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MANAGING UNAVOIDABLE RISKS IN CLOUD COMPUTING

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Abstract: As innovative uses of the Internet by business and government organizations increase, so do the number of threats to information system security. This study reports evidence that risk cannot completely be avoided in such systems, especially those involving “cloud computing.” Resulting considerations for chief information officers (CIOs) are presented including strategic implications. Recommendations for Internet use are also given based on level of system access needed and the degree of risk that would result from compromise of a given system.

INTRODUCTION

Computerized information systems are part of almost every business, and many organizations cannot function without them. Try, for example, to make a purchase from a major retailer when its systems are down! Outages can cost millions of dollars, such as when airlines have been shut down for hours or even days (Sanchez, 2007). Vital systems require protection to stay operational as well as to prevent access by unauthorized persons.

Protecting systems is more challenging when they are connected to the Internet. Hacker attacks can render systems inoperative as well as expose sensitive data to theft or alteration. Sometimes the risk extends to physical infrastructure. In 2007, for example, an intentionally staged attack by Internet on an electric utility was able to cause a generator to self-destruct (Meserve, 2007). For reasons that are explained below, it is not possible to completely secure systems that have Internet access.

Risks associated with Internet use are both operational and strategic. Operational risks often involve immediate effects such as system failures, theft, and physical damage. Strategic risks, however, may take an extended period of time to become evident. For example, it might take months or even years for the leak of a business's competitive strategy or plans for the application of new technology to result in perceptible damage. Organizations typically assign responsibility for controlling both types of risk to the chief information officer (CIO). Larger organizations may have a separate person responsible solely for security who may be called the chief security officer (CSO) or chief information security officer (CISO) (Laudon & Laudon, 2010, p. 63). The term CIO is used herein to denote the appropriate responsible person.

The CIO's job becomes significantly more challenging when systems are actually based on the Internet, away from the organization's physical control. Often called “software as a service,” this practice involves setting up systems on a web server, then allowing others to use the software. Some (like the Google® search engine and Yahoo® e-mail) are free, but fees are often charged for more sophisticated business systems. Software as a service is a major part of “cloud computing,” a term that actually has many definitions (Geelan, 2009). For this study, we focus on the situation in which application software and/or its associated data are “in the cloud,” i.e., on the Internet, physically away from the using person or organization. While this situation raises many opportunities, both strategic and security issues should be considered.

This study's objective is not to address the innumerable perils of using the Internet.

Instead, it focuses on implications for management arising from the fact that risk cannot completely be eliminated. This leads to the more fundamental question of *whether* an organization should connect a vital system to the Internet or move it to a cloud computing platform. Of particular interest are systems that, if compromised, could jeopardize public safety, national security, or the very existence of an organization. Recommendations for CIOs are presented below after a review of some of the vulnerabilities of Internet-connected and cloud computing systems. Related strategic implications are also discussed.

VULNERABILITIES RESULTING FROM INTERNET USE

Systems attached to the Internet are vulnerable for at least three reasons: (1) they are not perfect; (2) they are used by imperfect human beings; and (3) outsiders continually make intensive efforts to identify and exploit the imperfections. Some of the resulting problems and dangers are discussed below according to their origins.

Software Problems

The vast majority of people who access the Internet do so from computers that operate with Microsoft Windows®. Newly-discovered flaws in these systems are regularly revealed and often have the potential to compromise security. On April 15, 2009, for example, the authors of this paper observed that Microsoft released 14 “critical” updates for Microsoft Windows XP and Microsoft Office, including six identified as “Security Update for Windows XP.” The description for each of those six included notification that:

“A security issue has been identified that could allow an unauthenticated remote attacker to compromise your system and gain control over it. You can help protect your system by installing this update from Microsoft...”

Updates are sent out to repair such problems as quickly as possible, but a potential intruder could identify and exploit a flaw before it is fixed. Although Windows gets the most publicity, defects are regularly found in all major operating systems and in most if not all major software programs, including browsers. In general, a defect could allow malicious software to run on the target system. The results can range from annoying pop-up ads to system damage to complete system take-over. The compromised systems may be individually scanned for useful information, or they may be organized into “botnets” consisting of thousands of enslaved computers that may be used to send spam, launch denial-of-service attacks, or attempt to invade additional systems (Laudon & Laudon, 2010, p. 303). It is important to recognize that compromising a user's computer potentially gives the intruder access to *anything that the user could access*.

Hardware Problems

Internet communications flow through complex devices, including both routers and hardware firewalls that are intended to limit access to authorized persons. There is no reason to believe that such complex hardware and its internal control software are perfect. It seems likely that even the best network security hardware has bugs that can be exploited.

Compounding this potential problem is the fact that much hardware (including the routers used in many homes and businesses) is made in foreign countries. Defects could accidentally or intentionally be built into such units that would allow an attacker to circumvent the device's security. A potentially more serious problem is the appearance of *counterfeit*

network gear, i.e., routers and other devices that are sold as being manufactured by reliable companies but that actually were manufactured by another (unauthorized) source. Lawson and McMillan (2008) reported finding evidence that millions of dollars worth of “fake Cisco routers, switches, and [network] cards were sold to the U.S. Navy, the U.S. Marine Corps, the U.S. Air Force, the U.S. Federal Aviation Administration, and even the FBI.” That article also explained how it was possible to modify a network control device to give attackers virtually undetectable access to a computer system.

User Errors

Human errors, of course, can and do occur in any system with or without Internet access. A previously-secure system may be comprised by someone making a poorly-designed software change. Careless error may also occur, such as placing a crucial document (physical or electronic) in a public location, using an easily-guessed password, writing a password where it can be easily discovered, or leaving a secure system unattended. For example, airport passenger screening practices were accidentally revealed in late 2009 when the U.S. Transportation Security Administration posted an operating manual to a public website (News, 2009). In that case, sensitive information was supposedly “blacked out,” but it was easily recovered due to an error in how the document was redacted. Security can also be compromised when employees use social networking sites or blogs to brag or (more often) complain about an organization. In so doing, security precautions or organizational strategies may be revealed.

Cloud computing brings with it the potential for much more convenience--and risk--for users. Systems based on the Internet can--in theory--be accessed from any computer connected to the Internet. A careless user might access a sensitive cloud-based system from a computer that has been compromised. Traveling employees are often encouraged to work from hotels and other public locations, but the networks (especially the wireless networks) of such organizations are frequently accessed by hackers and loaded with malware (Laudon & Laudon, 2010, p. 293, 297). The same can be true of *any* wireless network, including those at a user's home. Wireless office networks are also potential weaknesses, but at least those are under the organization's control.

In fact, security can be compromised even by users who understand Internet security and who take normal precautions. Grow et al. (2008) reported a particularly sophisticated attack involving an e-mail message sent to an executive at a military contractor. The message had a fake (“spoofed”) return address that was consistent with correspondence the executive normally received from the Pentagon, and it described a subject consistent with the firm's military contracts. Fortunately, the executive had the attached file checked before opening it. The file was infected with the “Poison Ivy” malware, which gives the attacker almost complete control over the computer including the ability to view screen shots and record keystrokes. Stolen information would have been routed to an obscure business in China. While good anti-virus software would likely stop such an attack, there is always the potential for intrusion by a new (“zero day”) method not yet known to the anti-virus software companies.

When properly configured, newer operating systems such as Windows Vista® and Windows 7® provide some protection by warning the user that a particular action or program could be dangerous. But, that protection is worthless if the user chooses the option to go ahead in spite of the risk.

Persistent and Sophisticated Attacks

Because any system on the Internet can potentially access any other system on the Internet, a hacker in eastern Europe is just as likely to penetrate a system as someone located just down the block. With such a huge population of potential attackers, it is generally believed that Internet-connected systems are under assault 24 hours a day, seven days a week. This is supported by the results of a computer crime survey conducted by the FBI in which 87% of the 2,066 responding organizations reported experiencing a computer security incident within the previous 12 months (Verduyn, 2006). In that survey, 13% of the respondents indicated being aware that a system was successfully penetrated, and another 24% could not be sure whether their system had been improperly accessed. Many attacks originated inside the organization, but most came from outside. External attacks originating in 36 different countries were reported.

The earliest Internet hackers seemed mostly to be individual thieves and disgruntled teenagers, but it now appears that much more organized attacks are taking place. Fallows (2010) reported the belief by security experts that hacking "...is well-funded and pursued by mature individuals and groups of professionals with deep financial and technical resources..." It also appears that governments are sometimes involved. In fact, Gorman (2008) reported an ongoing debate on whether the attack on a country's Internet-connected systems by hackers who are sponsored by another country should be considered an "act of war." What is not in question is the fact that countries can--and do--successfully attack the Internet-connected systems of other countries. This was effectively demonstrated during the 2008 conflict between the countries of Georgia and Russia (Gorman, 2008). Similar attacks on government and corporate sites occurred in Estonia in 2007 during a dispute with Russia (Associated Press, 2009).

Both the People's Republic of China and North Korea (the Democratic People's Republic of Korea) have recently been implicated in attacks on systems based in the United States. Tkacik (2008) reported extensive evidence that government-sponsored hackers from China have successfully attacked American military, government (including Homeland Security), industrial, and financial institutions. Olsen (2009) reported that North Korea (or persons or countries sympathetic to North Korea) was suspected of being behind computer attacks that targeted government and other web sites in the United States and South Korea. Those summer 2009 assaults were denial-of-service attacks, and American targets included the White House, Pentagon, Homeland Security, and New York Stock Exchange. Fortunately, those attacks do not appear to have resulted in stolen data (Krebs and Nakashima, 2009).

Motivation for the attacks seems to have both military and economic aspects. The North Korean attacks occurred during the time frame that the country was engaged in provocative missile firings, so it is not unreasonable to take them as generalized threats against the country's enemies. Tkacik (2008) reported evidence that the attacks have "eroded the U.S. military advantage by enabling foreign militaries to acquire sophisticated capabilities that might otherwise have taken years to develop." He further reported evidence that Chinese "cyberwarfare" units have penetrated a non-classified network at the Pentagon and designed software to disable it during wartime, should that ever occur. In addition, Tkacik reported that such electronic espionage has enabled foreign firms to (in some cases) gain a competitive advantage over U.S. businesses. Similarly, Fallows (2010) quoted sources indicating that much hacking is business vs. business spying including theft of research and development secrets and plans for trade negotiations. Clayton (2010) reported a specific example in the U.S. oil industry. In that case, the FBI discovered that extremely valuable "bid data" details (quantity, value, and location of oil discoveries worldwide) were stolen from several big oil companies.

There is considerable evidence--in addition to the intrusions discussed above--that attacks on sensitive American systems have been and continue to be successful. Epstein et al. (2008) reported that NASA systems have apparently been successfully penetrated since at least the 1990's. Gorman et al. (2009) reported that hackers successfully retrieved data on the design and electronic systems of a new fighter jet. In attacks that hit closer to home for all Americans, it was reported by Gorman and Smith (2009) that systems controlling the United States electrical grid have been penetrated. The report indicated that China, Russia, and other countries were suspected of originating the assaults, which appear to have had a goal of mapping the country's electrical infrastructure. A more serious motive was indicated by the fact that the attackers left behind software programs that could be used to disrupt the systems in time of war. This is especially concerning because of the previously-noted ability of Internet attacks to cause physical damage to power generation equipment (Meserve, 2007) along with the fact that many replacement parts are only available from foreign countries.

Cloud Computing and More

The increased reliance on the Internet brought by cloud computing only adds to the concerns raised above. In-house systems and data storage may not be perfect, but at least they are under the organization's control. Many writers have listed numerous concerns with the migration of systems from on-site to the cloud. Golkar (2009), for example, indicated that the top concerns for CIOs include:

- Security: Will cloud-based systems be as secure as those they replace?
- Performance: Will systems that are run over the Internet respond quickly?
- Availability: What percentage of the time will systems be available? Note that systems are not available if either the cloud system fails or if the Internet connection between the provider and the user organization fails.
- Integration: How will cloud systems integrate with other cloud systems and/or remaining in-house systems?
- Customization: Will we be able to customize the cloud systems when they do not perform exactly as we wish?

A recent example of data risk from cloud computing involved T-Mobile Sidekick phones, which store their address book contacts on a Microsoft subsidiary's cloud service (Kharif, 2009). Software problems caused loss of data for thousands of users. One executive reported being seriously handicapped by loss of 1,200 contacts and three years worth of financial information. Concerns were also raised that many cloud computing providers are new, increasing the risk that they could fail and take their data down with them.

Ideas for new and more invasive uses of the Internet increase the potential vulnerabilities. For example, LaGessee (2009) observed that future "smart homes" could have every electrical device connected to the Internet and to one another. Similar situations could exist in "smart" offices, stores, and factories. The advantages obviously include convenience as well as energy savings through better control. If hacked, however, such a system might be used to shut down the connected devices. It has already been shown that personal assistance devices such as the Roomba robot can be hacked (Kurt, 2007). Mapes (2009) raised concerns that such devices could be used for physical or psychological attacks, vandalism, and spying. Such worries will grow as the devices increase in power, speed, and sophistication.

STRATEGIC CONSIDERATIONS

Management information systems increasingly require that an organization's CIO be an active participant in a wide spectrum of its activities, including deciding upon and implementing competitive strategy. As indicated by Laudon & Laudon (2010, p. 12), "There is a growing interdependence between a firm's ability to use information technology and its ability to implement corporate strategies ... What a business would like to do in five years often depends on what its systems will be able to do." Because the Internet is an inexpensive way for an organization to communicate with employees, suppliers, business partners, and customers, connecting at least some systems to the Internet is a competitive necessity for many firms.

Cloud computing, in particular, potentially enables a business to compete more effectively. In addition to the concerns listed above, for example, Golkar (2009) lists the following "drivers" (supporting reasons) for adopting cloud computing:

- lower costs
- usage billing (pay for the services you use)
- fast deployment
- capacity (including the ability to adjust system capacity quickly)
- easy maintenance

Collectively, these factors could enable almost any business to compete more effectively through lower costs and quicker system implementation. CIOs in conjunction with top management must weigh advantages such as these against the risks listed previously to determine whether it would be wise to increase reliance on the Internet. Clearly, such a decision should consider organizational capabilities, competencies, and competitive pressures. As indicated by Wheelen and Hunger (2010, p. 138), expertise in information technology can be a core competency, and it can be a key ingredient in the organization's other competencies. Knowing when to use the Internet--and when not to--should be part of that competency.

