in order of importance is shown in Table 10.

**Table 10****TECHNOLOGY - by Average Rating, Standard Deviation, and Ranking Frequency**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	Skills vs. concepts—how should we be teaching computer courses?	4.2	0.7	7
2	What is the best way to measure and evaluate competencies in spreadsheets, presentation graphics, and databases?	4.2	0.7	5
3	How can we make students more effective consumers of information available on the Internet?	3.9	0.6	2
4	Preparing future workers to use voice technology—how will voice activation affect business teaching areas?	3.9	0.6	1
5	The impact of E-commerce on instruction: need and competencies	3.7	0.6	4
6	Identify Internet/Web skills in the high school curriculum	3.7	0.6	0
7	Should Internet and Web-designing skills be taught in the high school curriculum?	3.5	0.5	0
8	What ergonomical issues are associated with the usage of laptop and palmtop computers?	3.5	0.5	0
9	College students using Internet instruction—how much time is wasted online?	3.3	0.8	1
10	Measuring the waste of work time on Internet and e-mail	3.1	0.8	0
11	Historical research on the impact of technology over the last ten years	3.1	0.6	0
12	Adaptive equipment to be more inclusive in classroom and industry	2.7	0.7	0

The ranking of Workplace Skills research topics in order of importance is shown in Table 11.

**Table 11**  
**WORKPLACE SKILLS - by Average Rating, Standard Deviation, and Ranking Frequency**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	What basic workplace skills are demanded by industry?	4.7	0.5	9
2	How should we teach and measure soft skills?	4.4	0.7	7
3	What computer literacy components are desired by industry?	4.2	0.8	2
4	Preparing students for multi-skill expectations of employers	4.1	0.7	4
5	Employers' need for critical thinking skills	4.0	1.0	1
6	Certification in computer areas—the demand for hiring employees with various certifications	3.9	0.6	4
7	Effectiveness of group/team work vs. individual work as a skill required by employers	3.7	0.8	1
8	What are the critical factors for a successful student business internship/cooperative work experience?	3.7	0.8	0
9	What is the role of business education in welfare reform?	3.5	1.1	1
10	The importance of business education to business and government in the workforce	3.5	0.8	0
11	Employers' perceptions of the importance of technological skills vs. soft skills	3.5	0.5	6
12	Do employers value creative/innovative thinking as an employability skill?	3.4	1.1	2
13	Status of self-directed learning in the workforce	3.4	0.8	1
14	Future of horizontal line management—team dynamics	3.2	0.7	0

The top ten overall research topics ranked in order of importance are shown in Table 12.

**Table 12**  
**TOP TEN OVERALL - by Average Rating, Standard Deviation, and Ranking Frequency**

Final Rank	Topic Description	Average Rating	Std. Dev.	Ranking Frequency
1	What basic workplace skills are demanded by industry?	4.7	0.5	9
2	Communication skills for the millennium	4.5	0.6	11
3	How should we teach and measure soft skills?	4.4	0.7	7
4	What computer literacy components are desired by industry?	4.2	0.8	2
5	Skills vs. concepts—how should we be teaching computer courses?	4.2	0.7	7
6	What is the best way to measure and evaluate competencies in spreadsheets, presentation graphics, and databases?	4.2	0.7	5
7	Are there differences in achievement with distance learning vs. classroom teaching?	4.1	0.8	10
8	Are we teaching problem-solving skills in software instruction?	4.1	0.8	1
9	The development of instruments for measuring business competencies	4.1	0.7	5
10	Preparing students for multi-skill expectations of employers	4.1	0.7	4

## Conclusion

The overall ranking demonstrates a keen interest in research focused on the skills that businesses want in their employees. The top-rated category of research topics was Workplace Skills. Of the top ten topics overall, the top four were related to workplace skills, including business communication, and five others were related to teaching and measuring workplace skills and competencies. Business educators appeared to be most interested in research in the area of "soft" skills, although research regarding technical skills was also of concern. Research in the area of methodologies for teaching and measuring these skills also was very important, especially distance learning.

Determining other trends toward specific groups or categorizations of research topics in these data will require further investigation. The data are presented here for the reader who seeks an overview of the relative importance of potential topics for business education research, as well as a more specific listing of these same topics by area of interest or specialization. Business educators are encouraged to actively pursue research on these "most needed" topics in the next few years to contribute to the body of knowledge in our rapidly changing field. Hopefully graduate students as well as senior researchers will take advantage of the results of this study to select timely and important topics for their dissertations, theses, and other business education research projects.

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# Selecting an Appropriate Sample Size for Conducting Survey Research

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## Abstract

This paper provides business education researchers a primer on sample size selection and non-response issues in survey research. Sample size determination formulas for both categorical and continuous data types are provided. Furthermore, the authors offer discussion on sample size in regard to other data analysis issues such as minimal sizes for factor analysis and multiple regression analysis. The paper concludes with discussion on how to handle non-response bias issues and provides a method to select a sample to follow-up.

Ary Jacobs, & Razavieh describe a survey as “a study of a sample to investigate the incidence of distribution of variables” (1996, p. 575). To make generalizations from a sample to a population, it is essential to have an adequate sample size to insure external validity. External validity is “the extent to which the findings of a particular study can be generalized” (Ary, Jacobs, Razavieh, 1996, p. 568). In business education research, Wunsch (1986) stated that “two of the most consistent flaws included (1) disregard for sampling error when determining sample size, and (2) disregard for response and nonresponse bias” (p. 31). However, if used correctly a quantitative survey design that uses appropriate sample size and deals with nonresponse bias can be valuable. Holton and Burnett (1997) stated that “One of the real advantages of quantitative methods is their ability to use smaller groups of people to make inferences about larger groups that would be prohibitively expensive to study” (p. 71). The practical question then for the business education researcher is, how large of a sample is required to infer research findings back to a population?

