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In this issue:

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# How Important is Student Computing Ability? The Role of Information Technology Competence in Business School Accreditation

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## ABSTRACT

Research involving students taking a senior capstone course in a public four- year business school revealed a significant relationship between student satisfaction in their perceived computing ability and student satisfaction in their analysis and problem solving skills. Computing availability and student satisfaction in the level of instruction were not related to student satisfaction in computing ability. Increasing accreditation pressures require detailed examination of the effect of student competence in information technology. The study provides a brief history and examination of the importance of information technology skills to employers and for accreditation standards.

**Keywords:** accreditation, student computing ability, outcomes assessment

## 1. INTRODUCTION

Hovering over the survival concerns of business schools is the reality of accreditation. The goal of business schools of possessing proper accreditation for use as a marketing tool for prospective students and support from other stakeholders including employers (Henninger, 1998) should not be minimized. Accreditation enhances demand for the services of a business school. The resultant tuition and fees that may be obtained from students justifies the effort. However, only a third of business schools have full accreditation (Lock, 1999) while many others are in pursuit. The premier accrediting body is the American Assembly of Collegiate Schools of Business (AACSB).

Accreditation remains essential to the survival of schools that have adapted to the needs of students in providing them with important tools. This study examines the relationship of three of these tools required by employers: computing ability, analysis skills, and problem solving skills.

## 2. ACCREDITATION MATTERS

### 2.1 Background

The status of business schools in the 1950's was that of low esteem by other academics due to the lack of doctorates within the faculty, the practice driven nature of business education, and the generally lower quality of business students reflected by low SAT scores. Reports from the Ford Foundation and the Carnegie Foundation in 1959 criticized the orientation of business schools, the lack of terminal business degrees obtained by teaching faculty, and the overall lack of respect and legitimacy within academia (Cotton et al. 2001). In the 1960's, the AACSB used accreditation pressures to effect changes in business education by stressing scholarship in faculty and students. Standards were used as a tool to effect change in the combination of theory and practice.

The 1980's found the AACSB developing new standards based on mission development, outcomes assessment, and diversity rooted in innovation. Business Schools were man-

dated to develop mission goals and to measure those goals by the assessment of actual outcomes. This process was rooted in the business concepts of Total Quality Management (TQM) and the process of creating a cycle of continuous improvement (McKenna et al. 1997).

In response to pressure from member institutions and the success of the European Foundation for Management Development (EFMD) in attracting American colleges to their accreditation, the AACSB issued experimental accreditation standards in 2003. The changes were significant and portend significant impact on business school faculty and administrators (Miles et al. 2004). The new standards require annual reports and five year reviews instead of extensive ten year reports. The driver of accreditation changed from outcomes to process. Finally, accreditation is now mission based with each institution deciding on what that mission entails. The new standards install students as the primary stakeholders above employers, administrators, and faculty members (Miles et al. 2004).

Validation by accreditation becomes a goal sought after by business school administrators. The definition of the faculty role divides into three distinct segments of teaching, research, and service allows college administrators the flexibility to obtain accreditation. Faculty participation becomes tempered by faculty interests contrary to business school goals. The slow responses of institutional governance and inherent faculty resistance to change create obstacles for administrators attempting to find commitment to institutional mission (Harvey et al. 2006).

## **2.2 Conflict between academic and professional models**

The movement between academic emphasis and professional emphasis at business schools works as a pendulum that swings back and forth between two extremes (Cotton et al. 2001). The history of the AACSB standards indicates this swing from academic focus to professional focus over time.

A survey of deans of 272 AACSB accredited schools and 282 deans of non-accredited AACSB schools used 28 attitudinal items to determine whether there was variation in opinions on professional models and aca-

demical models of business school orientations (McKenna et al. 1997). The results indicated that the AACSB accredited schools favored the academic model while the non-accredited schools favored the professional model.