It is essential that strategic decisions concerning use of the Internet be consistent with the organization's other goals and strategies. For example, a strategy that requires extensive, low-cost connectivity would certainly increase pressure to incorporate Internet use. An illustration of this is given by Hamm (2009), who reports plans by Avon to increase management efficiency by using portable cloud-based systems to keep tabs on the orders placed by 150,000 sales personnel. On the other hand, strategies that require extreme secrecy could make Internet use completely inappropriate. For example, an organization may be planning to enter a new geographic region as a surprise movement to unbalance its rivals. Excessive cloud-based research into this region might become known to competitors, resulting in preparations to offset the movement. Internal planning documents, if placed where they could be accessed by Internet hackers, could have the same effect. In a different organization there might be an overall objective of "in-house" maintenance of "leading-edge" expertise in some area of competence, such as solar panel design or fabrication methods. Placing such a system where it could be accessed by a competitor could completely invalidate the strategy. The fact that a competitor might have to employ illegal hacking to access the system is of little consolation, especially if the competitor is located in or sponsored by a country unfriendly to the United States.

If information technology is key to an organization's core competencies, a disadvantage of cloud computing is that it *may result in crucial expertise becoming embodied in individuals*

who are not employees. This means that an organization may encounter difficulties in (1) obtaining this expertise when needed, (2) having this expertise focused on its unique requirements, or (3) integrating it with the capabilities of other employees to support or develop further competencies. In addition to the loss of competency contained within the firm, the availability of expertise in the cloud from non-employees to competing organizations should be a real concern.

Because of the growing Internet interdependence between businesses, the appropriate configuration and use of a cloud computing system should also be considered in terms of other organizations, especially allies in supply chains and distribution channels. Inappropriate use in one organization may cause security problems for others, especially if communications pathways between organizations are not secure or if they allow partner companies to access each other's sensitive systems.

CIO Responsibilities

It might be tempting to think that the CIO's responsibilities are lessened after a move to cloud computing, but nothing could be further from the truth. An organization's decision to use cloud computing will actually *expand* CIO responsibilities in several ways. For example, it will be necessary to address whatever backup systems might be needed to deal with Internet outages and other interruptions of cloud-based system operation. In addition, the CIO must approve of the use of decision protocols, data, models, and other such aspects of a system that locates them in a supplier, rather than retaining them internally. Doing so may require the CIO or some assistant to develop understanding of operations in the respective departments. With regard to such external resources, the CIO must consider the consequences that might result in a functional department that uses cloud results without knowing exactly how such results were achieved. And, network security architecture decisions (discussed further in the Recommendations section below) are more critical when employees regularly connect to external systems via the Internet.

If cloud computing is embraced, other decisions include whether to use a private system (accessible only to our organization) or a public one with many users. In addition, suppliers may offer software, hardware, or combinations (including entire systems), decision models, data acquisition, data storage, and other such essentials. As such options are considered, the CIO must assure that the selected ones are appropriate for the organization regarding both strategic and operational matters.

Perhaps most importantly, an organization planning to adopt cloud computing must take steps to minimize the risk. Brodtkin (2008) lists seven steps that should be taken before selecting a cloud vendor, including demanding that the vendor be transparent about how data and systems are kept secure. That article was based on a larger report on cloud computing risks written by Heiser and Nicolett (2008) for information technology research firm Gartner.

RECOMMENDATIONS

First of all, the firm's management must take responsibility for security decisions and make them uniform across the organization. Otherwise, even if various groups within the organization develop their own security, it will not be a comprehensive policy-based approach and will inherently contain gaps. Part of security policy development should include identification of individuals and systems that, taking company strategy and goals into account, should have access to the Internet. The following sections provide recommendations on how

to make and implement those decisions.

Access Needs vs. Level of Risk

In making the decision of whether to allow a particular system to connect to the Internet or use cloud computing, an organization must assume that it would be *possible* for unauthorized persons to gain access or interrupt system operation. Further, the “unauthorized persons” may include professional hackers sponsored by a competitor or a foreign country. Questions that should be asked include:

- If the system is accessed by hackers or shut down, what damage could be done? How much money could be lost?
- Could *people* be hurt?
- What would be necessary to recover from or work around a successful intrusion or system shut-down?

In establishing the organization's information security policies, it seems prudent that any decision to connect a system to the Internet or to use cloud computing should consider both the level of access needed and the risks should the system or network be compromised. A matrix of recommended decisions is presented in Table 1.

Table 1. Network Access Recommendations

Level of access needed for system to function	General public	Internet ¹	Secure Internet, e.g., https ²	Not appropriate
	Limited personnel or organizations	Internet ¹	Very secure Internet, e.g., VPN ²	Private secure network ²
	None	No off-site access	No off-site access	No off-site access
		Low	Medium	High
Risk if Shut Down or Hacked (see text)				

¹May include cloud computing if appropriate precautions are taken.

²There should be an alternate method of operating if the normal network connection is inoperative due to failure or system attack. All sensitive information stored on network-connected systems

The recommendations in Table 1 are broken down by three levels of access that might be needed: (1) the general public (such as might be true for retail e-commerce systems or general-information web sites); (2) limited personnel or organizations (only a few people or organizations need access); or (3) none (the system can function perfectly well without off-site access). Recommendations are also separated by level of risk as follows:

- **Low:** involves no sensitive personal or organization information. If out of operation, there may be temporary inconvenience for the organization or the public, but there is no significant impact on overall commerce or public safety. Functions are not vital and/or can readily be replicated by other means. Examples:
 - entertainment web sites like YouTube
 - informative web sites (if down, newspaper, television, or other media can distribute information)
- **Medium:** includes sensitive personal information for individuals, or business information that would be harmful but not catastrophic if compromised. If inoperative, commerce or

operations may be interrupted for individual businesses but can be restored by alternate means (such as mail, fax, or telephone) in time to prevent serious financial loss. Outages cause no significant danger to public safety, and the organization's existence is not in serious jeopardy. Examples:

- major electronic commerce sites for individual businesses *if* telephone or other communications can be implemented (not necessarily quickly or cheaply)
- systems that contain sensitive data (such as credit card information), but recovery after disclosure is possible (such as by issuing new cards)
- High: contains information that in the wrong hands could compromise public safety or the organization's viability. This includes systems that, if inoperative, could cause wide-scale, long-term interruption of commerce, dangers to public safety, or the failure of the organization. Examples:
 - systems that control or operate telecommunications
 - public transportation
 - power and water utilities
 - military operations, planning, or equipment design
 - government emergency response systems
 - designs for unique or innovative products or services
 - plans for business competitive strategies
 - internal management and/or control systems that are vital to the organization

As indicated in the table, if a system can function without external access, it is most prudent for there to be none, regardless of risk. There is simply no reason to go through the trouble and expense of protecting a system from Internet intruders if access is not necessary. Conversely, Internet connectivity is definitely appropriate if external persons or organizations need access and the damages that shut-down or intrusions might cause are small. Cloud computing may also be appropriate under the latter case, but systems must be carefully configured as indicated in the next section.

Use of the Internet is also appropriate under the “medium” risk level, but extra precautions should be taken. All competent sites that collect sensitive information from or distribute it to the general public use transaction encryption such as the Secure Sockets Layer (SSL) system provided by VeriSign (2009). Web sites with this security are typically identified by a url (uniform resource locator) of “https://” instead of the non-secure “http://.” Any such information that is stored in the organization's systems should also be protected by encryption. That way, even a successful intruder will not automatically have access to the data.

If strong security is needed over the Internet but only a relatively small number of people or organizations need access, the recommended approach is to use a “virtual private network” (VPN). Communications can occur over the Internet, but special hardware and/or software encrypts all communications between the parties involved. Because the products of the various VPN providers are not all compatible with one another, everyone must be using the same protocol (Laudon & Laudon, 2010, p. 270). Sensitive information stored on such systems should of course be encrypted.

Under high risk, one recommended option is to use a private secure network. This requires that the parties involved establish communications using *non-Internet* network connections. It is best if encryption security (such as VPN methodology) is also used, since even private systems can occasionally be “tapped.” These are enormously more secure than the Internet because intrusion is limited to those with physical access to the network rather than everyone in the world with an Internet connection. Unfortunately, such systems are also very

expensive, making them practical only if the number of persons or organizations requiring access is relatively small.

Finally, no organization should give wide access to an extremely sensitive system. Even if it were possible to make the *system* secure (which it probably is not), having a large number of people with access almost guarantees that the system will be compromised by user error. The fact that competitors are taking risks does not change this recommendation. For example, consider the sub-prime mortgage crisis. Many banks recognized the risk and refused to participate. They watched while others made huge profits, but they also remained solvent while the risk-takers went bankrupt or begged for government bail-outs.

Network Configuration

Business systems that connect to the Internet usually do so via a filter called a “firewall.” The device implements “rules”(selected by management) for what communications to allow through and what to block. The firewall is typically connected to a local network area called a “DMZ” (demilitarized zone), which contains web servers, e-mail servers, and other systems that require Internet access (Bishop, 2005, p. 494). The DMZ area may be connected through another firewall to the internal corporate network (which may also have firewalls protecting sub-networks). Like most devices, firewalls are not perfect. For the highest security, therefore, the internal network (or parts of it) may be completely isolated from the Internet or other organizational networks. Technical details concerning firewalls and other aspects of network design (which are beyond the scope of this study) should be implemented in accordance with the security policies decided upon by management.

The firewall will be configured to screen out harmful data or access attempts coming from the Internet under a traditional system, but cloud computing makes security more complex. Computational processing, which in a non-cloud system is conducted internally, is now done at an external location using software housed there. Some processing may be done by web-page-based programs that are downloaded when users access the cloud system. Users, therefore, may be running software on their computers (perhaps within the firm's network or perhaps via a direct Internet connection, such as when the user works away from his or her office) that is written and controlled by the cloud provider and not the subscribing organization. This aspect of cloud computing adds to the need to take great care in selecting a provider. In addition, it is recommended that the computers of employees using cloud computing be isolated from vital internal systems.

Finally, it is important that the organization implement policies concerning access paths other than networks. For example, an employee might (accidentally or on purpose) have a laptop computer, PDA, or flash drive infected by malware while using it outside the organization's control. Policies must be in place to ensure that such an infection is not carried physically into the organization, bypassing network security. The opposite case also applies. That is, policies must be in place to prevent the unauthorized removal of sensitive information on portable devices. Further, any such information that is removed must be secured (usually with encryption) so that only authorized parties can access it.

CONCLUSIONS

With current technology, perfect security is not attainable for systems connected to the Internet. Even if all known risks are addressed, it is virtually certain that unknown security defects exist and can potentially be exploited before the problems are identified and corrected.

Employing cloud computing (the use of software based on the Internet, away from the using organization) adds even more concerns. If an application requires extremely high security, therefore, connecting it to or basing it on the Internet may be inappropriate.

This is *not* to suggest that the Internet should never be used. Both cloud computing and Internet use in general have the potential to strongly support an organization's strategy and goals. The key is for management (especially the CIO) to carefully balance the risks against the benefits. If the decision is made to include Internet access in an organization's systems, proper precautions including careful network design must be implemented. The use of cloud computing requires especially careful consideration and additional safeguards.

A good analogy to Internet use is found in the process of driving to work. Our roads and vehicles are imperfect, and the vehicles are operated by imperfect humans. While precautions can be taken to reduce the risk, it cannot be eliminated. Risks remain even if one chooses to walk or take public transportation, and those means are usually much slower than driving. Most people have to travel to their jobs, so we take steps to make the risk as small as possible, e.g., by using seat belts and observing traffic laws.

Similarly, there is no current method of conducting e-commerce with the general public that compares with the Internet, but there are risks. Telephone, mail, and fax are all much slower and still involve risk. Some of the consumers who use the Internet will have their identities stolen or worse, and some of the businesses will suffer losses due to intrusions and Internet service outages. With the proper precautions (including knowing which systems should *not* access the Internet), e-commerce will continue. Usage of the Internet under those circumstances is every bit as appropriate as driving to work.

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INTERNAL ENFORCEMENT: THE POLITICAL ECONOMY OF IMMIGRATION

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Abstract: Over the past several years, Americans have become more aware and more vocal regarding the number of illegal aliens who have taken up residence in the United States. While this issue - and a resolution of this issue - is still being debated, many have questioned why current enforcement efforts are so lax. The focus of this paper is on the government agency responsible for the enforcement of our immigration laws and in particular how the actions of this agency are influenced by political interests. This paper fills a gap in the literature-to-date by examining the enforcement of immigration laws within the interior of the nation. While other studies put border enforcement efforts in a political framework, this analysis is the first, to the authors' knowledge, to place interior enforcement within the interest-group theory of government framework. Our findings indicate that pressure groups shape the pattern of enforcement that emerges. Despite polls that indicate a majority of Americans favoring stricter enforcement, government enforcement agencies charged with this responsibility apparently succumb to the wishes of those that matter most politically.

“So the people we are now admitting will, quite literally, determine what our homeland is about to become”

(Karl Zinsmeister, “Not All Immigrants Are Alike”, *The American Enterprise*, Dec. 2000, Vol. II, No. 8)

“Corporate America owns the country... what it wants, it gets”

Patrick Buchanan State of Emergency 2006, p. 242

INTRODUCTION

The raison d'être of any law enforcement agency is quite literally, law enforcement and immigration authorities—no matter what they are called or where they are housed—are no exception. That is why the number of illegal aliens coming into America over the past few decades leaves many observers mystified. Despite the passage of numerous laws putatively designed to restrict illegal immigration, the unprecedented influx continues. The nation's laws regarding entry and deportation are simply not enforced.

The U.S.-Mexican border does present some unique challenges: “No other First World country has a land frontier with a Third World country—much less one of 2,000 miles. The income gap between Mexico and us [the U.S.] is the largest between any two contiguous countries in the world” (Huntington 2000, p. 12). Some suggest this is the reason for poor enforcement.

Thus, according to this line of reasoning, the failure to shore up the borders and to deport those that successfully enter is due to the sheer size of the number of illegals and the vast area to be patrolled. The onslaught of illegal aliens simply overwhelms enforcement

efforts. Immigration authorities cannot do the job assigned to them without greater resources; namely greater funds to purchase high-tech gadgets and to employ more workers.

Kessler and Holzer (2006, p.8) suggest an alternative explanation: the government “has made the enforcement of federal immigration laws a backburner issue, and the appointment of unqualified cronies to fill high-level immigration enforcement positions only underscores this point.” The authors continue: “The President must replace the leadership of our broken immigration enforcement infrastructure. And Congress should demand that DHS [Department of Homeland Security] clean up its act and focus much more intently on the primary mission of immigration enforcement – stopping the flow of illegal immigrants and cracking down on employers who break the law.” Thus, woeful enforcement of the law is a function of poor management, lack of focus, and the unwillingness of Congress to lay down the law to an apparently rogue agency.

Some instead point to still another, admittedly more cynical, explanation; the level of enforcement observed is largely a function of political considerations. In this case, the enforcement witnessed is exactly the level of enforcement desired by those given the responsibility of controlling our nation’s borders and reflects the wishes of Congress.