There are many technical resources available that provide methods that allow studies to take full advantage of statistical measurements, which in turn give researchers the upper hand in determining the correct sample size. Sample size is one of the four inter-related features of a study design that can influence the detection of significant differences, relationships or interactions (Peers, 1996). Generally, these survey designs try to minimize both alpha error—(finding a difference that does not actually exist in the population) and beta error (failing to find a difference that actually exists in the population) (Peers, 1996). How-

ever, improvement is needed. Researchers are learning experimental statistics from highly competent statisticians and then doing their best to apply the formulas and approaches they learn to their research design. A simple survey of published manuscripts reveals numerous errors and questionable approaches to sample size selection, and serves as proof that improvement is needed. Many researchers could benefit from a real-life primer on the tools needed to properly conduct research, including, but not limited to, sample size selection.

This research training session will describe common procedures for determining sample size for simple random and systematic random samples. It will also discuss alternatives to these formulas for special situations. This session is not intended to be a totally inclusive treatment of other sample size issues and techniques. Rather, this will address sample size issues that have been selected as a result of observing problems in published manuscripts. As a part of this discussion, considerations for the appropriate use of Cochran’s (1977) sample size formula for both continuous and categorical data will be presented. Krejcie and Morgan’s (1970) formula for determining sample size for categorical will be briefly discussed because it provides identical sample sizes in all cases where the researcher adjusts the  $t$  value used based on population size, which is required when the population size is 120 or less. Likewise, researchers should use caution when using any of the widely circulated sample size tables based on Krejcie and Morgan’s (1970) formula. As they assume an alpha of .05 and a degree of accuracy of .05 (discussed later). Other formulas are available; however, these two formulas are used more than any others.

## Foundations for Sample Size Determination

It is important to have an understanding of foundational issues that are related to sample size before trying to comprehend a formula for sample size. When examining the foundational issues for sample size one must address the primary variables of measurement, error of estimation, alpha level, acceptable margin of error, and variance estimation. Each of these areas will be addressed in detail to provide the building blocks to understand determining sample size.

### *Primary Variables of Measurement*

The researcher must make decisions as to which variables will be incorporated into formula calculations. For example, if the researcher plans to use a seven-point scale to measure a continuous variable, e.g., job satisfaction, and also plans to determine if the respondents differ by certain categorical variables, e.g., gender, tenured, educational level, etc., which variable(s) should be used as the basis for sample size? This is important because the use of gender as the primary variable will result in a substantially larger sample size than if one used the seven-point scale as the primary variable of measure. Cochran (1977) addressed this issue by stating that "One method of determining sample size is to specify margins of error for the items that are regarded as most vital to the survey. An estimation of the sample size needed is first made separately for each of these important items" (p. 81). When these calculations are completed, researchers will have a range of  $n$ 's, usually ranging from smaller  $n$ 's for scaled, continuous variables, to larger  $n$ 's for dichotomous or categorical variables. The researcher should make sampling decisions based on these data. If the  $n$ 's for the variables of interest are relatively close, the researcher can simply use the largest  $n$  as the sample size and be confident that the sample size will provide the desired results. "More commonly, there is a sufficient variation among the  $n$ 's so that we are reluctant to choose the largest, either from budgetary considerations or because this will give an over-all standard of precision substantially higher than originally contemplated. In this event, the desired standard of precision may be relaxed for certain of the items, in order to permit the use of a smaller value of  $n$ " (Cochran, 1977, p. 81). The researcher may also decide to use this information in deciding whether to keep all of the variables identified in the study.

### *Error Estimation*

Cochran's (1977) formula uses two key factors: (1) risk the researcher is willing to accept in the study, commonly called the margin of error, or, the error the researcher is willing to accept, and (2) alpha level, the level of acceptable risk the researcher is willing to accept that the true margin of error exceeds the acceptable margin of error; i.e., the probability that differences revealed by statistical analyses really don't exist; also known as Type I error. Another type of error will not be addressed further here, namely, Type II error, also known as beta error. Type II

error occurs when statistical procedures result in a judgment of no significant differences when these differences do indeed exist.

### *Alpha Level*

The alpha level used in determining sample size in most educational research studies is either .05 or .01 (Ary, Jacobs, & Razavieh, 1996). In Cochran's formula, the alpha level is incorporated into the formula by utilizing the  $t$ -value for the alpha level selected (e.g.,  $t$ -value for alpha level of .05 is 1.96 for sample sizes above 120.) Researchers should ensure they use the correct  $t$ -value when their research involves smaller populations, e.g.,  $t$ -value for alpha of .05 and a population of 60 is 2.00. In general, an alpha level of .05 is acceptable for most research. An alpha level of .10 or lower may be used if the researcher is more interested in identifying marginal relationships, differences or other statistical phenomena as a precursor to further studies. An alpha level of .01 may be used in those cases where decisions based on the research are critical and errors may cause substantial financial or personal harm, e.g., major programmatic changes.

### *Acceptable Margin of Error*

The general rule relative to acceptable margins of error in educational and social research is as follows: For categorical data, 5% margin of error is acceptable, and, for continuous data, 3% margin of error is acceptable (Krejcie & Morgan, 1970). For example, a 3% margin of error would result in the researcher being confident that the true mean of a seven point scale is within  $\pm .21$  (.03 times seven points on the scale) of the mean calculated from the research sample. For a dichotomous variable, a 5% margin of error would result in the researcher being confident that the proportion of respondents who were male was within  $\pm 5\%$  of the proportion calculated from the research sample. Researchers may increase these values when a higher margin of error is acceptable or may decrease these values when a higher degree of precision is needed.