## **2.3 Conflict between consumer and professorial models for business education**

The survival of business schools often depends on the understanding of the constraints found in a free market environment. Michael (1997) classified these constraints as competition for students, resources, and finances. Similar to other facets of the business environment the constraints of accountability and government actions have an effect on student enrollments. Michael suggests that marketing and quality management strategies should be employed in the same way that any business could increase sales and customer satisfaction. This view of business school higher education is an extreme labeled as consumerism. The opposite extreme would be professorial. The consumer approach labels the student as the consumer purchasing the educational product or service from the business school. In this view, the institution is highly responsive to the needs of the student. If students receive poor service they will go somewhere else. The reality of education acting like any other business is a false reality. Education is not like ordering a thick steak at a restaurant. Students are not that likely to transfer or to understand the best ways to present a curriculum. However, similar to a restaurant that requests the patron to complete a customer service questionnaire, the business school has come to rely on student evaluations to identify faculty with poor quality attributes.

## **2.4 Doctoral faculty paradox**

The decline in business doctorate production (AACSB, 2003) presents an unusual problem for accreditation standards at US business schools. At the same time that accreditation requirements demand a faculty of business doctorates, the US production of new doctorates declined by 1,327 from 1994 to 2000. A report by the Doctoral Faculty Commission to the AACSB's board of directors in 2003 predicted a shortage of 2,119 business PhD's by 2013. The supply and demand difference presents a threat to the survival of business education. The commis-

sion (AACSB, 2003) found two reasons for the shortfall. The first reason emanates from the discovery that most producers of business doctorates are public universities that have been experiencing budget shortfalls and have restrained growth in their programs. The second reason rests on the discovery that more than half of the business doctoral students are in the US on temporary visas.

In 2003, the AACSB released a task force report to address the pending faculty shortage utilizing a four point program of recommended actions. The first recommendation is for the development of alternative sources for qualified doctorates by establishing programs to attract candidates from other fields. The second action advocates a marketing approach for attracting candidates for business doctorates. The third recommendation advocates investment in institutions for increasing the number of doctoral students in business concentrations. The fourth action involves the use of on-line education allowing for easier transitions for busy executives to achieve doctoral status. Together, these four alternatives highlight the seriousness of the pending problem of business schools competing for a scarce resource.

The future has already arrived for finance and accounting job openings. Hobbs et al. (2005) studied the salary inversions and the premiums paid to new hires for finance faculty. Their research of 68 AACSB colleges found a significant premium for newly hired finance faculty. The escalation in salaries included paying an average of \$9,748 more to replace an associate professor with an assistant professor.

## 2.5 Argument against league tables

The publication of league tables by Business Week, US News & World Reports, The Wall Street Journal, The Economist, Forbes, and The Financial Times rank business schools by differing criteria is a practice discouraged by most accreditation organizations (Lock, 1999). In a study for BizEd (an AACSB publication), Andrew Policano (2005) compared ranking methodologies of the six major ranking publications for MBA programs. The factor that carried the most weight with Forbes and The Financial Times is alumni earning power three to five years after graduation. Business Week and The Econo-

mist ranked student satisfaction highest. US News & World Reports weighed surveys by other deans and corporate recruiters, while the Wall Street Journal relied primarily on corporate recruiter ratings. Only three of the six rankings publications required AACSB accreditation as a qualifier.

The AACSB created a task force to investigate the rankings problem and reported their findings in 2005. The Committee on Issues in Management Education (CIME) developed four recommendations to deal with the problem. The first recommendation involved influencing the media and education the public about the negative impact of the rankings and to persuade them (the media) to develop ratings rather than rankings. The second recommendation was directed at the AACSB itself to become involved in the ratings process. The third recommendation involves the development of the AACSB accreditation brand and establishing the AACSB as the principal source of information on business school ratings. Almost all of the ranked schools are AACSB accredited. The fourth recommendation calls for the AACSB to conduct research on member quality to facilitate media ratings of business education programs. Overall, the recommendations stress the need for the AACSB to take a leadership role.