Illegal immigration furnishes employers with a large supply of inexpensive, and likely obsequious, workers. Employers find lax enforcement beneficial. On the other hand, the downward pressure exerted on the wages of native workers due to illegal aliens competing for jobs and the social services utilized by illegal aliens but paid for by taxpayers makes a more restrictive level of enforcement desirable to these groups. Thus, illegal immigration fits nicely into the framework of the interest group theory of government (see Stigler 1971). The theory asserts that public policy is shaped by the influence of interest groups. Competition between these pressure groups results in the establishment of a “political equilibrium.”

Despite this observation, “the important question of the political determinants of immigration policy has surprisingly received very little attention in the economics literature” (Chau 2003, p. 194). It is the purpose of this article to shed some additional light on the influence of politics on immigration enforcement efforts.

The paper is organized as follows. A brief discussion of immigration issues and the politics of immigration is presented in the next section. This is followed by a review of the relevant literature regarding the political economy of immigration. The model and the results are next presented. Finally, the paper concludes with some comments regarding immigration enforcement.

IMMIGRATION ISSUES AND POLITICS

As Peggy Noonan reports, “The past quarter-century an unprecedented wave of illegal immigration has crossed our borders. The flood is so great that no one—no one—can see or fully imagine all the many implications, all the country-changing facts of it. No one knows exactly what uncontrolled immigration is doing and will do to our country” (Noonan 2007). Uncontrolled immigration is not hyperbole—the floodgates are open and the numbers, both to those that favor more porous borders and to those that favor more restrictions, are shocking.

Pat Buchanan (2006, p. 244) puts them in historical context: “There are almost as many immigrants and their children in the United States in 2006—36 million—as all the immigrants who came in 350 previous years of American history.” And the number of illegal immigrants is

likewise staggering: “In 2006, we have as many illegal aliens inside our borders, 12 to 20 million, as all the Germans and Italians, our two largest immigrant groups, who ever came in two centuries” (Buchanan 2006, p. 243).

Increasingly, Americans have simply lost confidence in the government’s ability, and frankly even its willingness, to control the nation’s borders. And increasingly, the public’s confidence in the agency charged with enforcing immigration laws has eroded. Perhaps the low-point was reached when it was discovered that two of the 9-11 terrorists, Mohammed Atta and Marwan Al-Shehhi, were granted change of status visas six months after they flew planes into the World Trade Center.

The failure to stop the flow of illegal immigrants and to secure the borders led to the establishment of the Minuteman Project. The Minutemen—harkening back to the nation’s origins and the day of citizen-soldiers—adopted the slogan, “Doing the job Congress won’t do,” and its members volunteered to patrol the Mexican-U.S. boundary. When the Minuteman spotted an illegal attempting to cross, the proper authorities were contacted.

Prior to 2002, the Immigration and Naturalization Service (INS) was assigned the task of enforcing the nation’s immigration laws. The INS devoted a portion of its resources toward so-called “linewatch” duties which consists chiefly of border patrol and policing points of entry and the remainder of its resources toward internal enforcement which consists, for the most part, of worksite raids, deportations and interior patrols (Hanson and Spilimbergo 2001).

After the terrorist attack, the INS was abolished and its responsibilities reassigned to two new agencies—the U.S. Customs and Border Protection (CBP) which conducts border enforcement activities and the U.S. Immigration and Customs Enforcement (ICE) which is responsible for enforcing immigration laws in the interior of the country. Both these agencies are currently housed within the Department of Homeland Security (DHS).

In a subsequent paper, Hanson (2006) points out that DHS officials have discretion in how border patrol and ICE agents “are deployed, allowing them to vary the intensity of . . . enforcement against illegal immigration at the local, regional and national level” (Hanson 2006, p. 910). He continues, “discretion creates an opportunity for political pressure to influence enforcement activities over short time horizons (as well as through the more-protracted congressional appropriations process)” (2006, p. 910).

Immigration policy, as Chau (2003, p. 193) points out, “creates income redistribution consequences that divorce the interests of native workers and native employers.” Native workers, who do not want to face competition for jobs nor experience the concomitant reduction in wages from greater supply, desire a more restrictive policy. Native employers, on the other hand, want a large supply of inexpensive workers and therefore favor more open borders.

Business firms have come to depend on illegal immigrants as an inexpensive source of labor. As Hedges and Hawkins (1996, p. 17) explain: “Illegal immigrants are flocking to the United States to take the dangerous, low-paying jobs most Americans won’t. There’s a system that keeps the illegals coming and industry humming – and the plants have come to rely on it”.

An April 7, 2006 survey conducted by the Pew Hispanic Center titled “Where they work: A breakdown on illegal immigrants” showed that the vast majority of illegal immigrants work in fields that require little education and training. Table 1 summarizes the occupational breakdown of undocumented workers in 2006.

Table 1: Occupations of Undocumented Workers

Occupation	Undocumented Workers
Service occupations	31.00%
Construction	19.00%
Production, installation, repair	15.00%
Sales and administration	12.00%
Management, business and professional	10.00%
Transportation, moving	8.00%
Farming, other	4.00%

Source: Adapted from Figure 9 of "The Size and Characteristics of the Unauthorized Migrant Population in the U.S.", Passel (2006), published by the Pew Hispanic Center.

And the business firms that use the labor are thought to lobby Congress for lax enforcement. Anecdotal evidence supporting this notion exists. While politicians talk tough about immigration, behind the scenes they work to keep the spigot turned on. In 1998, workers in the onion fields of Georgia were largely illegals. INS officials conducted raids and numerous undocumented workers were arrested but most of them fled. The farmers, who had knowingly hired the illegal aliens, were stuck with onions in the field with no one to harvest them. Soon, the farmers contacted their Congressmen and shortly thereafter, a letter from both of Georgia's Senators and three Georgia Congressmen arrived at the U.S. Attorney General's office demanding an explanation. The politicians asserted that the INS did not understand the needs of American farmers.

The agency changed tactics and "tried out a kinder gentler means of enforcing the law" (Krikorian 2006, p. 24). The personnel records of all the meat packing plants in Nebraska were obtained, Social Security numbers were checked, and INS officials returned to the plants with lists of individuals deemed likely to be illegal. The operation was a huge success in terms of finding and deporting illegal immigrants.

The meat packers and the ranchers – outraged at the INS – hired former governor Ben Nelson to lobby for them. Senator Chuck Hagel used his influence to see that this was never repeated again. In fact, the senior INS official who thought up the strategy was encouraged to retire (Krikorian 2006).

Likewise, INS inspectors at Portland International Airport were criticized "for barring an unusually high percentage of foreigners – a result that won the city the disparaging title 'Deportland'." Business leaders and airport managers were furious at the conduct of the INS – two Delta Airlines flights were canceled as a result of enforcement activity worth millions of dollars to the region.

The problem led Senator Slade Gorton to demand, "consistent and fair enforcement of immigration laws" (Read 2000). Nevertheless, local INS officials "refused to budge from their

position of literal application of the law” but INS regional officials promised consistent West Coast enforcement (Read 2000).

Economist Thomas Sowell (1981, p. 249) acknowledges the role of politics but expands the players: “Employers of low-paid labor have pressed for a national policy of more open access to the United States... while groups concerned with crime, welfare dependency, or other social problems... have pressed for more restrictive policies. Shifts in political strength among the contending groups of Americans are reflected in changing immigration policies and changing levels of enforcement (Sowell 1981, p. 249).¹

In the next section, the literature that examines the role of politics and interest group behavior in shaping immigration policy is examined.

LITERATURE REVIEW

Shughart, Tollison, and Kimenyi (1986) were the first to offer a political explanation for immigration enforcement. The researchers assert that a regulator, in this case the INS, attempts to balance the interests of two competing interest groups. In particular, the INS alters the flow of immigrants in an effort to impact the domestic wage rate, of interest to labor, and the wealth of producers’, of interest to business firms. Their analysis is limited to legal immigrants. Examining the flow of immigrants to America from 1900 to 1982, the authors found that “immigration enforcement activities vary predictably, abating during economic expansions when output and wages are rising, and becoming more vigorous during economic downturns when output and wages are falling” (Shughart, Tollison, and Kimenyi 1986, p. 97). Claudia Golden (1994) investigated the support for a literacy test for immigrants of members of the House of Representatives. A vote in favor of the test was associated with a relatively smaller increase in wages between 1907 and 1915 in the Representative’s district. Timmer and Williamson (1998, p. 739-71) found the nation adopted a more restrictive policy toward immigrants across time when the ratio of unskilled labor wage rate to average per capita income level declined.

Noting that “there is little systematic analysis of the factors that influence the intensity of enforcement efforts,” Hanson and Spilimbergo (2001) investigated “linewatch” activity (border patrol apprehensions of illegal immigrants). The researchers assert that “firms privately lobby the government to maintain lax border enforcement” (Hanson and Spilimbergo 2001, p. 614) while labor unions press to keep illegal immigrants from entering. Their results suggest that “enforcement softens when the specific sectors that use undocumented workers intensively expand” (2001, p. 636). Thus, Hanson and Spilimbergo were the first to find empirical support for the notion that the enormous influx of illegals into America and the perceived inability of immigration authorities to halt the onslaught is politically motivated. The authors note the dearth of research on this topic and assert, “the gap in the literature is unfortunate, given the importance of border enforcement . . .” (2001, p. 614).

Finally, Facchini, Mayda, and Mishra (2007) likewise point to the role of interest groups in influencing immigration policy and acknowledge the lack of “systematic empirical evidence on

¹ More, recently, at a time in which many legal U.S. citizens are calling for increased enforcement against those who reside in the U.S. illegally, immigration enforcement conducted a widely publicized raid in the latter part of 2008. On August 26, 2008, U.S. Immigration officials arrested 595 people at a Laurel, Mississippi electrical equipment plant in what was described as “the largest targeted workplace enforcement operation we have carried out in the United States to date.” (Gaynor, 2008)

this issue” (Facchini, Mayda and Mishra 2007, p. 29). The researchers “take advantage of a novel dataset developed by the Center for Responsive Politics, that allows us to identify lobbying expenditures, by targeted policy area, for the period between 1998 and 2005” (2007, p. 4). The rich dataset enabled the authors to extract business lobbying expenditures specifically aimed at immigration policy. Anti-migration lobbying efforts were proxied by union membership across sectors. Pressure group activities at the industry level were combined with data from the Current Population Survey and H1B visas to obtain industry-specific immigration levels. The results of their investigation “suggest that a 10% increase in the size of lobbying expenditures by business groups is associated with a 1.8% larger number of immigrants while a one-percentage point increase in union density . . . reduces it by 1.3%” (2007, p. 5).

The current literature, albeit limited, does point toward a political motivation to immigration policy. The so-called interest-group theory of government is consistently supported. However, research examines legal immigration across time or focuses on linewatch activities, leaving the enforcement of immigration laws within the interior of the nation largely ignored.

One explanation for the lack of analysis of interior enforcement is that so little interior enforcement actually takes place. In a 2007 report issued by Third Way, Earls and Kessler note, “in 1999, 417 employers received fines for employing illegal aliens—a number that dropped to three by 2004. Indeed, in 2004, a person was more likely to be eaten by an alligator than to be prosecuted for hiring an illegal alien” (Earls and Kessler 2007, p. 8). A second reason for the lack of work on interior enforcement is data limitations. Hanson (2006) explains, “For interior enforcement, measures of policy inputs are more difficult to obtain” (2006, p. 910).

MODEL AND RESULTS

Fortunately, a data source yielding information concerning interior enforcement exists but has not, to the authors’ knowledge, been exploited. This data is produced by the Transactional Records Access Clearinghouse (TRAC) housed at Syracuse University. TRAC data includes referrals for prosecution by immigration authorities by state. The data point out that referrals vary widely from state-to-state. TRAC reports, “There often are variations that raise a preliminary question of fairness. Further exploration may turn up good explanations for the differences, but the differences on their face are worth probing” (From: TRAC, Regional Patterns in INS Enforcement).

Because more recent interior enforcement activities are negligible (recall the alligator attack quote), referrals for prosecution by state for the years 1996 and 1997 are used to create the dependent variable. Also, because population varies widely from state-to-state, the data is standardized by the estimated number of illegals residing in each state. The Immigration and Naturalization Service produced estimates of the number of illegals residing in each state for the year 1996 (see Federation for American Immigration Reform). Thus, INS criminal referrals in 1996 divided by the estimated number of illegals in 1996 and INS criminal referrals in 1997 divided, once again, by the estimated number of illegals in 1996 for each state serves as the dependent variable.

In a 1994 document, the INS claims it “will concentrate resources in areas where the work load, or vulnerability to the integrity of our nation’s immigration policies is greatest. This requires allocating resources on the basis of risk assessment” (INS Toward 2000, 1994). Thus, an explanatory variable in the model is the number of INS employees assigned to each state in 1996 and 1997. A priori, more agents in a state is thought to be associated with more referrals.

State unemployment rates are included in the model to determine if the agency is more active in states with high rates of unemployment. On the one hand, the agency might be pressured to find illegals and to refer them for prosecution where natives have more difficulty finding jobs. Rounding up illegal aliens in states with high unemployment rates would improve the chances of a native obtaining a job.

On the other hand, Richard Vedder, along with Lowell Gallaway and Stephen Moore examined the relationship between immigration and unemployment across the states and determined “if any correlation, it would appear to be negative: Higher immigration is associated with lower unemployment” (Vedder 1994). Thus, immigrants are drawn to regions where the unemployment rate is low. A negative coefficient on unemployment in the model would be consistent with bureaucratic incentives to produce output identified by Cotton M. Lindsey (1976). The INS can find immigrants more easily and with less effort in tight labor markets where illegals are likely to be employed. If more active where unemployment rates are low, then immigration authorities ascribe to the wisdom of Willie Sutton who explained why he robbed banks – “because that’s where the money is.”

The percentage of the workforce unionized in each state in 1996 and 1997 also serves as an independent variable. In the past, increased unionization would likely be thought to be associated with stricter enforcement – less legal and illegal immigrants that increase the supply of labor and thus likely depress wages. Declining membership, however, has led unions to reconsider their position: “Eliseo Medding, Vice President of the Service Employees Union declares, “I am ...convinced that as the labor movement is the best hope for immigrants so are immigrants the best hope for the labor movement” (McElroy 2000, p. 31). Buchanan concurs, “By making illegal aliens legal, unions hope to organize them and restore lost union power” (2006, p. 81).

The percentage of each states’ population living below the poverty threshold is included in the analysis to determine if poorer economic conditions exert an influence on enforcement. Also, the percentage of the population residing in more urban settings serves as an independent variable. Some cities are so-called sanctuary cities for illegal aliens and city officials might press for lax enforcement of immigration laws. In addition, larger cities might be more tolerant of illegals because metropolitan areas are typically less homogenous.