### *Variance Estimation*

A critical component of sample size formulas is the estimation of variance in the primary variables of interest in the study. The researcher does not have direct control over variance and must incorporate variance estimates into research design. Cochran (1977) listed four ways of estimating population variances for sample size determinations: (1) take the sample in two steps, and use the results of the first step to determine how many additional responses are needed to attain an appropriate sample size based on the variance observed in the first step data; (2) use pilot study results; (3) use data from previous studies of the same or a similar population; or (4) estimate or guess the structure of the population assisted by some logical mathematical results. The first three ways are logical and produce valid estimates of variance; therefore, they do not need to be discussed further. However, in many educational and social research studies, it is



not feasible to use any of the first three ways and the researcher must estimate variance using the fourth method. A researcher typically needs to estimate the variance of scaled and categorical variables. To estimate the variance of a scaled variable, one must determine the inclusive range of the scale, and then divide by the number of standard deviations that would include all possible values in the range, then square this number. For example, if a researcher used a seven point scale and given that six standard deviations (three to each side of the mean) would capture 98% of all responses, the calculations would be as follows:

$$\underline{s} = \frac{7 \text{ (number of points on the scale)}}{6 \text{ (number of standard deviations)}}$$

When estimating the variance of a dichotomous (proportional) variable such as gender, Krejcie and Morgan (1970) recommended that researchers should use .50 as an estimate of the population proportion. This proportion will result in the maximization of variance, which will also produce the maximum sample size. This proportion can be used to estimate variance in the population. For example, squaring .50 will result in a population variance estimate of .25 for a dichotomous variable.

### Basic Sample Size Determination

#### Continuous Data

Before proceeding with sample size calculations, assuming continuous data, the researcher should determine if a categorical variable will play a primary role in data analysis. If so, the categorical sample size formulas should be used. If this is not the case, the sample size formulas for continuous data described in this section are appropriate.

Assume that a researcher has set the alpha level a priori at .05, plans to use a seven point scale, has set the level of acceptable error at 3%, and has estimated the standard deviation of the scale as 1.167. Cochran's sample size formula for continuous data and an example of its use is presented here along with the explanations as to how these decisions were made.

$$\underline{n}_0 = \frac{(t)^2 * (s)^2}{(d)^2} = \frac{(1.96)^2(1.167)^2}{(7*.03)^2} = 118$$

Where  $t$  = value for selected alpha level of .025 in each tail = 1.96 (the alpha level of .05 indicates the level of risk the researcher is willing to take that true margin of error may exceed the acceptable margin of error.) Where  $s$  = estimate of standard deviation in the population = 1.167. (estimate of variance deviation for 7 point scale calculated by using 7 [inclusive range of scale] divided by 6 [number of standard deviations that include almost all (approximately 98%) of the possible values in the range]). Where  $d$  = acceptable margin of error for mean being estimated = .21. (number of points on primary scale \* accept-

able margin of error; points on primary scale = 7; acceptable margin of error = .03 [error researcher is willing to except]). Therefore, for a population of 1,679, the required sample size is 118. However, since this sample size exceeds 5% of the population (1,679\*.05=84), Cochran's (1977) correction formula should be used to calculate the final sample size. These calculations are as follows:

$$\underline{n}_1 = \frac{\underline{n}_0}{(1 + \underline{n}_0 / \text{Population})} = \frac{118}{(1 + 118/1679)} = 111 \quad (118)$$

Where population size = 1,679. Where  $\underline{n}_0$  = required return sample size according to Cochran's formula= 118. Where  $\underline{n}_1$  = required return sample size because sample > 5% of population. These procedures result in the minimum returned sample size. If a researcher has a captive audience, this sample size may be attained easily. However, since many educational and social research studies often use data collection methods such as surveys and other voluntary participation methods, the response rates are typically well below 100%. Salkind (1997) recommended oversampling when he stated that "If you are mailing out surveys or questionnaires, . . . count on increasing your sample size by 40%-50% to account for lost mail and uncooperative subjects" (p. 107). Fink (1995) stated that "Oversampling can add costs to the survey but is often necessary" (p. 36). Cochran (1977) stated that "A second consequence is, of course, that the variances of estimates are increased because the sample actually obtained is smaller than the target sample. This factor can be allowed for, at least approximately, in selecting the size of the sample" (p. 396). However, many researchers criticize the use of over-sampling to ensure that this minimum sample size is achieved and suggestions on how to secure the minimal sample size are scarce.

If the researcher decides to use oversampling, four methods may be used to determine the anticipated response rate: (1) take the sample in two steps, and use the results of the first step to estimate how many additional responses may be expected from the second step; (2) use pilot study results; (3) use responses rates from previous studies of the same or a similar population; or (4) estimate the response rate. The first three ways are logical and will produce valid estimates of response rates; therefore, they do not need to be discussed further. Estimating response rates is not an exact science. A researcher may be able to consult other researchers or review the research literature in similar fields to determine the response rates that have been achieved with similar and, if necessary, dissimilar populations. Therefore, in this example, it was anticipated that a response rate of 65% would be achieved based on prior research experience. Given a required minimum sample size (corrected) of 111, the following calculations were used to determine the drawn sample size required to produce the minimum sample size: Where anticipated return rate = 65%. Where  $\underline{n}_2$  = sample size adjusted for response rate. Where minimum sample size (corrected) = 111. Therefore,  $\underline{n}_2 = 111/.65 = 171$ .