## 2.6 Threat from for-profit competition

Competition from non-traditional providers of business education threatens the older established business schools by competing for potential students in a for-profit format from multiple locations and a strong on-line capability. The AACSB Management Education Task Force described this threat in a 2002 report as follows:

Increasing differentiation among providers of business education is a worldwide phenomenon today. Generally, three broad categories of providers exist: traditional university-based business schools; for-profit institutions; and a large group of other providers that includes executive development centers, consulting firms, independent consultants, and company-based training centers and corporate universities . . . .). The employer market is not blind to the differentiation among providers. Indeed, employers discriminate by offering drastically different rewards to degree-holders depending on the reputa-

tion of the school from which they graduated, especially at the MBA level. As for the relative market shares of the various categories of providers, in the United States AACSB member schools represent a large but declining percentage of providers of management education as they lose market share to non-AACSB schools and for-profit providers. (p. 7).

The ease of establishing an online business program creates a danger rooted in economics. The law of supply and demand dictates that the two forces need to be in equilibrium. The real possibility of over-supply would eventually cause a shaking out of the weaker competitors. Public colleges and universities are only competing with themselves as they convert conventional students to online programs (Green, 2006). Online programs have few geographical barriers and must compete with other far flung online programs.

### 3. TECHNOLOGY AS A DRIVING FORCE

The driving force behind accreditation is the deployment of technology in business schools and in society as a whole. The AACSB task force on Management Education (2002) prominently referred to this crucial development as follows:

Employers demand graduates who are prepared to leverage technology in a scalable fashion to advance firms' strategies and operations. To respond to the demand for technologically facile graduates, technology-enriched pedagogy, technology-wired facilities, new curricula, and distance delivery, business schools have had to generate significant new financial and human resources. Typically, rapidly escalating user expectations and associated costs exceed resources even among the best-funded programs, leading to widening gaps between the haves and have-nots. For example, in a survey AACSB conducted in fall 2000, doctoral/research institutions reported that their business schools had one technology staff member for every 15 full-time faculty members. By contrast, among masters and baccalaureate institutions, the ratios of technology staff to full-time faculty—at 1:50 and 1:99, respectively—were dramatically lower. (p. 9).

While the need to provide increased technology to business schools to further their curriculum, it is that same technology that increases competition from on-line delivery systems.

Employers seek business school graduates with the technology skills required in today's business environment (Bikson, 1996, Tanyel et al. 1999, Kaminski et al. 2003, Batholomew, 2004, Vuotto, 2004, Raybould & Sheedy, 2005, Wagner et al. 2005). The graduating senior that is comfortable with disparate aspects of information technology needs less training and represents a serious cost saving over the employee that requires extensive technology training. The AACSB Standards Manual (2005) addresses the need for technology skills in numerous ways. Use of information technology is one of the six general knowledge and skills required for assurance of learning standards (p. 18). Support systems for student and faculty technology use require documentation for accreditation review (p. 30). Campus based institutions are required to document the extent of technology access and assistance (p. 30). The AACSB manual further explains the special requirements for management education as follows:

While it is not possible to spell out in detail the configuration of infrastructure required for every combination of educational programs and expectations, it is possible to state some resource needs of particular concern for business education. (1) Modern business is highly information dependent. Management scholarship, pedagogy, and learning require sufficient up to date technology hardware, software, assistance, and instruction. (p. 31).

Finally, the AACSB Manual (2005) speaks to the relevance of the focus of this paper and the resultant research connecting survival, accreditation and information technology with the following directive from the management standards section:

Another example of present-day relevance and currency is the need for graduates to be competent in the uses of technology and information systems in modern organizational operations. The school must determine the specific ways globalization and information systems are included in the curriculum, and the particular pedagogies

used. Curricula without these two areas of learning would not normally be considered current and relevant. (p. 72).