The primary beneficiaries of lax enforcement are the business firms that utilize the inexpensive labor provided by immigrants. Sowell pointed out that “shifts in political strength among the contending groups of Americans are reflected in changing immigration policies and changing levels of enforcement” (1981, p. 249). These same political forces that shift and change across time are likely to differ in their relative strength from state-to-state. Thus, this analysis seeks a cross-sectional political motivation to INS enforcement patterns.

As a proxy for business firm lobbying power, the percentage of the nation’s workforce engaged in manufacturing, the service industry and construction within each state is entered into the model (recall from Table 1 that the service sector, the manufacturing industry and the construction industry accounted for 65 percent of the jobs of illegals in 2006). These are the employers most likely to exert political pressure on the INS to ease their enforcement efforts. A positive relationship is predicted indicating that as these particular type businesses play a larger role in a state’s economy, the INS will be pressured to look the other way. Table 2 provides results.

Table 2: Results

	Model 1	Model 2	Model 3
	13.424		
Intercept	(4.68 ^{***})	12.58 (4.19 ^{***})	13.30 (4.76 ^{***})
Unemployment		-1.456	-1.6
t	-1.421 (2.83 ^{***})	(2.86 ^{***})	(3.21 ^{***})
Agents	0.002 (2.69 ^{***})	0.002 (2.50 ^{***})	0.002 (3.23 ^{***})
	0.157		0.231
Union	(1.54)	0.218 (2.03 ^{***})	(2.27 ^{***})
	0.217	0.230	0.24
Poverty	(1.46)	(1.52)	(1.68)
		-0.112	-0.112
Urban	-0.105 (3.61 ^{***})	(3.93 ^{***})	(4.48 ^{***})
Construction	-1.029 (2.05 ^{***})	-	-
		-0.79	
Service	-	(1.81 [*])	-
Manufacturing	-	-	-0.96 (2.99 ^{***})
R ² =	0.34	0.333	0.37

T-stats are in parenthesis and ^{***}, ^{**} and ^{*} denote significance at the 1%, 5% and 10% level respectively.

The results of ordinary least square regression support the notion that the Immigration and Naturalization Service was more active where unemployment rates were higher—an indication that the ease of finding and capturing illegal aliens impacts the patterns of enforcement that emerge. Based on the analysis, agents have positive marginal products with more referrals for prosecution coming from districts with more INS agents.

Union membership is significantly related to more vigorous enforcement in two of the three specifications. While union opinion about immigration is most likely changing, our results

indicate that the transformation is far from complete.²

The variable measuring the extent of poverty within each state was not significantly related to INS activity. However, states with a more urban population had less enforcement activity. If city officials press for limited enforcement, this result contributes to the interest-group theory of government explanation for INS activity.

The variables that measure the extent of employment in the manufacturing, service and construction industry in each state were all significantly related to INS enforcement as well. As these sectors comprise a larger portion of a state's economy, the INS engages in less vigorous enforcement activity (the three variables are significantly correlated so each is entered in a separate specification). The results strongly support an interest-group theory of immigration enforcement. Instead of a rogue agency that needs to be brought under the control of Congress, empirical evidence points to an agency compliant to the wishes of its sponsor, that is, Congress. And politicians want to keep their constituents – particularly those that are well-organized – happy.

CONCLUSIONS

This paper fills a gap in the literature by examining the enforcement of immigration laws by the government agency charged with this responsibility in the interior of the nation. While other studies put border enforcement efforts in a political framework, this analysis is the first, to the authors knowledge, to place interior enforcement within the interest-group theory of government framework.

The results indicate that pressure groups shape the pattern of enforcement that emerges. Despite polls that indicate a majority of Americans favoring stricter enforcement, the INS works to please those that matter most politically. While on the surface, the lack of enforcement seems to indicate that the agency is mismanaged or simply has not been given the resources to adequately do its job or suffers from some other unknown malady that thwarts its efforts, the interest-group model renders the perhaps inscrutable behavior of the INS clear, and even predictable. Immigration enforcement agencies, like any other government regulatory body, succumb to pressure from various interest groups.

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² To examine why union effects in model 1 were negligible, we also tested the interaction of union and construction, as well as a right-to-work states variable. This was done to see if the degree to which unions were organized had an effect. Including these variables did not significantly affect the models.

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FINANCE PROFESSORS' PERSPECTIVES ON THE COST OF COLLEGE TEXTBOOKS

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Abstract: This paper reports the results of a national survey of finance professors' textbook selection criteria, and their reactions to potential changes that could be implemented by universities, state legislatures, and publishers to combat cost escalations. Findings suggest that finance professors resist university, legislative, and publisher actions that would limit their freedom in selecting textbooks or specifying the length of time a textbook must be used. There was strong resistance to university policies requiring the lowest cost textbook to be adopted or requiring instructors to keep textbooks for all classes for at least three years.

INTRODUCTION

Textbooks form a critical foundation in higher education. Stein, Stuen, Carnine, and Long (2001) reported that textbooks provide between 75% and 90% of classroom instruction. Because textbooks provide such a critical foundation for instruction, college professors spend a considerable amount of time selecting the appropriate text for their classes.

While many factors influence the textbook selection process, cost has received tremendous recent attention (Carbaugh and Ghosh, 2005; Iizuka, 2007; Seawall, 2005; Talaga and Tucci, 2001; Yang, Lo, and Lester, 2003). For the first quarter of 2007, college textbook sales totaled \$324.3 million (Educational Marketer, 2007). Additionally, the price of college textbooks has increased at an average rate of 6% per year since the 1987-88 academic year, which is roughly twice the rate of inflation. During the same period, tuition has increased at an annual rate of 7%. The National Association of College Stores estimated that textbooks and supplies would cost students between \$805 and \$1,229 for the 2007-08 academic year. The increasing cost of higher education has captured the interest of students, professors, and state legislators. In fact, some states have begun to mandate that instructors offer more choice in textbooks, provide the least costly option without sacrificing content, and work to maximize savings to students (Oklahoma HB 2103).

The purpose of this study was to examine the attitudes of finance professors concerning the cost of textbooks. Specifically, we examined attitudes concerning various options that state legislatures, universities, and publishers are either using or have discussed using as to control the escalating costs of textbooks. Additionally, we sought to learn the extent to which faculty understand how their university bookstores are operated and how the profit from these bookstores is allocated within the university.

The paper is organized by first providing a review of the current literature. Next, we present our data and the empirical results from a national survey of finance faculty. Finally, we conclude with the implications of our research for professors, students, and universities.

THE TEXTBOOK PRICE PROBLEM

Several factors might contribute to the high cost of college textbooks and the perception

that these prices are unreasonable. One potential cause of increased prices is that there are fewer textbook publishers due to consolidations in the publishing industry. Seawall (2005) refers to this consolidation as a flawed production system noting that just four firms – McGraw-Hill, Pearson/Prentice-Hall, Cengage, and Houghton-Mifflin – dominate the industry. Moreover, barriers to entry in the textbook publishing business are large. Publishers' face large costs for printing as well as costs associated with editors and reviewers. Moreover, distribution costs can be significant (Hofacker 2009; Seawall, 2005).

Although some students and legislators might believe that publishers intentionally drive up the costs of textbooks with new editions, the production and marketing of textbooks is very complex and it is difficult to assign blame for the higher prices (Carbaugh and Ghosh, 2005). Publishers contend that used texts and conflicts with authors over royalties contribute to reduced profits on the books that are published (Carbaugh and Ghosh, 2005; Iizuka 2007). This has created a unique relationship among authors, publishers, bookstores, and wholesalers.

Publishers argue that new editions of texts are necessary to offset reduced sales volume that occurs from students purchasing used books or not purchasing a book at all (Carbaugh and Ghosh, 2005). Moreover, Iizuka (2007) found that textbook publishers engage in planned obsolescence. That is, textbook publishers came out with new editions when the supply of used books increased to the point that sales of the current version were negatively impacted by the supply of used texts. The purpose of the new version was to "kill off" the supply of used books. Publishers are aware that if new versions come out too often, people will be unwilling to pay a high price for the book. Therefore, publishers need to find an optimal revision cycle coordinated with the supply of used texts.

The result is a distinctive competitive environment among college textbook publishers. Demand for new textbooks is depressed by the comprehensive system of buying and selling used textbooks set up by used book dealers. Since not all students purchase the required text for a class, the demand for both new and used books is reduced. However, professors seem to believe in the instructional value of textbooks and continue to assign them as required reading. Furthermore, professors make assignments with the expectation that students will purchase the book or attain one for use during the course.

Rather than reduce costs, textbook publishers have been accused of using tactics that increase the cost of textbooks. For example, publishers drive up the costs of new texts with extras such as CDs, workbooks, and online material. These items are often "bundled" with the textbook so that the student must purchase these items even if they are not used in the class for which the textbook was purchased. This tactic increases the cost of texts because it requires an additional investment by the publisher that must be recovered in shorter and shorter time frames and a potentially lower sales volume.

Another economic actor in this picture is the used textbook wholesaler. The used textbook business thrives by purchasing used textbooks from students, college bookstores, and examination copies from professors. Used texts cost between 25% and 50% less than the price of a new book and are a frequent substitute for new books. However, new and used texts present differing merchandising problems for university bookstores. Because of the high prices bookstores must pay the publisher, many university bookstores have a low profit margin on new textbook sales and must rely on the sale of other merchandise to make a profit (Carbaugh and Ghosh, 2005). The markup for used texts is much better, but there are sourcing problems. Bookstores may have difficulty getting the correct edition of a particular text in the quantity needed. Often this process means contacting several wholesalers for one text. Further, used

textbook wholesalers typically do not allow unsold texts to be returned while the publishers do allow returns. If a bookstore miscalculates its need for used texts, it could find itself with substantial unsold inventory.

Publishers have also found themselves in a difficult situation in terms of the international version of textbooks. Publishers will often “dump” textbooks overseas by selling them for less in a foreign market than they do in the domestic market. The argument is that foreign students cannot afford to pay more than the price charged overseas and that the publisher needs to produce the books to achieve economies of scale (Carbaugh and Ghosh, 2005). A criticism of that practice is that textbook publishers are allowing relatively affluent American students to subsidize students in other countries. In response, many students will purchase the international edition of the text in order to reduce their costs (Paul, 2007).

While the textbook industry may be an oligopoly with four major firms, once a professor decides to adopt a particular text, the publisher has a monopoly for that course (Iizuka, 2007; Talaga and Tucci, 2001). Faced with a monopolistic situation, students have the option of buying the book new, used, or not at all. Other product variables such as quality, brand, and packaging are eliminated so students focus on the only option left – price.

Students can use various strategies to combat the high cost of textbooks. A 2008 National Association of College Stores survey found that only 43% of students buy the required books for their courses (Carlson, 2005). Additionally, some of these students turn to online texts. Paul (2007) reported that 11% of students preferred online texts. Perhaps this is because online books are generally less expensive than the same texts available at the university bookstore (Yang, et al., 2003). However, Carlson (2005) reported that seventy-three percent of students still prefer traditional texts. Other students share a textbook with another student taking the same course, borrow a textbook, rent if from one of the book vendors, rent textbooks online (Foster, 2008), swap books online (American Association of State Colleges and Universities), or view the library copy of the text (Paul, 2007).

CONTROLLING THE COST OF TEXTBOOKS

Universities and faculty are exploring ways to lower the costs of textbooks. For example, the University of Dayton and Miami University use e-textbooks for some courses (Gottschlich, 2008). The faculty of Rio Salado College in Arizona prints their own textbooks by picking and choosing only what they need for a course (Guess, 2007). Additionally, there are advertiser-supported free textbook downloads (The Campaign to Make Textbooks More Affordable) and textbook reserve programs where textbooks for basic courses are purchased by the student government association and the books are put on a two-hour reserve in the library.

Textbook publishers are attempting to address the issue of high cost textbooks. However, one challenge that they face is that textbook marketing methods increase the cost of textbooks. For example, publishers encourage professors to examine and adopt their books by marketing directly to the professor. However, examination copies drive up the cost of textbooks for students, contribute to the used book market, and involve ethical issues (Robie, Kidwell, and Kling, 2003; Smith and Muller, 1998).

The practice of sending out complimentary copies of textbooks for possible adoption has traditionally been the best way to get adoptions for new texts. However, this is a high cost promotional approach since the books are usually not returned and the books find their way to textbook wholesalers, reducing the profitability of the text for the publisher. Other options that

publishers could utilize include:

1. Sending a few unbound chapters of a text, sample cases, instructors' notes, and parts of solution manuals rather than the entire book.
2. Developing a tracking system to identify "book collectors" who order examination copies of textbooks but never adopt the books. Also, have those professors purchase the examination copy for some nominal fee.
3. Not sending unsolicited copies of a textbook to professors unless the professor is using a previous edition of the text. One colleague's publisher sent out 4000 unsolicited copies of a new marketing text to "get the product in the hands of the decider." The result was that the wholesale market was flooded with copies of the text and even book buyers wouldn't buy unused copies of the book.
4. Requesting information such as the course name, number, if the course is currently being taught, and the name of the current text being used for the course from an examination copy requestor.
5. Sending books out for a 30-day review period to those requesting an examination copy and bill the requestor at the end of the time period for the at least the cost of the book to the publisher if not returned or adopted.
6. Providing online access, or a CD of a new text, to professors that request an examination copy.
7. Providing only one examination copy per department instead of sending a copy to everyone in the department that requests a copy.

While all of these approaches, except the online examination, represent new costs of preparing and mailing, they would reduce the cost of sending out complete packages and the risk of complete texts finding their way to the book buyers. Since the reproduction and shipping costs of CDs are relatively low, this could be a way to get the examination copies to faculty (although a market may develop for these items overtime).

As indicated in the review, textbook pricing is a complex issue, and many players and economic factors influence the price charged for an individual book. In an effort to expand our understanding of attitudes toward some of these initiatives to control textbook prices, we conducted a national survey of finance faculty to determine their reactions to various textbook cost issues. The details of the study and the results follow.

STUDY

This study was conducted using Internet survey methodology. A random sample of 1,663 finance professors was selected from universities throughout the United States using university websites. We sent an e-mail to these individuals explaining the purpose of the study and a link to click on if they were willing to participate.

The survey consisted of 17 questions addressing the topic of textbook costs and related issues. A 5-point rating scale was used to measure faculty reactions to potential university, governmental, and publisher actions to control textbook cost. Additional questions dealt with the criteria for adoption, frequency of switching, complaints from students about textbook cost,

competition from non-campus bookstores, and demographic questions such as academic rank, years of teaching experience, and university enrollment. The final section of the questionnaire permitted respondents to make specific comments about the issue of textbook costs.

RESULTS

Of the 1,663 e-mails sent to finance professors, 225 were returned for various reasons (wrong e-mail address, insufficient e-mail address, or the e-mail was viewed as SPAM by the university's e-mail filter system). Of the 1438 e-mails that were delivered, 117 finance professors responded, yielding a response rate of 8.1%.