## Categorical Data

The sample size formulas and procedures used for categorical data are very similar, but some variation do exist. Assume a researcher has set the alpha level a priori at .05, plans to use a proportional variable, has set the level of acceptable error at 5%, and has estimated the standard deviation of the scale as .5. Cochran's sample size formula for categorical data and an example of its use is presented here along with explanations as to how these decisions were made.

$$n_0 = \frac{(t)^2 * (p)(q)}{(d)^2} \quad n_0 = \frac{(1.96)^2(.5)(.5)}{(.05)^2} = 384$$

Where  $t$  = value for selected alpha level of .025 in each tail = 1.96. (the alpha level of .05 indicates the level of risk the researcher is willing to take that true margin of error may exceed the acceptable margin of error). Where  $(p)(q)$  = estimate of variance = .25. (maximum possible proportion (.5) \* 1- maximum possible proportion (.5) produces maximum possible sample size). Where  $d$  = acceptable margin of error for proportion being estimated = .05 (error researcher is willing to except).

Therefore, for a population of 1,679, the required sample size is 384. However, since this sample size exceeds 5% of the population ( $1,679 * .05 = 84$ ), Cochran's (1977) correction formula should be used to calculate the final sample size. These calculations are as follows:

$$n_1 = \frac{n_0}{(1 + n_0 / \text{Population})} \quad n_1 = \frac{(384)}{(1 + 384/1679)} = 313$$

Where population size = 1,679. Where  $n_0$  = required return sample size according to Cochran's formula = 384. Where  $n_1$  = required return sample size because sample > 5% of population. These procedures result in a returned sample size of 313.

### Sample Size Determination Table

Table 1 presents sample size values that will be appropriate for many common sampling problems. The table includes sample sizes for both continuous and categorical data assuming alpha levels of .10, .05, or .01. The margins of error used in the table were .03 for continuous data and .05 for categorical data. Researchers may use this table if the margin of error shown is appropriate for their study, however, the appropriate sample size must be calculated if these error rates are not appropriate.

### Other Sample Size Determination Considerations

#### Regression Analysis

There are situations where the procedures described in the previous paragraphs will not satisfy the needs of a study. Although situations exist, two examples will be addressed here. One

situation is when the researcher wishes to utilize multiple regression analysis in a study. To use multiple regression analysis, the ratio of observations to independent variables should not fall below five. If this minimum is not followed there is a risk for overfitting, "... making the results too specific to the sample, thus lacking generalizability" (Hair, Anderson, Tatham, & Black, 1995, p. 105). These researchers also indicated that a ratio of ten to one was optimal. Both Miller and Kuncce (1973) and Halinski and Feldt (1970) recommended this more conservative ratio of ten to one.

These ratios are critical, especially with regression analyses utilizing continuous data, because sample sizes for continuous data are typically much smaller than sample sizes for categorical data. Therefore, there is a possibility that the random sample will not be sufficient if multiple variables are used in the regression analysis. For example, in our continuous data illustration, we utilized a population of 1,679 and determined that a minimum returned sample size of 111 was required. The sample size for a population of 1,679 in our categorical data example was 313. Table 2 was developed based on the recommendations cited in the previous paragraph, using both the five to one and ten to one ratios.

As shown in the Table 2, if the researcher uses the optimal ratio of ten to one with continuous data, the number of regressors (independent variables) in the multiple regression model would be limited to 11. Larger numbers of regressors could be used with the other situations shown. It should be noted that if a variable such as ethnicity is incorporated into the categorical example, this variable must be dummy coded, which will result in multiple variables utilized in the model rather than a single variable (one variable for each ethnic group, e.g., White, Black, Hispanic, Asian, American Indian would each be coded as 1=yes and 2=no in the regression model, which would result in five variables rather than one in the regression model.).

In the continuous data example, if a researcher planned to utilize 14 variables in a multiple regression analysis and wished to use the optimal ratio of ten to one, the returned sample size must be increased from 111 to 140. Caution should be used when making this decision because raising the sample size above the level indicated by the sample size formula will increase the probability of Type I error.

#### Factor Analysis

If the researcher plans to use factor analysis in a study, the same ratio considerations discussed under multiple regression should be used, with one additional criteria, namely, that factor analysis should not be done with less than 100 observations. It should be noted that an increase in sample size will decrease the level at which an item loading on a factor is significant. For example, assuming an alpha level of .05, a factor would have to load at a level of .75 or higher to be significant in a sample size of 50, while a factor would only have to load at a level of .30 to be significant in a sample size of 350 (Hair et. al., 1995).

**Sampling non-respondents.** Donald (1967), Flanagan et al. (1964), Hagbert (1968), Johnson (1959), and Miller and Smith (1983) recommend that researchers take a random sample of 10-20% of non-respondents to use in non-respondent follow-up analyses. If non-respondents are treated as a potentially differ-

ent population, it does not appear that this recommendation is valid or adequate. Rather, researchers should consider using Cochran's formula to determine an adequate sample of non-respondents for the non-respondent follow-up response analyses.

**Table 1**  
*Table for Determining Minimum Returned Sample Size for a Given Population Size for Continuous and Categorical Data*

Population size	Sample size					
	Continuous data (margin of error=.03)			Categorical data (margin of error=.05)		
	alpha=.10 t=1.65	alpha=.05 t=1.96	alpha=.01 t=2.58	p=.50 t=1.65	p=.50 t=1.96	p=.50 t=2.58
100	46	55	68	74	80	87
200	59	75	102	116	132	154
300	65	85	123	143	169	207
400	69	92	137	162	196	250
500	72	96	147	176	218	286
600	73	100	155	187	235	316
700	75	102	161	196	249	341
800	76	104	166	203	260	363
900	76	105	170	209	270	382
1,000	77	106	173	213	278	399
1,500	79	110	183	230	306	461
2,000	83	112	189	239	323	499
4,000	83	119	198	254	351	570
6,000	83	119	209	259	362	598
8,000	83	119	209	262	367	613
10,000	83	119	209	264	370	623

**Note.** The margins of error used in the table were .03 for continuous data and .05 for categorical data. Researchers may use this table if the margin of error shown is appropriate for their study, however, the appropriate sample size must be calculated if these error rates are not appropriate. Table developed by (Bartlett, Kotlik, & Higgins).