### **3.1 Employers and Technology Literate Business Students**

Business schools have been reaching out to employers to determine their needs for student education. What skills should students possess upon graduation that would make them into productive employees? A survey of employers in the state of Utah (Bartholomew, 2004) found spreadsheet skills the most desired of technology skills. Bartholomew surveyed faculty within the school of Business at Utah Valley State and found that presentation skills (PowerPoint) were highly reinforced while spreadsheet and database skills were not reinforced. The twelve Utah Higher Education units developed a mandatory computer literacy examination. Students were required to score 80% on the exam considered to be a minimum literacy level.

Examination of how colleges are doing preparing students for the workforce in a global environment (Bikson, 1996) may be stated in economic terms. Employers are the demand side and colleges are the supply side of the equation. Bikson found that employers were looking for domain knowledge from applications at entry level, but generic skills of learning how to learn were the most important in the long run. Examination into whether there is a disconnect in communication between employers and higher education was studied by Tanyel et al. (1999) where attributes of university faculty of students skills needed for employment were compared to those chosen by prospective employers. The results indicated significant differences between the two groups in rank ordering of attributes.

Technology literacy of college students was researched by Kaminski et al. (2003) through a survey of 2102 college freshmen. An interesting point in the study was the refusal of some faculty to allow the survey of their students. The preferred method of the respondents to learning technology was one-to-one instruction. The authors stressed that information technology literacy worked best when "woven into the curriculum's content structure", (Kaminski et al. 2003). This concept was put into action at the University

of Massachusetts in Boston (Wagner et al. 2005) in a new curriculum design that integrates information technology with other management courses. The new curriculum is based on the concept that business and IT have become intertwined and pervasive. IT has become ubiquitous in virtually all organizations to the extent that formation of new concentrations incorporating technology allows for the business curriculum to be more in tune with employers. Increased IT skills add value to employers. This type of integration between business and technology (Ramakrishnan & Ragothaman, 2003) was demonstrated at a mid-western university where students were charged with developing a business venture with a functioning Web site. This method of experiential learning provides real-world experience that may be hard to duplicate in the classroom.

The question of whether grade point average (GPA) is related to success after graduation was addressed by Donhardt (2004) in a university study of graduates from a four year period between 1997 and 2001 which totaled 7140 individuals. The findings indicate that GPA had little impact on earnings, while age, major, and industry had a major impact.

Caruso and Kravik (2005) analyzed student responses from the ECAR (Educause Center for Applied Research) Study of Students and Information Technology 2005: Convenience, Connection, Control, and Learning. The study examined responses from 18,039 freshman and senior students from 63 higher education institutions and was comparable to a 2004 study by the same organization in eleven institutions. Comparing the two years of 2004 and 2005 found an increase in laptop ownership from 46.8% to 55.6% while desktop ownership declined. Students indicated a positive preference for moderate levels of technology use in their college courses. Older students preferred information technology in courses to a far greater degree than younger students. Faculty that was perceived by students to effectively use information technology in their courses was viewed by students positively in the areas of engagement, interest, and understanding of concepts. These findings are consistent with those of Kuh and Vesper (2001), Kuh and Hu (2002), and Laird and Kuh (2005).

### 3.2 Information Technology as a Variable in Assessments

Research involving 18,344 under-graduate students at 71 four-year colleges that responded to the College Student Experiences Questionnaire found that there was a positive relationship between computer / information technology use when used frequently and student educational effort (Kuh & Hu, 2002). Three research questions were addressed in this study:

1. What student characteristics and types of colleges affect the usage and frequency of computer and information technology?
2. Is there a relationship between student effort in other areas of the college experience (clubs, organizations, faculty and peers) and computer and information technology usage?
3. Is there a relationship between computer/information technology usage and other desired outcomes of college?

Two control variables were used in this study: socioeconomic status and academic preparation. Dummy variables were used for most demographic questions. Findings showed that the three most common information technologies were word processing, Email and Internet research. The three least used activities were developing Web pages, multimedia presentations and use of an electronic medium like Blackboard for class discussions. Seniors used information technology more frequently than other grades. Students working on campus were more frequent users.