The typical respondent held the rank of full professor (40.5%), had been teaching for 20 or more years (53.0%), and taught at a public institution (62.1%) with an enrollment between 5,000 and 19,999 students (45.3%) that offered a bachelor's and/or a master's degree (87.2%). Moreover, for multiple-section courses with multiple instructors, textbook selection was a group decision (55.6%).

As Table 1 reveals, content was the number 1 selection criterion, followed by cost, ancillary materials, the edition of the text, and length of the text. Interestingly, content is the most important selection criteria and length of text is the least important criterion for subgroups based on frequency of switching, whether or not the professor received complaints about textbook cost, the number of years of teaching experience, academic rank, and university enrollment. Thus, it appears that professors view their job as providing the best possible textbook to their students. However, professors are sensitive to cost issues. In earlier studies by the authors, cost was the third most important consideration in textbook adoption, which may indicate that professors have increased their sensitivity to cost as a selection criterion. For the individual subgroups, cost ranks two or three with only minor differences between the rankings.

Table 1 - Ranking of Selection Criteria

	Mean*
Rank importance of content	1.10
Rank importance of cost of text	3.09
Rank importance of ancillary materials	3.16
Rank importance of edition	3.64
Rank importance of length of text	3.98

*1= most important, 2= second most important, 3=third most important, 4=fourth most important, 5=least important

When asked about student complaints regarding textbook cost, 82.9% of respondents reported receiving student complaints about textbook cost and they estimated that only 74.7% of their students actually purchased or rent the required text for their courses. Because 56.4% of the respondents indicated that one or more off-campus bookstores were located near campus, cost rather than availability appears to be the critical issue in the purchase decision

Subgroup analysis suggests that, the cost of textbooks is a more important determinant of the selection process for professors that have received complaints from students about textbook cost (mean = 2.98) than it is for professors that have not had students complaints (mean = 3.71). Moreover, t-test results suggest that the difference is statistically significant (p-value = .013). Thus, at least part of the increased importance of textbook cost to finance professors might be attributed

to student complaints.

Table 2 shows the frequency of changing textbooks. The majority of respondents changed their book within three or fewer years. When the questions in Table 1 were analyzed by those switching every two years or less compared those switching every three years or more, t-test results reveal that only the edition of the text was statistically significant (p -value = .088). Thus, the frequency of switching may coincide with the cycle of new editions introduced by publishers.

Table 2 - Frequency of Changing Textbooks

	Frequency	Percentage
Once a year	5	4.3
Every two years	32	27.4
Every three years	49	41.9
Every four years	13	11.1
Every five years	5	4.3
Longer than five years	13	11.1

Respondents' attitudes toward various state and university actions were measured using a 5-point scale (strongly agree to strongly disagree). High means indicate stronger disagreement with a particular action. As shown in Table 3, there was disagreement with all of the potential actions measured. This was particularly true of a university policy requiring low-cost textbooks be adopted and requiring instructors to keep textbooks for all classes for at least three years. Moreover, this strong objection was consistent across all subgroups based on frequency of switching, whether or not the professor received complaints about textbook cost, the number of years of teaching experience, academic rank, and university enrollment. The most accepted solutions were to require publishers to unbundle and for publishers to provide cost information. Interestingly, student complaints are being heard and those complaints have decreased resistance to policies that would require multiple sections to keep textbooks for a minimum of three years and instructors to keep textbooks for all classes a minimum of three years. Moreover, t-test results indicate that these results are statistically significant (p -values = .055 and .000, respectively). However, the disagreement remains relatively strong (means above 3.4 and 3.8, respectively) even for professors that received complaints. Thus, it appears that professors are sensitive to students' financial considerations; however, the quality of the textbook trumps cost considerations.

Respondents' attitudes toward various publisher actions were also measured using a 5-point scale from completely acceptable to completely unacceptable. As shown in Table 4, the three actions that were most acceptable were requesting course name and number for examination copies, sending parts of the text rather than the entire text, and providing online or CD versions of the text for review for possible adoption. Moreover, instructors that received complaints from students about textbook cost were statistically more willing to accept online or CD access of a textbook for review (p -value = .056). The two least agreeable actions were sending only one examination per department and sending an invoice after a 30-day review period.

Table 3 - Attitudes toward Various Actions to Control Textbook Cost

Potential Action:	Mean
Legislation require publishers to unbundled textbook material	3.04
Legislation to require publishers to provide cost information	3.19
Multiple courses use the same textbook	3.25
University purchase and rent textbooks for a low fee	3.43
Require publishers to provide textbook copies on reserve in library	3.49
Multiple sections keep textbooks for minimum of 3 years	3.53
Instructors keep textbooks for all classes a minimum of 3 years	3.95
University policy require lowest cost textbook be adopted	4.81

Scale is 1= strongly agree to 5= strongly disagree

Table 4 - Attitudes toward Various Actions by Publishers to Lower Textbook Costs

Publisher action:	Mean
Request course name/number be sent with exam copy	1.88
Send parts of text rather than entire text	1.96
Offer online access or CD of new text for review instead of a hard copy of the text	2.07
Develop a tracking system to identify "book collectors"	2.54
Don't send unsolicited copies unless using previous edition	2.61
Send only one examination copy per department	3.83
30-day review period after which an invoice for the cost of book is sent to the instructor	3.85

Scale 1= completely acceptable to 5=completely unacceptable.

Finance professors have strong resistance to university, legislative, and publisher actions that infringe on their freedom in selecting textbooks or mandating how long they would have to use a specific text before replacing it with a newer edition. This was particularly true of university policies requiring adoption of low-cost textbooks or requiring instructors to keep textbooks for at least three years. Moreover, finance professors disliked the idea of publishers invoicing them for a textbook after a 30-day review period or sending only one examination per department.

When faculty were asked for other comments, several trends were noted: (1) many felt that online versions of a text would eventually replace hard copies of textbooks and that (2) many of the ancillaries offered by publishers increase the cost of textbooks without adding real value to a student's learning experience. Thus, new technologies and increased publisher

competition may cause changes in both the way textbooks are accessed and how they are marketed.

CONCLUSION

Our paper was motivated by increased concerns about the cost of college textbooks, proposed legislation to reduce costs, and actions under consideration by some publishers to curb costs. We conducted a nationwide survey of finance professors and found that cost was secondary to content as a textbook selection criterion and that approximately one-third of professors change textbook in two years or less. Moreover, professors are resistant to any of the proposed legislative actions, and most of the actions of that publishers can use to reduce textbook cost. Finally, professors that have received complaints from students about textbook cost are more sensitive to the issue.

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THE ROLE OF INFORMATION QUALITY AS A MEDIATOR OF THE TRUST - PERFORMANCE RELATIONSHIP

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Abstract: This study examines the relationship of trust to performance in interorganizational relationships and the mediating role that information quality plays in this relationship. While the relationships between trust and performance and between trust and information quality are supported in the literature, no study has examined information quality as a mediator in the trust-performance relationship. In an examination of suppliers to a large southwestern university, it was found that information quality partially mediates the trust – performance relationship.

INTRODUCTION

A popular mechanism utilized in business is interorganizational relationships (Cyert and March, 1992; Nooteboom, 2000). Member firms, through the collaborative efforts of these networks, work to achieve higher performance through these collective efforts (Astley and Van de Ven, 1983). One such interorganizational network that continues to receive a great deal of attention in the literature is the supply chain. Organizations utilize supply chains to increase productivity and gain a strategic advantage (Mentzer *et al.*, 2001).

Researchers have examined many variables within the supply chain to determine the effect these variables have on performance. Variables such as trust (Nooteboom, 2000), information (Huber and Daft, 1987; Peterson *et al.*, 2005), and even satisfaction (Benton and Maloni, 2005) have all been found to be statistically significant in their relationships with performance. While these variables do relate to performance, there is a need to examine how these variables interact with each other to affect performance.

The purpose of this study is to examine the relationships between interfirm trust, information quality, and firm performance. Since performance can encompass many areas, this study examines the performance of the supplier in regards to service to the buyer in areas such as on time delivery, completion of work orders, and the continued use approved products and procedures. Research to this point has focused on trust, information quality and performance in several other contexts but not on the relationship of these variables together. Specifically, this study proposes that information quality will mediate the relationship between interfirm trust and firm performance. In this context, the quality of the information passed between the supplier and the buyer both enacts, and represents the quality of, the exchange relationship. A high level of trust between the organizations leads to full disclosure from both parties of information needed to ensure higher levels of performance.

In practice, the coordination and collective actions of multiple organizations continue to be a popular mechanism for organizations to achieve greater efficiency and effectiveness. One distinct approach in examining these interorganizational relationships (Schmidt and Kochan, 1977) is from the exchange perspective, informed by social exchange theory (Blau, 1964; Lin, 2001). Social exchange theory holds that investments in the relationship between two parties results in the parties' high quality relationship which, in turn, compels each party to respond to the other's inputs in positive ways. In the organizational exchange perspective, two or more organizations invest in relationships with each other in order to achieve organizational

objectives not necessarily attainable by entities working alone (Levine and White, 1961).

The drive to utilize these interorganizational relationships often occurs when resources are in short supply (Aiken and Hage, 1968), and the key driver within these relationships is coordination of resources (Astley and Van de Ven, 1983). These firms working together can achieve a competitive advantage (Mentzer et al., 2001). In the beginning of these relationships, the member firms often take small, incremental steps in their collaborative efforts until they reach a point of confidence with each other in both the relationship and the outcomes of the relationship (Friedman, 1993; Van de Ven, 1976). The continued collaborative efforts allow the building of trust, which can lead to greater performance for both member organizations.

Nooteboom (2000) categorizes six forms of coordination operating within these interorganizational relationships: initially, evasion involves withholding of information from another organization; integration involves a uniting of administrative control; contracting follows as a method of holding the organization to a predetermined agreement; mutual self-interest is a mechanism that can help to keep each of the organizations in alignment; and finally, trust is the fifth mechanism, in which each organization has confidence that the other will not act opportunistically. The networking efforts can also be beneficial to the firms, in that critical resources, specifically critical information flow, are controlled by the members. This coordination allows the bridging of structural holes (Burt, 1992). Interestingly, as organizations continue to coordinate for success, a greater reliance on the relationship itself continues to lead to greater performance. The premise in this study is that greater coordination, including high information quality, is spurred by higher levels of trust within these relationships. As these organizations continue to enhance their information coordination, then, performance will also increase.

PERFORMANCE

Performance within interorganizational relationships continues to be an important area of investigation as firms seek ways to gain market share, reduce costs, and increase revenues. The overall goal of all of this interfirm coordination is the enhanced performance of the member firms, or at a minimum, the collective survival of the parties within the industry (Astley and Van de Ven, 1983). As organizations work together and increasingly learn how to collaborate, opportunity exists for greater performance, sometimes in the form of greater innovation and knowledge for the member organizations (Miles, Snow, and Miles, 2000).

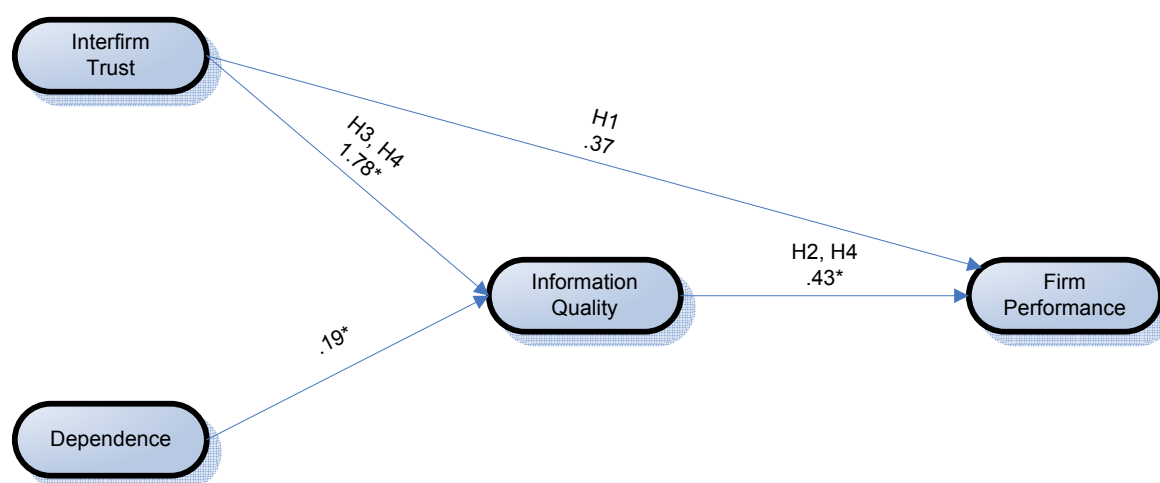
As organizations work together, forming closer bonds (Ring and Van de Ven, 1994), the outcomes of their efforts can be increased. As social exchange theory suggests, they will develop a greater level of trust between parties, thus generating a greater degree of collaborative efforts without fear of opportunistic activities by the other party (Blau, 1964). Uzzi (1997) summarizes these closer bonds between actors as embeddedness by the actors. In his examination of interorganizational relationships in the garment industry, Uzzi finds that a greater embeddedness of the actors with one another led to greater performance in the form of economies of time as well as easier working relationships.

Performance within interorganizational relationships has been studied in supply chain networks. In supply chain networks, interorganizational relationships that work well and focus on efficiency have seen increases in performance for the entire network. Within the supply chain, there are advances that lead to greater supply chain performance. Some of these include purchasing integration and practices (Narasimhan and Das, 2001; Dong *et al.*, 2001), enterprise resource planning (ERP) tools (Kelle and Akbulut, 2005), quality and quality

assurance (Lin *et al.*, 2005), flexibility (Narasimhan and Das, 1999), and JIT (Dong *et al.*, 2001). Some facets of performance that are increased include cost reductions, lead-time decreases, and lower defect rates. However, there are still many determinants of performance that need to be examined empirically, and this research is focused on that goal. If researchers can examine and verify these determinants, organizations can begin to put them in practice. Some of these items that need to be examined are discussed next and include trust and information quality. Trust and information quality have both been found to be important for organizations, but what does this relationship look like? The following sections build a theoretical model for information quality as a mediator for the trust/performance relationship. For an illustration of this model, see Figure 1. This model is then tested empirically.

Figure 1

Significant Standardized Path Coefficients in The Final Model



Trust and Performance

A concept that has received considerable attention in supply chain networks is trust. The definition of trust for this study is the expectation that the other party's performance will be as anticipated and that the treatment by the other party will be fair and reasonable (McAllister, 1995; Johnston *et al.*, 2004). Trust is composed of two parts. The first part, the cognitive aspect, is determined by the perceived fulfillment of the expected performance (Deutsch, 1958; McAllister, 1995). The second part, the affective aspect, is the intrinsic value or the genuine care or concern between the actors (Lewis and Weigart, 1985; McAllister, 1995).