**Table 2**  
*Maximum Number of Regressors Allowed for Sampling Example.*

Sample size for:	Maximum number of regressors if ratio is:	
	5 to 1	10 to 1
Continuous data: $\underline{n} = 111$	22	11
Categorical data: $\underline{n} = 313$	62	31

### *Budget, time and other constraints*

Often, researchers are faced with various constraints that may force them to use inadequate sample sizes because of practical versus statistical reasons. These constraints may include budget, time, personnel, and other resource limitations. In these cases, researchers should report both the appropriate sample sizes along with the sample sizes actually used in the study, the reasons for using inadequate sample sizes, and a discussion of the effect the inadequate sample sizes may have on the results of the study. Researchers should exercise caution when making programmatic recommendations based on research conducted with inadequate sample sizes.

### **Final Thoughts**

Although it is not unusual for business education researchers to have different opinions as to how sample size should be calculated, the procedures used in this process should always be reported and then the reader can make their own judgments as to whether they accept the researcher's assumptions and procedures. In general, researchers should use the standard factors identified in this paper in their sample size determination process.

Another issue is that many studies conducted with population census data could and probably should have used samples instead. Many of the studies based on population census data achieve low response rates and should of used an adequate sample along with high quality data collection efforts to result in more reliable, valid, and generalizable results, as well as cost and other resource savings.

The bottom line is simple: most research studies take substantial time and effort on the part of researchers. This paper was designed as a tool that business education researchers can use in planning and conducting quality research. When selecting an appropriate sample size for a study is relatively easy, why wouldn't a researcher want to do it right?

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# Using a Checklist to Prepare Manuscripts in the APA Style

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## Abstract

Many authors of manuscripts submitted to *The Delta Pi Epsilon Journal* for publication consideration are not familiar with American Psychological Association (APA) style and format. A checklist developed in accordance with the fifth edition of the *Publication Manual of the American Psychological Association* (APA, 2001b) for manuscript authors, reviewers, and editors includes the following elements: title page; abstract; heading form and usage; pagination; parenthetical citations; tables and figures; reference list content and format; spacing, font specifications, indentions, and margins; author note preparation; and serialiations. Other resources useful in preparing manuscripts in APA style and format are identified.

## Introduction

Mastery of the American Psychological Association (APA) style is critical when submitting manuscripts for publication consideration to business education-related journals. This mastery is even more urgent given the recent publication of the fifth edition of the *Publication Manual of the American Psychological Association* (APA, 2001b) and the introduction of new guidelines. Correctly applying the APA guidelines not only demonstrates professionalism, but also it assists reviewers and editors by streamlining the amount of time needed to revise manuscripts into the correct style and format. In addition, applying the APA guidelines correctly may assist authors in preventing the rejection of their manuscripts due to non-compliance with journal specifications.

In an analysis of 180 manuscripts submitted for publication in *Counselor Education and Supervision*, Smaby, Crews, and Downing (1999) found a significant correlation between the rejection of manuscripts for publication and the improper use of APA format. This research suggests that prudent authors will correctly implement APA style and format.

This article discusses the prevalence of APA style in business-education related publications, presents a checklist for preparing and submitting manuscripts in APA style, identifies resources of assistance in preparing manuscripts in accordance with APA guidelines, and provides implications for business education researchers.

## *Prevalence of APA Style in Business Education-Related Publications*

Most of the major business education-related publications require authors to use the APA style and format. Eleven of these major publications are listed in Table 1. Not only is APA style prevalent in business education, but also it is commonly used as the specified style by education journals. According to a recent study of 50 education journals (Henson, 2001), the APA style is the most widely used reference style.

**Table 1**

### *Business Education-Related Publications That Specify the APA Style*

*Business Communication Quarterly*  
*Business Education Forum*  
*Business Education Digest*  
*The Delta Pi Epsilon Journal*  
*Journal for Business Communication*  
*Journal of Business Training and Education*  
*Journal of Education for Business*  
*Journal for Global Business Education*  
*Information Technology, Learning, and Performance Journal*  
*Instructional Strategies*  
*NABTE Review*

## The Checklist

The checklist section is divided into two parts: (1) Elements of the Checklist and (2) Usefulness of the Checklist.

Consistency of the printed manuscript adds to the professional appearance of journals, magazines, or other publications. When authors prepare their documents to reflect the editorial style of a publication, they assist the editors in making the publication appearance consistent. They also reduce the amount of work editors must do in order to have all manuscripts consistent with the required editorial style.

### *Elements of the Checklist*

The elements of the checklist include the following: Title Page; Abstract; Heading Form and Usage; Pagination; Parenthetical Citations; Tables and Figures; Reference List Content and Format; Spacing, Font Specifications, Indentions, and Margins; Author Note Preparation; and Seriations.