Kuh and Vesper (2001) found that student gains in computer usage were correlated to gains in other area of self-assessment including problem solving and independent learning. The data from this study was taken from the College Students Experiences Questionnaire (CSEQ). Responses were measured from 125,000 student surveys from 204 colleges on twenty-three items. Students classified as highly accomplished in computer use outscored the group classified as lower accomplished in all twenty-three items of the questionnaire. Students scored higher in both the ability to work in teams and in working alone when rated as a high technology user indicating implications for employers. Background differences were

insignificant in the variables of gender, age, hours worked on job, family income, and whether family member a college graduate.

In a study of MBA students (Tootnoonchi et al. 2002) found that computer and information technology ranked low as a teaching methodology by students. The focus of this research was to determine student perceptions of effective teaching methodologies and what instructor characteristics impacted learning. Research by Madson et al. (2004) used a different approach to assess student exposure and use of information technology. A syllabus analysis instrument was developed to assess and identify the expected technology skills of students by measuring the exposure developed by the instructor course design.

### 3.3 Development of Instruments to Measure Information Technology Effectiveness

The establishment of rubrics for outcomes assessment has resulted in a variety of surveys in the literature. A compilation of twenty four competencies was developed by business faculty at Texas A&M and led to twenty four objective type questions (Manton & English, 2002). Survey questions were modified for courses and majors by student developed rubrics (Montgomery, 2002). Rybacki and Lattimore (1999) conducted a survey of surveys and then surveyed the perceived value of assessment protocols of 78 colleges. A survey adaptable to higher education compared teacher use of technology and student use of technology (Vannatta & Fordham, 2004). Research by Havelka (2003) used a ranking method to measure student attitudes towards information technology with "improves work efficiency" as highest in a survey of 34 characteristics or features of Information Technology. The research method employed was the nominal group technique (NGT) which utilizes a ranking scheme to develop a list of characteristics answering the question "what characteristics or features does information technology have that are important to you?" The list is compiled and then ranked. Two groups of subjects, business students and MIS students, were used for this method. There were significant differences between the two groups.



The most widely used instruments are the College Student Experiences Questionnaire (CSEQ) and the National Survey of Student Engagement (NSEE). Both instruments are administered nationally. The origin of national instruments begins with focus groups to discover if the questions are accurate perceptions of student behavior that describe real experiences (Ouimet et al. 2004).

#### 4. RESEARCH QUESTIONS

In the evaluation of instruction, will students perceive that instruction as superior if that student believes that they have developed superior computing abilities?

*Ha1: There is a positive correlation between perceived student satisfaction of computing ability and student satisfaction with overall level of instruction*

Two of the six skills specifically mentioned by the AACSB (2005) in the assurance of learning standards include student analysis skills and reflective thinking skills.

*Ha2: There is a positive correlation between perceived student satisfaction of computing ability and student satisfaction with analytical ability*

*Ha3: There is a positive correlation between perceived student satisfaction of computing ability and student satisfaction with problem solving ability*

Computing ability may be dependent on computing availability. In a campus environment that requires mandatory laptop ownership and ubiquitous wireless connectivity will that relationship be reduced?

*Ha4: There is a positive correlation between perceived student satisfaction of computing ability and satisfaction with computing availability.*

### 5. METHODOLOGY

#### 5.1 Subjects and Sampling Strategy

Students in their senior year at a school of business in a public four-year Northeastern US college taking a capstone course prior to graduation will be the subjects. The students will include male and female, full-time and part-time, and the age range will be from 21 to 48. The student's majors will include accounting, finance, management,

operations, human resources, and marketing. Entering students are required to own a laptop computer. The campus is completely wireless allowing student's internet access from all buildings. Students are given a printing account and can print from all of the classroom buildings, the campus center, and the library. There are computer labs in all academic buildings and an extensive technology center building with open access to 120 computers. The surrounding area is primarily residential with the population consisting of working-class and middle-class families. Most students work at least 30 hours per week off campus. Students in their senior year taking the capstone course in the School of Business are asked to voluntarily complete the instrument. The instrument is voluntary and anonymous. The sampling is conducted at the start of each capstone class. The survey instrument is in paper form. The subjects are individually handed the three page survey, asked not to sign their names, and the surveys are collected when all are completed.