Previous research has established that a relationship between trust and performance within organizations does exist (McAllister, 1995). Those organizations that have greater trusting relationships are able to efficiently and effectively cooperate for success (Johnston *et al.*, 2004; Benton and Maloni, 2005). This study attempts to replicate that relationship in the supply chain with these suppliers to the buyer, thus further indicating this relationship. This trust/performance relationship will then be examined later in light of information quality as a mediator of that relationship. This relationship can be seen in Figure 1.

Hypothesis 1: There is a positive relationship between supplier trust and supplier performance in interorganizational relationships.

Information Quality and Performance

In developing the role that information quality plays between trust and performance, it is important also to look at the theoretical relationship of information quality with performance as well. Good information or information quality is vital to organizational success (Huber and Daft, 1987). The definition of information quality for this study is the degree to which the information the individual organization receives from the other organization is accurate, timely, adequate, complete, and credible (Daft and Lengal, 1986; Huber and Daft, 1987; Monczka *et al.*, 1998). Communication through the availability of information is a vital component of collaboration. According to Guetzkow (1966), information must be available systematically for the effective completion of required tasks. Not only is information exchange necessary for performance, but there is an increase in satisfaction when information is systematically available within an organization (Schuler 1979). In examining collaborative relationships, Devlin and Bleackley (1988) find that the exchange of quality information predicts the success of a partnership.

Better information flow has important benefits for supply chains. Advancements in technology and data sharing enhance information flow. By utilizing advanced systems, companies are reducing costs and utilizing their resources successfully (Martin, 1995; Johnston *et al.*, 2007). Because of this improvement, supply chain partners are continuing to develop better methods for transferring information that are beneficial for each party (Gopal and Cypress, 1993). This enhancement leads to greater success because of the ability to speed up the entire transaction between the partners (Murphy, 1998). These benefits are becoming more and more available to companies and supply chains, regardless of size, because of increasing technology, which facilitates these exchanges and thus produces greater performance (Stefansson, 2002).

Supply chains are utilizing better information to facilitate the ability to plan more strategically and respond more successfully to the demands of the partner. This ability to plan key variables, such as capacity of the supplier, through good information provided by the buyer, creates a better and more efficient chain that benefits both parties (Chapman and Carter, 1990; Raturi, et al., 1990). This quality information exchanged between the partners plays a key role in the relationship and the performance of the supplier.

Because quality information is indicative of better coordination between the actors within supply chain and helps the supplier better plan for meeting the buyer's needs, information quality plays an important role in enhancing performance within the relationship (Gopal and Cypress, 1993; Stefansson, 2002). Agrell *et al.* (2004) indicate that it is a key part of the supply chain, meaning that organizations that have better information quality will have better success.

In their study on supply chain relationships, Ellram and Hendrick (1995) find that partnering organizations continually share information needed for mutual understanding, operational information necessary for smooth operations, and information regarding high corporate level issues important for good coordination. In addition, Anderson and Narus (1990), in their examination of supply chain partnerships, find that the sharing of information is very important for interorganizational relationships. What is necessary is a norm of information exchange between member firms, where information that might be useful or helpful is given and received frequently and openly (Heide and John, 1992).

Building on the premise that the relationship between communication and performance is influenced by supplier attitudes and behaviors, it is suggested that better quality of information is related to greater levels of performance. In the social exchange literature, leader-member exchange (LMX; Graen and Scandura, 1987) represents the overall quality of the relationship between the leader and the member and leads to positive attitudinal and behavioral outcomes. Here, it is proposed that the quality of the interfirm information exchange reflects the quality of the relationship between the firms. Thus, as a means of interfirm cooperation and collaboration, the exchange of information will produce enhanced performance for each of the member firms. Thus, the relationship between information quality and performance is examined in this research within the supply chain.

Hypothesis 2: There is a positive relationship between information quality and supplier performance in interorganizational relationships.

Trust and Information Quality

A great deal of attention is being placed on how trust affects the relationships between the organizational actors, not just on how it affects performance (Johnston *et al.*, 2004). Trust within interorganizational relationships has even been touted as one of the most “fragile and tenuous” aspects of relationship management because of the potential for trouble between the collaborating actors (Handfield and Nichols, 1999).

Trust is an important predictor of behavior within organizations in the supply chain because those suppliers and buyers that have greater trusting relationships between each other are able to cooperate for success efficiently and effectively (Johnston *et al.*, 2004). The more embedded organizations are with each other, or the greater the connection that exists between the organizations, the quicker they can respond to changes or problems and, therefore, the more easily they can solve problems (Uzzi, 1997). Trust influences performance and satisfaction among member firms, in that firms that perceive greater trust are more concerned with the relationship itself and therefore place more emphasis on building and maintaining the relationship (Benton and Maloni, 2005). Thus, trust is an important aspect of interorganizational networks (Morrow *et al.*, 2004).

Based on the literature review, it is hypothesized that trust within the supply chain relationship will lead to greater levels of information quality. In this case, the idea is that the more trust a supplier has towards the buyer and therefore the higher the belief that the other firm will not act opportunistically, the greater the information flow will be and the greater the quality of information will be. With regard to information quality, when there is more trust between the supplier and the buyer, the supplier will be more informed due to the lack of misleading or inadequate information because the buyer will not feel the need to conceal or manipulate information. This reduction of uncertainty regarding the buyer’s actions or tendencies towards opportunistic behavior (Williamson, 1975) allows the supplier to service the requirements of the buyer more capably. As trusting relationships increase the ability to cooperate for success within interorganizational relationships (Johnston *et al.*, 2004), information quality will be increased to facilitate this cooperation. Here, it is asserted that the quality of the relationship, as represented by the quality of the information exchange, is influenced by the level of trust between the firms.

Hypothesis 3: There is a positive relationship between supplier trust and information quality in interorganizational relationships.

Information Quality as Mediator

As indicated by the proposed direct relationships between trust and information quality and firm performance, respectively, and between information quality and firm performance, information quality is expected to be a mediator between trust and performance (see Figure I). This relationship has not yet been examined in previous literature even though the role information quality is expected to play is very important. While trust is hypothesized in this study to be positively related to performance, as has been demonstrated in previous literature (McAllister, 1995), this relationship is expected to exist, at least partially, through the mechanism of information exchange quality. The reason for this expectation is that trust within a relationship may lead to greater levels of honest, open, and high quality communication and thus, enhanced performance.

Hypothesis 4: Information quality mediates the relationship between interfirm trust and firm performance.

METHOD

Sample

Electronic survey data were collected from the approved vendors of a large university in the southwestern United States. The individual targeted as the respondent for the survey is the primary informant for the vendor organization that supplies the university. The individuals who completed the survey were mainly at the level of president or CEO (39%), manager (15%), or company representative (26%) and had an average of 9.7 years experience with their company and an average of 6.7 years working with this university. The average size of the companies represented had 83 employees. The sample respondents were asked to rate their perceptions of the measured items, thus, they were rating their own dependence, trust, perceptions of the information quality, and their own continuous quality improvement.

A list of approved email addresses was provided by the university. The original sample size consisted of 2,942 email addresses of vendors. Of this number, 901 emails were immediately returned undeliverable. Sixteen individuals contacted the researcher directly, stating they were not a vendor. Of the remaining 2,025 contacts, 498 actually accessed the web survey indicated a click through rate of 25%. Of the 498, 156 individuals completed the survey indicating an 8% overall response but a 31% response of those that accessed the survey. While this response rate seems low, surveys with as low as 5% response rate have been successfully used before (Alreck and Settle, 1985; Angeles and Nath, 2000). 146 of the 156 surveys were usable after removing those cases with low response.

Armstrong and Overton (1977) state that late respondents are similar to non-respondents. In order to test for a non-response bias with this sample, a Levene's Test of Homogeneity of Variance and an ANOVA were run comparing the first quartile of respondents with the last quartile of respondents. There were 78 responses examined in two groups of 39 each. The groups were compared against the four primary variables and performance. The results of the ANOVA and the Levene test show no statistical significance among the groups in the variables, thus indicating no non-response bias.

Measures

Trust is measured using Morgan and Hunt's (1994) six-item scale that examines the

confidence that the supplier has in the integrity of the buyer. This measure reflects the reliability of the buyer to the supplier in this relationship. Trust (previous $\alpha = .949$) is examined using a seven-point Likert scale with responses ranging from strongly disagree (1) to strongly agree (7).

Information quality covers five primary areas. These areas include information that is accurate, timely, adequate, complete, and credible (Daft and Lengal, 1986; Huber and Daft, 1987; Monczka *et al.*, 1998). Information quality is measured using Mohr and Spekman's (1994) five questions on information quality (previous $\alpha = .910$) using a seven-point Likert scale ranging from (1) not timely (accurate, adequate, etc.) to (7) very timely (accurate, adequate, etc.).

Performance is measured using questions designed specifically for this study. These measures assess the perception of the organization's performance in seven areas ranging from on time delivery and full completion of work orders to using approved products and procedures. Examples of the items used in this study include – My company always delivers on time to this buyer, my company uses only approved products when working for this buyer, my company uses only approved procedures when working for this buyer, and my company always corrects all problems or mistakes prior to acknowledging completion of our work order. These items work well with this sample because these suppliers must hold to certain guidelines for their work when working for the university. These items are measured using a seven-point Likert scale ranging from strongly disagree (1) to strongly agree (7).

In order to ensure a fully specified model, we included two additional variables that have been shown to be positively related to performance are included as controls. These variables are dependence and continuous quality improvement. Dependence has been found to relate to performance has been found previously to relate to performance because the dependent actor will see that the relationship is considered important, the outcomes from working with the other party are better than other outcomes from other sources, there are few alternative sources for the desired outcome, and there are few alternatives for exchange (Peffer and Salancik, 1978; Lusch and Brown, 1996.) Therefore, when there is perceived dependence on the part of the actor, that actor will utilize offsetting investments to balance the dependent relationship, which includes adding value to the product, procedures, or activities, thus creating higher performance. In addition, continuous quality improvement has been found to lead to greater performance. It has been found to lower costs, improve accuracy, and lower defects as well as create more effective and efficient systems and processes to carry out the organizations tasks with a minimum of waste with higher performance (Deming, 1975; Magal, 1991; Rands, 1992; Ferguson and Zawaki, 1993; Prybutok and Ramasesh, 2005). Dependence is measured using three items from Lusch and Brown (1996) and two items developed for this study, and continuous quality improvement is measured using seven items adapted from Prybutok and Spink (1999).

Analysis and Results

Measurement Evaluation. Scales are developed for each of the variables by taking the mean of the respective scale items. The means, standard deviations, correlations and reliabilities for trust, information quality, performance, dependence, and continuous quality improvement can be found in Table 1. All data were normally distributed and appeared to be free from any problems. In order to determine the appropriateness of the assessment scores in this study (Messick, 1995), the item scores were examined to evaluate the consistencies of the measurement variables and construct validity. Confirmatory factory analyses performed in LISREL examined each latent variable, indicating that each of the scales was unidimensional.

The results of this analysis can be found in Table 2. In addition, analysis using LISREL examined each latent variable and its corresponding variables. Discriminant validity was then examined. The results of this analysis can be found in Table 3.

Table 1**Means, Standard Deviations, Chronbach's Alphas and Correlations**

Construct	Means	S.D.	1	2	3	4	5
Trust	6.03	1.16	(.983)				
Information	5.84	1.06	.679**	(.955)			
Performance	6.21	.81	.485**	.594**	(.922)		
Dependence	4.18	1.50	.459**	.498**	.473**	(.904)	
CQI	6.11	.89	.161	.383**	.453**	.371**	(.942)

Note: **Correlations are significant at the 0.01 level (2-tailed).
Reliability coefficients are presented on the diagonal.

Table 2**Factor Pattern/Structure Coefficient for Variables**

Item	Trust		Information Quality		Dependence		CQI		Performance	
	Factor	h ²	Factor	h ²	Factor	h ²	Factor	h ²	Factor	h ²
1	.931	.866	.845	.714	.836	.699	.847	.718	.786	.617
2	.964	.929	.961	.923	.902	.814	.867	.751	.791	.626
3	.966	.932	.930	.865	.884	.782	.860	.740	.869	.756
4	.965	.930	.959	.919	.825	.681	.848	.718	.834	.696
5	.958	.919	.908	.825	.800	.640	.802	.643	.870	.756
6	.976	.953					.915	.837	.771	.595
7							.897	.804	.860	.740
Total	92.156		84.911		72.300		74.458		68.364	
Variance Explained										
Initial Eigenvalue	5.529		4.246		3.615		5.212		4.786	
Second Eigenvalue	.181		.357		.707		.696		.604	
Alpha	α = .983		α = .955		α = .904		α = .942		α = .922	

Table 3**Construct Fit Indices**

Construct	χ ²	d.f.	CFI	GFI
Trust	46.58	9	.97	.91
Information Quality	3.37	5	1.00	.99
Performance	37.69	14	.98	.93
Dependence	64.50	5	.90	.85
CQI	174.64	14	.89	.73

Structural Model Specification and Evaluation. A saturated model was specified in LISREL 8.52 (Joreskog and Sorbom, 2002), in which we included dependence and continuous quality improvement were included as non-focal exogenous variables in order to achieve a more fully specified model. One significant path had not been hypothesized, indicating a positive relationship between dependence and information quality. Next, this study's theoretical model was specified (CFI = .94, RMSEA = .16, $\chi^2 = 22.25$, df = 4). Because the saturated model indicated a non-hypothesized significant path, a new, final model was developed that included our theoretical model paths and the additional non-hypothesized significant path between dependence and information quality (CFI = .98, RMSEA = .10, $\chi^2 = 8.32$, df = 3). The theoretical model was compared with this "final" model using a chi-square difference test (critical value for 1 df = 7.815, $p < .05$), and the final model was retained. The final, retained model was compared with a model in which no direct paths were specified (CFI = .94, RMSEA = .15, $\chi^2 = 23.33$, df = 4) using a chi square difference test (critical value for 1 df = 7.815, $p < .05$), and the final model was retained. The retention of the final model, which includes a direct path between trust and performance, indicates that any mediation in the final model is partial rather than full.

Hypothesis Evaluation. The hypotheses regarding the relationships between the exogenous and endogenous variables in the final model were tested. The significance of each path was determined by the t-statistic found in the unstandardized beta and gamma estimates, where a value of 1.96 or greater indicates a significant direct path. Figure 1 indicates hypothesized and non-hypothesized significant paths in the partially mediated model and provides their standardized path coefficients.

Hypothesis 1, that there is a positive relationship between supplier trust and supplier performance in interorganizational relationships, was supported. Hypothesis 2, that there is a positive relationship between information quality and supplier performance in interorganizational relationships, was supported, as was the hypothesis that there is a positive relationship between supplier trust and information quality in interorganizational relationships (H3). Additionally, a non-hypothesized significant path, which indicates a positive relationship between dependence and information quality, was found.