*Title page.* The title page begins with a running head that is located flush left at the top of the title page. The running head is not to exceed 50 characters including punctuation and spacing. Following the running head is the title that is keyed in uppercase and lowercase letters and centered between the left and right margins in the upper half of the page. The suggested length of the title is 10 to 12 words. The byline and institution affiliation follows the title with the names of the authors keyed in order of their contributions to the manuscript. Authorship is reserved for individuals who make primary contributions to the published work including doing the actual writing or making substantial scientific contributions. "Substantial professional contributions may include formulating the problem or hypothesis, structuring the experimental design, organizing and conducting the statistical analysis, interpreting the results, or writing a major portion of the paper" (APA, 2001b, p. 350). Other contributors are not included in the byline but may be acknowledged in a note. The byline and institutional affiliation are also to be keyed in uppercase and lowercase letters and centered between the left and right margins. They begin a double space below the title. For manuscripts that have multiple authors with similar or different affiliations or a combination, refer to the fifth edition of the *Publication Manual of the American Psychological Association* (APA) (2001b), pages 296-298.

*Abstract.* The abstract is keyed on a page by itself. It is to be keyed as a single paragraph without paragraph indention and is double spaced. The length of the abstract is not to exceed 120 words.

*Heading form and usage.* Five levels of headings provide authors the ability to organize their paper according to importance of ideas. The order of headings should follow a top-down progression beginning with the most important and ending with the least important. The five headings are as follows: "(1) Centered Uppercase Heading; (2) Centered Uppercase and Lowercase Heading; (3) Centered, Italicized, Uppercase and Lowercase Heading; (4) Flush Left, Italicized, Uppercase and Lowercase Side Heading; and (5) Indented, italicized, lowercase paragraph heading ending with a period" (*Publication Manual of the American Psychological Association*, 2001b, p. 113). If subheadings

are used in the manuscript, a minimum of two subheadings is required per section; otherwise, a section should not be subdivided with subheadings. Not all levels of headings must be used within a manuscript. The sections of the manuscript that contain the same levels of importance should be introduced with the same level of headings. If authors choose to have one level of headings, they are to use the Level 1 heading. If the authors choose to have two levels of headings, they are to use Levels 1 and 3 headings. If the authors choose to use three headings, they are to use Levels 1, 3, and 4 headings. If the authors choose to use four or five headings, they are to use Levels 1 through 4 or 1 through 5, respectively.

*Pagination.* All pages of a manuscript should be numbered except artwork for figures. Authors should begin numbering with the title page as number 1 and number succeeding pages consecutively. The page number is to be keyed in the upper right-hand corner of each page between the top edge of the paper and the first line of text, typically 2 inches from the top of the page in arabic numerals. If the pages have been numbered initially and a page needs to be inserted, the pages are to be renumbered to reflect the added page. The page number follows the running head.

*Parenthetical citations.* Parenthetical citations are treated in a variety of ways. Brackets can be used to enclose parenthetical material that is already in parentheses. Dates within parenthetical material are set off with commas. Statistics are enclosed in parentheses. In mathematical material parenthetical material is enclosed in brackets, and parenthetical information within the brackets is enclosed in parentheses. Parenthetical information in reference citations usually includes dates, Eds. (editors), page numbers, and volume numbers. For specific guidelines authors need to refer to the *Publication Manual of the American Psychological Association* (2001b), pages 79, 85, 214, 229-230, and 253. Typically, parenthetical citations for direct quotes in the text include the author(s) last name(s), the year of publication, and the page number(s). For electronic citations, authors may include paragraph numbers, if given, in place of page numbers. Citations for paraphrases include the author(s) last name(s) and the year of publication.

*Tables and figures.* Tables and figures include information that complements the text and draws the reader's attention to particular points of interest. All tables and figures are to be numbered and to have titles. The title should be descriptive enough to identify the contents of the table or figure without being too verbose. Tables are double spaced. Horizontal rulings are used to divide the material within tables. The decimal point should be carried to the same decimal place within columns. Percentages are typically presented in whole numbers. If headings within tables or figures are longer than one word, the first word is the only one with initial caps. The remainder of the words are to be in lowercase. Three types of notes are used with tables and figures, general, specific, and probability, and are presented in that order. General notes begin with the word "Note" keyed at the left margin, is followed by a period, and is italicized. General

notes refer to the whole table or figure. Specific notes refer to a specific column, row, or individual entry. These notes are indicated by a superscript lowercase letter. A probability note indicates significance of statistical tests. A statistically significant entry is often indicated with an asterisk (\*). The probability note indicates the level of significance for the entry. Information within tables and figures should not be repeated within the text of the manuscript. The table or figure should be prepared so that the reader can understand the contents of the table without repetition of data in the text. Tables and figures should be introduced and then presented. Particular points of attention should be described in the text to draw the reader's attention to specific data in the table or figure. Checklists for tables and figures are found in the *Publication Manual of the American Psychological Association* (2001b), pages 175-176 and 201.

**References list content and format.** The reference list includes all retrievable references cited in the body of the manuscript. The reference list begins on a separate page. The citations are double-spaced. The citations are arranged in alphabetical order according to the last name(s) of the author(s) and the title of the citation when no author is given. APA has returned to the *hanging indent* format for citations. It is imperative that the author(s) verify that all citations in the text except those identified as personal communications have citations on the reference list. Personal communications are not included in the reference list since others cannot retrieve them. Electronic citations need to include the uniform resource locator (URL). Other identifying information includes document title or description and a date—date of publication or date of retrieval. If authors are given, their names should be included as well. Examples of a variety of citations are given along with explanations of when to use each in the *Publication Manual of the American Psychological Association* (2001b), pages 215-281.

**Spacing, font specifications, indentions, and margins.** APA style includes double spacing of the manuscript, Times New Roman, Font 12, with indented paragraphs of 5 or 7 spaces or ½ inch on all pages except for the Abstract and Reference list. Margins of at least 1 inch are required.

**Author note preparation.** The Author Note is prepared on a separate page and includes communication information, departmental affiliation, and acknowledgments of grants or other financial support. It may also include expressions of appreciation for others assisting with the study. If there are any disclaimers or special circumstances, disclosures of such are given in the Author Note.