#### 5.2 Instrument

The effective instructional methods section has been adapted from Tootoonchi et al. (2002) which was originally administered to MBA students. The questions have been modified to include additional instructional methods and to eliminate some that are infrequently used.

The content rating section is adapted from research using the College Student Experience Questionnaire (CSEQ) by Kue and Hu (2001), Smith et al. (2004), and Laird and Kuh (2005). Studies based on the CSEQ attempt to link student engagement to student satisfaction, while Smith et al. (2004) looked at institutional services correlating with student satisfaction.

The instrument has been employed for three years (Wolk, 2004) and includes three sections. The first section consists of demographic questions. The second section includes a scale of student satisfaction questions. The third section includes questions requiring the evaluation of effective instructional methods (see Appendix).

#### 5.3 Definition of Variables

- Computing ability includes a subset of skills that can be combined. These skills

include word processing, research on the Internet, use of instructional technology, course technology, and use of programs for productivity.

- Analytical ability allows students to employ skills of analysis in case studies and assigned problems.
- Computing availability includes the access of computing technology for research, printing, and productivity tools.
- Problem solving ability relates to the student perception of the ease in solving coursework problems in case or real world scenarios.

**5.4. Validity and Reliability**

The modified version of the student satisfaction scale is partly based on questions from the College Student Experiences Questionnaire (CSEQ) and tested on four occasions with a Cronbach’s alpha always exceeding .8473 (see Table 1). The 21 scale items measure satisfaction with the overall program of business education (see Appendix). A test-retest for reliability utilizing 60 student subjects in 2004 resulted in sufficient reliability ( $r=0.8174$ ) for use in hypothesis testing.

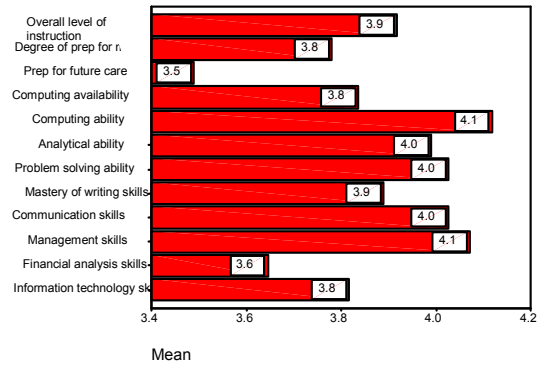
Table 1: Scale Reliability using Cronbach’s Alpha

Date	Cases/Students	Satisfaction alpha
Spring 2006	110	.8419
Fall 2005	56	.8516
Spring 2005	92	.8475
Fall 2004	50	.8908
Spring 2004	117	.8779

**5.5 Findings**

Students were asked to rate aspects of the overall educational program on a five-point Likert-type scale where the values were as follows: excellent=5, good=4, average=3, poor=2 and failure equaled 1. Satisfaction with “computing ability” received the highest mean score of 110 students (see Figure 1). Computing ability received the highest mean score (4.1) in student satisfaction while computing availability scored lower (3.8).

Figure 1: Mean Scores of Student Satisfaction



In examining the correlation of perceived satisfaction with computing ability with other aspects of the school of business (see Table 2), the high correlation with analytical ability and problem solving ability suggest a relationship amongst the three variables. The relationship between student satisfaction with computing ability and student satisfaction with the overall level of instruction could not be established ( $r=0.145$ , significance of 0.149).