Hypothesis 4, that information quality mediates the relationship between interfirm trust and firm performance, was supported and thus, partial mediation was indicated.

DISCUSSION, LIMITATIONS, AND CONCLUSION

The objective of this study was to investigate the relationship of information quality to perceived organizational trust and performance in the supply chain relationship. Previous literature examined these variables in direct relationship to each other, but the examination of information quality as a mediator provides a contribution to the body of research in this area. To accomplish this, a theoretical model was introduced to examine these relationships and the mediating relationship of information quality. The results of the analysis indicate that the control variables of organization size, years as a supplier, and years as a manager are not statistically significant in relating to organizational performance. The results did indicate that trust and information quality both are significantly related to performance in the perceptions of the supplier organization and that trust is significantly related to information quality. In addition, the mediating relationship of information quality was found to be significant as a mediator of the trust-performance relationship.

It was hypothesized that those supplier organizations that perceive greater levels of trust will also perceive higher levels of information quality. Support for this positive relationship is

found through the LISREL model. This indicates that the relationship between organizations is important in that those organizations that have a more trusting relationship are more likely to have greater levels of information exchange, thus facilitating higher performance.

In addition, it was also hypothesized that those suppliers that do experience higher levels of information quality exchange have higher performance. Again, the LISREL model did indicate that this positive relationship does exist. The suggestion here is that those organizations that have better information exchange are more capable of working together thus achieving higher performance. There will be less mistakes in the presence of better information.

Another hypothesis tested in this study is that those suppliers that perceive higher levels of trust will have higher performance. This hypothesis was also supported indicating that trust does play an important role in the performance of the organization. Those organizations that have a higher level of trust are more likely to have a relationship which facilitates higher performance. If an organization has the sense that it can trust the buyer in this interorganizational relationship, the organization will not act opportunistically and will perform better.

Of the hypotheses tested, the one of greatest interest in this study is the mediating relationship of information quality with trust and performance. Much of the research on supply chains focuses on processes such as JIT and quality, but there is beginning to be interest in relational variables such as trust in the supply chain. The results of this study indicate that trust does play an important role in the performance of suppliers within the supply chain, but the effects of this trust are dependent upon the presence of information quality. What may be of interest to future researchers is how this trust provides a mechanism for information quality to exist and how this information quality may then affect other such areas of performance such as innovation.

This study provides important implications for management and practice. A major contribution is that the relationship variable of trust is important in the supply chain for performance. Both the supplier and buyer managers should realize that there is benefit in building a trusting relationship between firms. In addition, the continued increase in quality information exchange should be of top priority. While trust may be good to help keep organizations working collectively and experiencing good performance, that performance for suppliers is very much dependent upon the quality of information exchanged between firms. Suppliers constantly need information that is accurate, timely, credible, adequate, and complete.

There are several limitations of this research. First, this study examines these relationships in the interorganizational setting in a supply chain, but the supply chain is only one of several types of interorganizational relationships. Future research should examine these variables in other organizational forms such as joint ventures or strategic alliances. In addition, this study looks at the relationship of one buyer with many suppliers. The results may differ with multiple buyers and suppliers in other organizations or networks. Another limitation is the use of one respondent from each organization. While there is support for using this method with interorganizational research, organizational representative may not view the relationship or these variables in the same way that other individuals in differing roles may view the relationship. The reliance on self-reported data can also be a limitation, and other methods of collecting this data may provide additional insight into these relationships.

In conclusion, the importance of information quality within the trust-performance relationship cannot be overlooked. Suppliers have the ability to build relationships with buyers, and this relationship, through the lens of trust, can lead to performance. Trust, however, does

not affect performance without the aid of information quality. Suppliers can build various competencies such as the ability to have a trusting relationship, but an important competency is the capability of having continued positive information quality exchange. As the leadership within organizations continues to seek the benefits of collective arrangements, interorganizational relationships will continue to require more research.

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WHAT DO PUBLIC ACCOUNTING PRACTITIONERS REALLY WANT? AN EXPLORATORY INVESTIGATION

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Accounting practitioners certainly have a vested interest in the quality of accounting graduates that universities provide. They hire college graduates and consequently have certain expectations regarding the skill sets and knowledge the graduates have acquired during their academic career. Hence, practitioners have the right to voice an opinion about what their new-hires' educational experience should entail. In fact, according to Nelson (1995), this group has issued fervent calls for accounting education changes since the "inception of university programs" (p. 63), citing various deficiencies in graduates. The academic community has answered their practitioner counterparts by desperately trying to address these issues, albeit in varying degrees across institutions. They have been especially inundated in the past two decades with studies and position papers addressing the quality of education available for accounting graduates and calling for change in the approach to providing it. This has been especially intense since the mid-1980s with the Bedford Committee's Report (1986), as well as in the late 1980s and early 1990s, which saw the (then) Big-8 Accounting Firms publish their White Paper, "Perspectives on Accounting Education," the creation of the Accounting Education Change Commission (AECC) the creation and growth of the American Accounting Association's Teaching and Curriculum Section, and release of joint study results from the Institute of Management Accountants and the Financial Executives Institute in 1994 (Siegel and Sorensen).

In 2000 Albrecht and Sack (A&S) found that in general, providers of accounting education had not changed their programs substantively in response to the demands of accounting practitioners. They then concluded that further reluctance to change the accounting educational process could put the continued viability of accounting programs at risk. It seems that accounting education is under continual criticism, even being blamed for the Enron, Equity Funding, WorldCom, Sunbeam, Arthur Andersen and HealthSouth debacles (Russell and Smith, 2003). Additionally, accounting practitioners are now being solicited to join in academe due, in part, to their ability to "focus more attention on the knowledge and skills that are essential for success as entry-level staff" (Kerby, Harrison and Fleak, 2009, p. 67).

Additionally, in 1988, the American Institute of Certified Public Accountant's (AICPA) membership amended their bylaws making 150 semester hours of education a requirement for all new members after the year 2000. At that point, only two states (Florida and Hawaii) required 150 hours of education for a candidate to sit for the CPA exam, but subsequent to the AICPA's action, many states and jurisdictions modified their requirements to agree with the AICPA's expectations. Currently, the District of Columbia, Guam, Puerto Rico and 45 states have implemented revised accountancy laws and require 150-hours of education, with Pennsylvania slated to come onboard in 2012, prior to sitting for the CPA exam. Only California, Colorado, Delaware, New Hampshire, Vermont and the Virgin Islands have no 150-hour requirement at this time (AICPA, 2008).

Therefore, accounting educators are faced with devising a curriculum that meets the demands of practitioners and that also provides students an opportunity to earn 150 hours of education. Unfortunately, there does not seem to be a great deal of consensus about the skill sets, technical knowledge or appropriate response to accounting educational changes that practitioners need or want to see in college graduates (see, for example, Frecka, Morris and Ramanan, 2004, Cheng, 2007 and Hurt, 2007). Further, the question remains as to whether practitioners prefer a new hire to arrive with a graduate degree in-hand or whether simply

completion of 150 hours, regardless of whether they are comprised of only undergraduate courses or a combination of undergraduate and graduate courses, is sufficient to gain entrance to the public accounting profession. With a record number of students recently receiving accounting degrees, (AICPA, 2009) these issues are certainly relevant. The purpose of this paper is to explain the findings of a preliminary study that was completed to gain further insight to these questions.

METHOD

Given that the A&S study referenced above created a great deal of turmoil within the accounting education community due to their claim that accounting programs may be doomed, and because it has served as the foundation for several studies regarding the state of accounting education and methods for improvement in the quality of accounting education, this study was based on their questionnaire. Other surveys that used this method include Burnett (2003), who surveyed West Texas CPAs and employers regarding their ranking of specific skills desired of new accounting hires and Ulrich, Michenzi, and Blouch (2003), who performed a nationwide survey of public accounting firms to determine specific skills (as identified by the AECC, 1990) they desired of entry-level accountants, and their assessment of how well academic accounting developed those skills.

The perspectives of individuals currently practicing public accounting was obtained in order to gain insight into these questions. Justification for this approach resides in the fact that 150 hours of education is required to secure entry to the CPA profession, but not for entry into other areas of accounting, such as employment in government or in industry. These respondents represent one of the key external stakeholders of accounting programs, specifically employers of aspiring CPAs, and therefore should be well-informed about the topics that should be covered in accounting courses in order for graduates to be viable entrants in the public accounting profession. Additionally, A&S indicate that in curriculum revision, each accounting program should be charged with determining the needs of its own key stakeholders, incorporating internal and external environments that are unique to each program. Finally, the mission-based emphasis for achieving AACSB accreditation reinforces the concept that the curriculum revision process must consider constraints and opportunities that may be specific to a particular business discipline program.

This survey of local public accounting professionals regarding their perceptions as to the importance of specific topics that might be taught to entry-level accountants should provide valuable insight into the curriculum required of accounting programs in the local area. The results presented by Burnett (2003) are probably limited to the West Texas employment environment, and Ulrich *et al.*'s (2003) use of a nationwide sample makes it difficult to extrapolate their results with strong promise of being effective locally. Finally, neither the Burnett nor the Ulrich *et al.* studies distinguished between accountants employed in public accounting and those employed in nonpublic accounting careers.

The 150-hour requirement is another topic that has fostered debate in the accounting education literature. The view of accountants in industry was solicited by Heminway in 1993, at which time the 150-hour requirement had been enacted in 30 states but was effective in only three. Respondents to his survey overwhelmingly agreed (88.4%) that only a four-year degree was necessary for success in the accounting profession. The most immediate concerns about the 150-hour requirement, as it became effective in more states, regarded the methods universities were employing to allow students to meet the new educational requirement and qualms about a possible decrease in the supply of accounting students. Donelan and Reed

(2000) found a sizeable increase in the supply of graduate accounting programs in states where the additional educational requirement had been adopted and also determined that the longer the 150-hour requirement had been in effect, the higher the proportion of universities offering graduate accounting programs.

Shafer and Kunkel's (2001) findings were consistent with those of Donelan and Reed. They found that most accounting programs simply encouraged aspiring CPAs to earn a master's degree in accounting or get a master's in business administration. Boone and Coe (2002) studied the decline in accounting student enrollment, for which many had held the enactments of the 150-hour requirement responsible. They determined that only about 38 percent of the decline could be blamed on the additional educational requirement, even though dramatic decreases in the number of CPA candidates immediately after enactment of the additional educational requirements are well documented (Shafer, Kunkel and Hansen, 2003). Shafer *et al.* (2003) also found that most accounting students in their sample were tailoring their own programs at the undergraduate level rather than pursuing a graduate degree. Concerns over possible long-term declines due to the increased educational requirements were addressed by Schroeder and Franz (2004), but their study found that although the number of first-time candidates sitting for the CPA exam plummeted in states immediately after the 150-hour effective date, the number of first-time candidates recovered within just a few years. Finally, Bierstaker, Howe and Seol (2004) surveyed accounting students and determined that most intended to obtain a master of business administration in their fifth year of education. Additionally, although generally not in favor of the 150-hour education requirement, most students indicated they would pursue becoming a CPA despite the burden of an additional year of education.

Sample

Practicing public accountants represent members of the group to survey in this particular instance. However, the size of the public accounting firm was important. For example, the A&S (2000) study has been criticized for obtaining a large public accounting firm focus and a large, research university viewpoint only. Many accounting students do not matriculate in large, research institutions and only a small proportion of graduates will be employed in Big Four firms. Alternatively, because small firms are the predominant form of public accounting practice, as reported by Huefner (1998), samples drawn from CPA membership lists will likely be primarily composed of members practicing in small firms.

The survey instrument was distributed to 2,300 individuals who were either members of a large, regional CPA society in south Texas, members of the Institute of Management Accountants in the same area, or employers who had interviewed on the campus during the previous three years. A total of 464 individuals returned usable surveys for a response rate of approximately 20%. This rate is comparable to that reported in similar studies (20% for A&S (2000), 27.7% and 21.75% for Burnett (2003), 27.2% for Ulrich *et al* (2003) and 16% for Sedki, Madison and Treacy (2003)). The analysis was then restricted to the 199 respondents currently practicing public accounting.

The sample is limited to a geographic area, but the respondents represent a broad spectrum of those whose viewpoint of accounting education as it relates to aspiring certified public accountants is important. For example, analysis of firm size for the 199 public accounting respondents indicated the median number of full-time employees was 11, but 46 respondents reported being employed with firms with at least 50 employees. Respondents were also asked to indicate the most recent year in which they had been enrolled in a college or university

course. The median year was 1987, which indicated that the typical respondent had sufficient employment experience to be able to express an opinion as to the preferred completed degree for a new-hire and to respond to questions in the survey about accounting topics to which they thought new public accounting entrants should have been exposed.

In order to address the 150-hour issue, six degrees that are common for accounting graduates to earn were listed. Respondents were asked to indicate the degree they preferred beginning professional staff to have completed at the time of initial employment. A seventh choice was "Other." The survey also asked respondents to rank the importance of a number of common accounting topics with the range of responses being that the topic required more than one course, one course, part of a course, or did not require course coverage. Respondents also had an opportunity to indicate they did not know the importance of a particular topic.

RESULTS

The first question addressed the issue of degree preference, explained above. Six possibilities were listed, as shown in Table 1, and asked respondents to rank each from "less preferred" to "more preferred" on a scale of one to five, with one being the less preferred degree. The mean scores and rank for each degree option are shown.

Table 1
Degree Preference

Degree	Mean Average	Rank
Bachelor's Degree in Accounting	3.55	2
Bachelor's Degree in Accounting with 150 Hours	4.31	1
Master's Degree in Accounting	3.46	3
Master's Degree in Information Systems	2.18	6
Master's Degree in Taxation	3.27	4
Master's of Business Administration with Concentration in Accounting	2.77	5

Next, t-scores were computed to determine whether the ranking of preferred degree was statistically significant, from one to the next. Results are shown in Table 2. Public accounting practitioners strongly prefer a new accounting hire to have a bachelor's degree in accounting with 150 hours rather than simply a bachelor's degree ($p < .001$). This is not surprising, given that practitioners would logically want new hires to be able to sit for the CPA exam. However, note that the difference between preference for a bachelor's degree in accounting or a master's degree in accounting is not statistically significant, nor is the difference in preference between a master's degree in accounting and one in taxation. However, a preference for a master's degree in taxation is statistically significant ($p < .001$) over a preference for a new hire to have a master's of business administration with a concentration in accounting (MBA-AC). Finally, there is a statistically significant difference between a preference for a new hire to have an MBA-AC with an accounting concentration rather than a master's degree in information systems ($p < .001$).