**Seriations.** For a listing of items in a series within a paragraph or sentence, the author should use lowercase letters or (a), (b), and (c). For a series of paragraphs, the author uses arabic numerals followed by periods. Authors should avoid bulleted items.

The *APA Style Checklist for Manuscript Preparation and Submission* appears in Figure 1.

By following the specific guidelines given in the *Publication Manual of the American Psychological Association* (2001b), authors may decrease the amount of revision time needed to prepare final versions of their manuscripts.

### *Usefulness of the Checklist*

The manuscript evaluation forms for quantitative and qualitative studies provided by editors of *The Delta Pi Epsilon Journal* (see Blaszczynski & Green, 1999) are available to all authors who choose to prepare manuscripts for publication in this journal. Authors may use the appropriate evaluation form as a guide for their planning, drafting, and revising of manuscripts. By carefully following the checklist and addressing each and every item, authors can be confident that they have complied with the basic requirements for publication, thus enhancing their opportunities for publication.

Reviewers will use the checklist while perusing manuscripts to verify that important manuscript aspects have met the criteria essential for publication. The checklist also assists reviewers in treating each manuscript objectively by using the same criteria for evaluation purposes.

Editors may use the checklist for evaluation of manuscripts and feedback to authors regarding the status of the manuscripts. Detailed information will be given about needed revisions that could facilitate possible publication.

By having a checklist, the authors, reviewers, and editors can use the same tools for evaluation and revision of manuscripts. It is the intention of editors to publish scholarly information that will assist their readership and that will add to the knowledge base of the discipline. By implementing the checklist, authors can prepare manuscripts that will meet the criteria for scholarly, well-prepared manuscripts and will have a higher manuscript acceptance rate than those who choose not to use the checklist.

### *Resources Useful in Preparing Manuscripts in APA Style*

The APA has developed a software package that aids researchers in preparing manuscripts in APA style. This package, *APA Style-Helper 3.0* (2001a), is available in a downloadable version from the APA website at [www.apastyle.org](http://www.apastyle.org) or in CD-ROM format.

Researchers can sign up for a free service of APA—APA Style guideline update notifications—at the APA Style website, [www.apastyle.org](http://www.apastyle.org). In addition, this website features a *Tip of the Week* focusing on APA style. Recent tip topics addressed using semicolons, preferred spelling, avoiding redundancy, using double quotation marks, using abbreviations, using parentheses, citing e-mail communications from individuals, and avoiding dangling modifiers.

**Figure 1**  
***APA Style Checklist for Manuscript Preparation and Submission***

**Title Page**

- Title of 10 to 12 words
- Running head
- Full author contact information

**Abstract**

- Separate page
- One double-spaced paragraph with no indentions
- Maximum length of 120 words

**Heading Format and Usage**

- Main headings centered, keyed in upper case
- Third-level headings italicized; centered; uppercase and lowercase
- Side headings flush left; italicized; uppercase and lowercase

**Pagination**

- Pages filled with text; page number follows running head
- Turn off widow/orphan protection

**Serialitions**

- Seriated items within a sentence or paragraph or (a), (b), (c), and (d)
- Bulleted items avoided

**Spacing, Font, Indentions, and Margins**

- Manuscript double spaced, Times New Roman, Font 12
- Paragraphs indented (except for Abstract)
- Margins of at least one inch

**Parenthetical Citations**

- Parenthetical citations in correct format
- One-to-one correspondence with reference list citations

**Tables and Figures**

- Have a separate page for each table and/or figure
- Placed at end of manuscript
- Have percentages rounded to whole numbers
- Present two decimal places for most statistics
- Have initial cap on first word; lowercase on others
- Have accurate data that matches text presentation order
- Includes Notes: general, specific, and probability; *Note* italicized
- Have no vertical lines in tables

**Reference List Content and Format**

- Begins on a separate page
- Utilizes hanging indents; journal or book title italicized
- Matches with parenthetical citations in text
- Provides correct listing for URLs/electronic citations

**Author Note**

- Separate page, appears last in the manuscript
- Double spaced
- Author rank and institutional information provided



In our experience as members of an editorial review board and editorial staff, we have noticed that many manuscript authors do not prepare tables in accordance with APA style. Such non-compliance can cause hours of clean-up work on the part of associate and assistant editors because of time constraints when the actual responsibility for providing correct tables belongs to the manuscript author(s). A recent publication of the APA, *Presenting your findings: A practical guide for creating tables* (Nicol & Pexman, 1999), illustrates the correct creation of tables and figures for many different situations. Although it parallels the fourth edition of the *Publication Manual of the American Psychological Association* rather than the fifth edition, the guidebook is useful for authors who need assistance in visualizing the proper placement of table elements.

### Implications for Business Educators

Using the checklist developed by the authors will assist (a) manuscript authors in preparing and submitting manuscripts for publication consideration, (b) manuscript reviewers in providing consistent feedback to authors and editors, and (c) journal editors in evaluating the conformance of manuscripts to the APA style guidelines. Careful authors will use this checklist in conjunction with any checklist or guidelines published by the prospective publication outlet (see Association for Business Communication, 2001; National Business Education Association, 2001) to increase their possibilities of publication success.