Table 2: Pearson Correlations of “Satisfaction with Computing Ability”

Variable	Correlation (Pearson)	Significance
Overall level of instruction	.145	.149
Degree of preparation for major	.259	.006
Preparation for future career	.188	.005
Computing availability	.191	.046
Analytical ability	.592	.000
Problem solving ability	.507	.000
Mastery of writing skills	.320	.001
Communication skills	.227	.017
Management skills	.209	.028
Financial analysis skills	.066	.093
Information technology skills	.413	.000
Library Services	.336	.000

The relationship between student perceived satisfaction with their computing ability and student perceived satisfaction with their analytical ability ( $r=0.592$ ,  $p=0.000$ ) and

their perceived satisfaction with problem solving ability ( $r=0.507$ ,  $p=0.000$ ) demonstrate the interaction of the three variables. The acceptance of Hypotheses Ha2 and Ha3 emanate from the high correlations.

Satisfaction with the availability of computing was highly correlated to satisfaction with library services ( $r=0.336$ ,  $p=0.000$ ). This relationship is understandable due to the large number of network computers and printers available in the library. Library services satisfaction possessed no other significant relationship.

The relationship between perceived student computing ability and student satisfaction with computing availability ( $r=0.191$ ,  $p=0.046$ ) reflects a weak correlation that argues against the acceptance of hypothesis Ha4. Although the 2006 data suggests a relationship, the combined 2004 and 2005 data indicated a higher correlation ( $r=0.312$ ,  $p=0.001$ ). It remains to be seen if the 2007 data will continue to show a weakening of this relationship. This change may be affected by the increased participation in the mandatory wireless laptop program that began in 2004.

Table 3: Hypothesis Results

Hypothesis	Accepted/Rejected
Ha1 There is a positive correlation between perceived computing ability and satisfaction with overall level of instruction	Rejected
Ha2 There is a positive correlation between perceived computing ability and student satisfaction with analytical ability	Accepted
Ha3 There is a positive correlation between perceived computing ability and student satisfaction with problem solving ability	Accepted
Ha4 There is a positive correlation between perceived computing ability and satisfaction with computing availability.	Accepted

**6. DISCUSSION**

The AACSB Manual (2005) declares "As part of each institution's effort to prepare its stu-

dents for future careers, it should provide a total educational experience that emphasizes conceptual reasoning, problem-solving skills, and preparation for lifelong learning". One measurement of business school progress towards achieving these goals would be a satisfaction survey of students prior to graduation. In a campus environment where wireless capabilities are everywhere and students are required to own laptops, there is a disconnect between the availability of computing and the satisfaction in student computing abilities. Colleges may be advised to concentrate on student computing ability rather than computing availability. Increased emphasis on student computing abilities may lead to increased abilities in numerous related areas highly desired by employers including analysis, problem solving, communication, and writing skills.

**6.1 Limitations**

The nature of the student population at the target college may not be representative of student populations at other colleges. The business school may have more access to technology than other business schools. The population is drawn primarily from one geographical area. The students may work outside the campus more than most college students nationally. The population may be more representative of four year public colleges and may not have application for private colleges.

**6.2 Summary**

The relationships between student computing ability to other desired student abilities validate the importance of efforts by faculty and administrators in facilitating student competence in computing skills. This study finds perceived student analytical and problem solving abilities correlated to perceived student computing ability. This study suggests that perceived student satisfaction with their writing skills, communication skills, and management skills are also related to perceived student satisfaction with their computing ability skills. Outcomes assessment endeavors establishing rubrics for continuous improvement as part of the accreditation process benefit from research establishing the relationships amongst desired skills and competencies.

## 7. CONCLUSION

Student computing ability remains an important desired outcome of business school education. Accreditation organizations recognize the importance of student computing abilities and require assessment to close the loop between administrative mission and student achievement. Employers require business school students that are computer literate, have the capacity for analysis, and demonstrate the capacity to solve problems. The research outlined in this article demonstrates a method of enjoining students into the process of assessing their abilities and allowing faculty and administrators the opportunity to measure progress towards information technology prowess.

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**Appendix**

## CAPSTONE SURVEY

ROBERT M. WOLK  
BRIDGEWATER STATE COLLEGE  
RWOLK@BRIDGEW.EDU

## SECTION I: DEMOGRAPHICS

Circle the word that best describes yourself for each question.