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## Delta Pi Epsilon Chapters

- 1936 ALPHA: New York University, New York, NY  
 1938 BETA: Oklahoma State University, Stillwater, OK  
 1940 GAMMA: Western Pennsylvania Chapter  
 1942 DELTA: University of Cincinnati, Cincinnati, OH  
 1942 ZETA: University of North Carolina, Greensboro, NC  
 1945 THETA: Indiana University, Bloomington, IN  
 1946 KAPPA: University of Michigan, Ann Arbor, MI  
 1946 MU: University of Tennessee, Knoxville, TN  
 1947 NU: University of Kentucky, Lexington, KY  
 1947 OMICRON: University of Iowa, Iowa City, IA  
 1948 PI: Ball State University, Muncie, IN  
 1948 RHO: Ohio State University, Columbus, OH  
 1951 UPSILON: University of Mississippi, University, MS  
 1951 PHI: University of Minnesota, Minneapolis, MN  
 1953 OMEGA: George Peabody College for Teachers, Nashville, TN
- 1956 ALPHA GAMMA: University of Houston, Houston, TX  
 1957 ALPHA DELTA: Emporia State University, Emporia, KS  
 1958 ALPHA EPSILON: University of North Texas, Denton, TX  
 1958 ALPHA ZETA: Temple University, Philadelphia, PA  
 1963 ALPHA MU: State University of New York, Albany, NY  
 1963 ALPHA NU: University of North Dakota, Grand Forks, ND  
 1964 ALPHA XI: The City University of New York, New York, NY  
 1965 ALPHA PI: Wayne State University, Detroit, MI  
 1966 ALPHA RHO: California State University, Fresno, CA  
 1966 ALPHA SIGMA: Arizona State University, Tempe, AZ  
 1966 ALPHA TAU: University of Northern Iowa, Cedar Falls, IA  
 1966 ALPHA UPSILON: University of Nebraska, Lincoln, NE  
 1967 ALPHA PHI: Northern Illinois University, DeKalb, IL  
 1968 ALPHA CHI: Rider University, Lawrenceville, NJ  
 1969 ALPHA PSI: Mankato State University, Mankato, MN
- 1969 BETA BETA: Southern Illinois University at Edwardsville, Edwardsville, IL  
 1969 BETA GAMMA: Virginia Polytechnic Institute and State University, Blacksburg, VA  
 1969 BETA DELTA: University of Georgia, Athens, GA  
 1969 BETA EPSILON: San Jose State University, San Jose, CA  
 1971 BETA ZETA: Indiana State University, Terre Haute, IN  
 1971 BETA ETA: Bowling Green State University, Bowling Green, OH  
 1971 BETA THETA: University of Wisconsin-Whitewater, Whitewater, WI  
 1971 BETA IOTA: Illinois State University, Normal, IL  
 1971 BETA KAPPA: Portland State University, Portland, OR  
 1972 BETA LAMBDA: Shippensburg University of Pennsylvania, Shippensburg, PA
- 1972 BETA MU: Central Connecticut State University, New Britain, CT  
 1972 BETA NU: Utah State University, Logan, UT  
 1972 BETA OMICRON: Southern Illinois University at Carbondale, Carbondale, IL  
 1973 BETA TAU: State University of West Georgia, Carrollton, GA  
 1974 BETA PHI: Montclair State University, Upper Montclair, NJ  
 1975 BETA PSI: Eastern Illinois University, Charleston, IL
- 1975 GAMMA ALPHA: Eastern Michigan University, Ypsilanti, MI  
 1977 GAMMA GAMMA: Virginia Commonwealth University, Richmond, VA  
 1977 GAMMA DELTA: University of Rhode Island, Kingston, RI  
 1979 GAMMA ZETA: University of Southern Mississippi, Hattiesburg, MS  
 1979 GAMMA ETA: Middle Tennessee State University, Murfreesboro, TN  
 1979 GAMMA THETA: Arkansas State University, State Un, AR  
 1979 GAMMA IOTA: University of the District of Columbia, Mount Vernon Campus, Washington, DC  
 1980 GAMMA NU: State of Alabama Chapter  
 1981 GAMMA XI: Bloomsburg University of Pennsylvania, Bloomsburg, PA  
 1983 GAMMA OMICRON: Willamette Valley, Oregon Chapter  
 1983 GAMMA PI: University of Arkansas, Fayetteville, AR  
 1985 GAMMA SIGMA: Central Michigan University, Mt. Pleasant, MI  
 1986 GAMMA TAU: University of Central Arkansas, Conway, AR  
 1986 GAMMA PHI: Central Washington University, Ellensburg, WA  
 1988 GAMMA CHI: University of Missouri-Columbia, Columbia, MO  
 1991 GAMMA PSI: East Carolina University, Greenville, NC  
 1992 GAMMA OMEGA: Southwest Missouri State University, Springfield, MO
- 1992 DELTA ALPHA: The Colorado Chapter  
 1994 DELTA BETA: Louisiana State University; Baton Rouge, LA  
 1994 DELTA GAMMA: Mississippi State University, Starkville, MS  
 1994 DELTA DELTA: State of Florida Chapter  
 1994 DELTA EPSILON: State of West Virginia Chapter  
 1994 DELTA ZETA: Northeast Ohio Chapter  
 1995 DELTA ETA: State of Wyoming Chapter  
 1995 DELTA THETA: Southern New Hampshire University, Manchester, NH  
 1995 DELTA IOTA: Puerto Rico Chapter  
 1999 DELTA KAPPA: Southern California Chapter

DELTA PI EPSILON, founded in 1936, is a national honorary professional graduate society for men and women devoted to the advancement and professionalization of business education. Through its ideals of scholarship, leadership, and cooperation, the Society strives to make significant and unique contributions to professional growth and scholarly achievement in business education. In the words of its founder, Dr. Paul Lomax, can be seen the scope of the Society: "The professional interests of Delta Pi Epsilon encompass the whole of business education in relation to the entire fields of American business and American education. Its membership . . . must always think in terms of the common good and advancement of all our business teachers and of all students who pursue courses in business education."



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