1. Are you full-time or a part-time student?
2. Are you male or female?
3. Do you live on campus or do you commute?
4. How many years have you been attending the College? \_\_\_\_\_.
5. Are you a citizen of the USA? Yes or no
6. Which of the following best describes your ethnicity?
  - White
  - African American
  - Hispanic
  - Black African
  - Native American
  - Asian
  - Other \_\_\_\_\_
7. What is your age? \_\_\_\_\_
8. Has an immediate family member ever graduated from a 4 year college? Yes or no.
9. What is the area of your concentration (state 2 if double major). \_\_\_\_\_
10. If you were to do it all over again, would you still choose Bridgewater State College?
  1. Very likely
  2. Somewhat likely
  3. Not sure
  4. Somewhat unlikely
  5. Very unlikely

SECTION II: CONTENT RATINGS OF THE OVERALL PROGRAM. PLEASE RATE THE OVERALL PROGRAM AT THIS STATE COLLEGE FOR EACH OF THE STATEMENTS BELOW:

Use the following scale.

5=Excellent  
4=Good  
3=Average  
2=Poor  
1=Failure

1. The overall level of Instruction. \_\_\_\_\_
2. Degree of preparation for your major. \_\_\_\_\_
3. Preparation for your future career aims. \_\_\_\_\_
4. The level of services of the college library. \_\_\_\_\_
5. The level of computing availability of the college. \_\_\_\_\_
6. The level of satisfaction in finding the courses you wanted. \_\_\_\_\_
7. The level of satisfaction in academic advising. \_\_\_\_\_
8. The level of satisfaction in your computing ability. \_\_\_\_\_
9. The level of satisfaction in your analytical ability. \_\_\_\_\_
10. The level of satisfaction in your problem solving abilities. \_\_\_\_\_
11. The level of satisfaction in your mastery of writing skills. \_\_\_\_\_
12. The level of satisfaction in your communication skills. \_\_\_\_\_
13. The level of satisfaction in your management skills. \_\_\_\_\_
14. The level of satisfaction in your accounting skills. \_\_\_\_\_
15. The level of satisfaction in your financial analysis skills. \_\_\_\_\_
16. The level of satisfaction in your marketing skills. \_\_\_\_\_
17. The level of satisfaction in your information technology skills. \_\_\_\_\_
18. The level of satisfaction in your human resource skills. \_\_\_\_\_
19. The level of satisfaction in your operations management skills. \_\_\_\_\_
20. The level of satisfaction in your understanding of business ethics. \_\_\_\_\_
21. The level of satisfaction in your understanding of economics. \_\_\_\_\_

SECTION III: INSTRUCTIONAL METHODS. RATE THE FOLLOWING INSTRUCTIONAL METHODS AS TO THEIR EFFECTIVENESS.

Use the following scale.

- 5=Very Effective
- 4=Somewhat Effective
- 3=Neither Effective or Ineffective
- 2=Somewhat Ineffective
- 1=Very Ineffective

1. The use of case studies. \_\_\_\_\_
2. The use of slides or PowerPoint by the instructor. \_\_\_\_\_
3. The use of group projects. \_\_\_\_\_
4. The use of individual projects. \_\_\_\_\_
5. The use of classroom lectures. \_\_\_\_\_
6. The use of guest speakers. \_\_\_\_\_
7. The use of a research paper. \_\_\_\_\_
8. The use of real world examples. \_\_\_\_\_
9. The use of Internet based assignments. \_\_\_\_\_
10. The use of instructional technology such as videos. \_\_\_\_\_
11. The use of spreadsheets (example: Microsoft Excel) for assignments. \_\_\_\_\_
12. The use of field trips to outside sources of information. \_\_\_\_\_
13. The use of objective (multiple choice, true/false, one correct answer) exams. \_\_\_\_\_
14. The use of subjective (short answer/essay, more than one correct answer) exams. \_\_\_\_\_
15. The use of open classroom discussion. \_\_\_\_\_
16. The use of Socratic Questioning by the Instructor. \_\_\_\_\_