Table 2
T-Test for Differences between Rankings
Degree Preference

Degree	T-Score for Difference s in Rank	Rank
Bachelor's Degree in Accounting with 150 Hours	n/a	1
Bachelor's Degree in Accounting	**6.75	2
Master's Degree in Accounting	0.76	3
Master's Degree in Taxation	1.82	4
Master's of Business Administration with Concentration in Accounting	**4.59	5
Master's Degree in Information Systems	**6.33	6

**significant at <1%

The question asking about the importance of topics to be covered in accounting courses listed 22 topics, shown Table 3, and asked respondents to rank each on a four-point scale, with one indicating "not important (no courses)," two indicating "somewhat important (part of a course)," three indicating "moderately important (one college course)," and four indicating "very important (more than one course)."

The mean average for each of the 22 topics is shown in Table 3. Review of the ten topics with means of at least 3.0 (requiring one college course) is interesting. Basic financial accounting is ranked highest, with a mean score of 3.92, followed by advanced financial accounting, corporate tax topics and auditing/assurance services. Personal income tax is ranked fifth, followed by ethics, tax research, financial accounting research, finance, and business law. These topics may represent the core of many accounting programs. Notably, however, cost/managerial accounting topic was ranked in position 13, with a mean of 2.90; economics was ranked in position 15, and with a mean of 2.75, and statistics/quantitative methods was ranked in position 19, with a mean of only 2.54. These topics also represent the core of many accounting programs.

Further analysis of topics with means of less than 3.0 (deserving of less than one college course), indicates that three topics have a mean of less than 2.5. This seems to indicate that these topics (organizational behavior/human resource management, international business and operations supply-chain management) carry far less importance in the academic career of accounting students than other topics listed. Additionally, means of several topics in this category are very close to each other. For example, three topics (information systems, business strategy and cost/managerial accounting) have means of 2.92 to 2.90 respectively, and another three topics (Sarbanes-Oxley, economics and fraud detection) have means ranging from 2.76 to 2.74, respectively. Also, the topics of internal auditing and statistics/quantitative methods are very close (2.56 and 2.54, respectively).

Due to the large quantity of data for this research question, a principal components factor analysis was completed and rotated to improve interpretability of the factors (Pedhazur and Schmelkin 1991). The resulting factors have an eigenvalue of at least 1 and are composed of topics which load at the .60 level or above. As shown in Table 3, a total of 16 of the 22 courses load on six different factors. Interestingly, there were no instances of topics loading on the same factor. Of the highest ranked ten topics listed above, neither Auditing/Assurance Services nor Finance (ranked fourth and ninth, respectively) loaded on one of the factors. Also,

eight topics not in the top ten (Business Strategy, Cost/Managerial Accounting, Sarbanes-Oxley, Economics, Electronic Commerce, Statistics/Quantitative Methods, International Business and Operations Supply-Chain Management) loaded on one of the factors. Factor 1 consists of topics relating to business environmental concepts (Business Law, Business Strategy, Economics and Electronic Commerce.) and Factor 2 consists entirely of tax topics. Factor 3 has only two topics: International Business and Operations Supply-Chain Management and Factor 4 has three topics: Ethics, Financial Accounting Research (FARS) and Sarbanes-Oxley. Intermediate and Advanced Accounting are the two topics which comprise Factor 5 and Factor 6 also has only two topics: Cost/Managerial Accounting and Statistics/Quantitative Methods.

Table 3
Topics
Means, Ranks and Factor Loadings

Mean	Rank	Topic	Factor Loadings
3.92	1	Basic Financial Accounting (e.g. Intermediate Accounting)	5
3.71	2	Advanced Financial Accounting Topics (e.g. Consolidations, Partnerships)	5
3.61	3	Corporate Tax Topics	2
3.60	4	Auditing/Assurance Services	
3.57	5	Personal Income Tax Topics	2
3.46	6	Ethics	4
3.28	7	Tax Research	2
3.26	8	Financial Accounting Research (e.g. FASB or AICPA databases)	4
3.23	9	Finance	
3.18	10	Business Law	1
2.92	11	Information Systems	
2.91	12	Business Strategy	1
2.90	13	Cost/Managerial Accounting	6
2.76	14	Sarbanes-Oxley	4
2.75	15	Economics	1
2.74	16	Fraud Examination	
2.61	17	Electronic Commerce	1
2.56	18	Internal Auditing	
2.54	19	Statistics/Quantitative Methods	6
2.34	20	Organizational Behavior/Human Resource Management	
2.22	21	International Business	3
2.06	22	Operations Supply-Chain Management	3

The next step in the analysis is to determine which of the six factors is most important and whether any statistical differences between factors exist, from one to the next. Therefore, the mean per factor was determined and t-scores obtained for differences between factor means. Results are shown in Table 4.

Table 4
T-Tests for Differences between Rankings
Six Factors for Topics

Factor	T-Score for Differences in Rank	Mean	Rank
5: Financial Accounting	n/a	3.82	1
2: Tax	**7.50	3.49	2
4: Ethics, FARS, Sarbanes-Oxley	**5.10	3.17	3
1: Business Environmental Concepts	**5.20	2.86	4
6: Cost/Managerial Accounting & Statistics/QM	*3.19	2.71	5
3: International Business & Operations Supply-Chain Mgmt.	**9.70	2.15	6

**significant at <1%

*significant at 1%

Factor 5, consisting of financial accounting topics (Intermediate and Advanced Accounting) is statistically more important than completion of Factor 2 topics ($p < .001$), which include corporate tax, personal tax and tax research. Completion of Factor 2 topics (tax) is statistically more important ($p < .001$) than completion of Factor 4 topics, which include Ethics, FARS and Sarbanes-Oxley. Coverage of Factor 4 topics is statistically more important ($p < .001$) than coverage of Factor 1 topics, which relate to business environmental concepts (Business Law, Business Strategy, Economics, and Electronic Commerce). Completion of Factor 1 topics is statistically more important, at the 1% level, than completion of Cost/Managerial Accounting and Statistics/Quantitative Methods, which comprise Factor 6. Finally, Factor 6 coverage is statistically more important ($p < .001$) than completion of the topics in the last factor, Factor 3, which is comprised of International Business and Operations Supply-Chain Management. Two topics ranked in the top ten (Auditing/Assurance Services and Finance) loaded on none of the factors.

These results are somewhat surprising. Although the factor for financial accounting topics is clearly ranked highest, and is statistically more significant than the factor for tax topics, the factor for tax topics is statistically more important than the Factor 4 which includes topics related to ethics and Sarbanes-Oxley. Given the current nature and recent scandals in public accounting, especially with the increased audit requirements of Sarbanes-Oxley, it would seem that these topics would be of greater importance than topics dealing with taxation. However, for this sample that was not the case. It is also interesting that Auditing/Assurance Services did not load on Factor 4, which contains the Sarbanes-Oxley topic.

SUMMARY AND CONCLUSIONS

The 150-hour requirement is now in effect in many states and institutions of higher learning have faced the necessity of determining how their students can meet this educational standard. The AICPA indicated that one of their primary goals when encouraging state adoption of this requirement was to allow students to be exposed to a broader, more liberal education (Shafer and Kunkel, 2001, p. 78), yet research (Donelan and Reed, 2000 and Shafer and

Kunkel, 2001) indicates most universities simply funnel accounting students into existing or new graduate accounting programs. However, the practitioners in this study clearly did not rate a graduate degree for a new hire as the most desirable. Rather, a bachelor's degree along with completion of 150 hours was their strong preference, which hopefully includes more emphasis on communication and interpersonal skills, teamwork and analytical thinking. Yet, for graduate degrees, a master in taxation was strongly preferred over an MBA with an accounting concentration.

Hence, in the first instance it seems practitioners are interested in graduates with more educational breadth, which aligns with the AICPA's objectives, and hopefully with the AICPA's Vision Project core competencies (1998), yet for students going on to graduate school, a more technical degree is preferred over one of general breadth. This seems to be at opposition with practitioners' earlier criticism about accounting programs simply developing technicians who lack a broader knowledge base. This makes determination of whether practitioners feel a broader educational experience or a narrowly focused concentration is more beneficial in graduate programs rather difficult. It does seem to be clear that an MBA with an accounting concentration is strongly more desirable for a new-hire than a graduate degree in information systems.

However, based on the results indicating that a bachelor's degree with 150 hours of education completed is by far the most preferred degree by accounting practitioners, accounting educators might wish to know what additional coursework to suggest to their students. In some cases, students may opt to double-major with combinations such as accounting and finance or accounting and information systems. However, in tandem with the AICPA's expectations, perhaps students should be directed to consider a double-major with accounting and liberal arts or a minor in liberal arts.

Turning to the issue of the topics to which accounting practitioners wish students to be exposed, the respondents felt that financial accounting topics were most important, demonstrated both by the average score per topic and by the results of the factor analysis. This seems to make it clear that focus on this particular area of accounting is warranted. It is possible that the growth of technical information and inclusion of international financial reporting standards (IFRS) in intermediate and/or advanced accounting courses (ranked first and second, respectively) have led some to consider sacrificing financial accounting course content because of an inability to address numerous accounting issues and standards in only one or two semesters. Results indicate this approach should probably be re-evaluated. Further, factor analysis indicated that tax topics are significantly more important than other topics (Factor 4: Ethics, FARS and Sarbanes-Oxley) commonly associated with public accounting. This may indicate that accounting educators need to either shift emphasis from topics included in Factor 4 and toward tax topics or demonstrate to members of the public accounting profession that they have the ability to help students deal with ethical issues, learn how to conduct financial accounting research and understand implications of Sarbanes-Oxley requirements. Perhaps these are topics that public accountants feel are best taught "in-house" by individual firms after graduates are hired.

Results indicate that the standard accounting curriculum is really what practitioners want to see graduates complete. The ten top ranked topics, with an average of at least 3.0 and therefore deserving of a course devoted to each of them, as shown in Table 3, are those that are basically standard across accounting programs, with three exceptions (cost/managerial accounting, statistics/quantitative methods and economics). Hence, it seems that practitioners primarily desire graduates to learn the traditional accounting course content which has been the

core of most programs for decades.

Finally, this study was exploratory in nature and was limited to only one geographical area, which may make the findings difficult to generalize to a wider population. Additional information could have been gathered with the research instrument. Also, the first question listed only four possible graduate degrees and two undergraduate degrees. Perhaps respondents should have been allowed to choose from more graduate degrees and certainly from an undergraduate degree in something other than accounting. Finally, detailed information about exactly how accounting practitioners wanted new-hires to earn 150 hours of education (more technical courses, more liberal arts courses, more communication courses, etc.) was not gathered. However, these short-comings can certainly be the seeds for future research.

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SOCIAL NETWORKING SITES: VIRTUAL INTERVIEWS FOR HIRING MANAGERS

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Abstract: The human resources hiring process has been modified to incorporate the latest technology that the Internet affords. One such area is the use of social networking web sites. Human resources managers are able essentially to conduct virtual interviews of job candidates with the click of a mouse. This research investigates what information is publicly available for view on social networking sites and the potential implications of that information in the hiring process. Results include dimensions that have possible equal employment opportunity legal impact.

INTRODUCTION

Human resources (HR) and hiring procedures can be likened to a minefield, with so much potential for discrimination and missteps that it can at times be a very dodgy situation both for applicants and HR departments. This is combated by countless anti-discrimination laws and by endless forums to teach applicants how to prepare for and survive the interviewing process. The real interest to a potential employer, however, is not always the polished image that the candidate attempts to portray, but it is often what the candidate is trying to hide or gloss over. In the past, people have used networking and social connections to advance both in the work environment and socially. Today the practice is continued; however, social networking now has moved online.

According to Webopedia, a social networking site (SNS) is “the phrase used to describe any Web site that enables users to create public profiles within that Web site and form relationships with other users of the same Web site who access their profile. Social networking sites can be used to describe community-based Web sites, online discussions forums, chat rooms and other social spaces online” (Webopedia, 2009). This is a fairly broad definition; and so for the purposes of this study, the aspects reviewed on a social networking website are limited to the profiles that users create to display their personalities. This was chosen because it is normally the one sector that a person has the most control over and because these profiles act almost as a self-archiving system so that an employer could potentially look back quite a significant period of time. Because of this, it can be assumed that a profile page represents the best indicator of a potential employee’s personality, values, and other intrinsic qualities that might have an effect on a corporation.

There are hundreds of social networking websites and millions of registered users for these websites. Information submitted by users can be as general as their country of residence to as personal as political or religious preference or street address. Any person who has a computer can access these websites. And given a recent study from CareerBuilder.com, where one in five hiring managers performed a search of potential employees on social networking websites (Grasz, 2008), candidates should be aware that their personal life, once posted on the Internet, ceases to be personal and could potentially haunt them for a very long time. Two of the most well known social networking websites are MySpace and Facebook. Both sites earn revenue through advertisements and are therefore offered at no cost to users, contributing even further to their popularity and ease of entry.

The value of this sort of tool is very genuine because employers can be held liable if full

diligence is not taken when investigating potential employees. Searching for social networking profiles seems to be merely an extension of a standard background screen that most employers would perform regardless, except that it reveals a person's nature, whether that person would be a potential fit into the company's corporate culture and even if that person could potentially become a liability. For example, if a hiring manager searched for a candidate's social networking profile and discovered that the potential candidate was flagrantly racist and proceeded to hire that person regardless, this could expose the company to potential litigation if that person acted upon his or her prejudice in employment relationship matters. On the other hand, a main aspect of concern when using this method of screening applicants is to be certain that the hiring manager is an ethical person who will not discriminate against an applicant because of equal employment aspects, such as that person's age, race, religion, gender, disability, or veteran status.

BACKGROUND

Currently, there is research on the commonality in which this tool is used and multiple suggestions on how to format a social page to prevent negative effects; however, there is not much in the way of communicating the frequency of information offered. Over the past few years, there has been an increase of hiring managers who admit that they perform an online search of candidates and look specifically for social networking pages. This is because of the wealth of information about a potential candidate that these forums present. This can be potentially rewarding or damaging for candidates because the nature of the Internet allows information contributed to be available for a very long time, whether seemingly deleted or not. Thus, something posted in one's teens could very well come around to haunt that person ten years later when building a career. Scott Medintz (2006) states that "When kids post personal info—from political opinions to tales of debauchery—on sites like My Space, they're creating a kind of shadow resume that could follow them around for decades" (Medintz, 2006, p. 27). This is a very disturbing proposition. Medintz (2006) also adds that although employers are not allowed to ask for information that most profiles would display on the Internet, the information is more or less public knowledge; and there are no legal or physical barriers to keep it from being used by employers.

According to Mike Hargis (2008) approximately thirty-four percent of hiring managers eliminated a candidate from consideration based on information found in profiles. The top reasons for disqualification were divisive information, such as information about drug use or alcohol abuse, followed by poor communication skills, negative comments regarding former employers and fabrication of credentials. Specifically, this article advises people to keep their profiles updated at all times, to not "bad mouth" employers, to be selective in groups joined and friends added, and further to always keep in mind the potential of third party review (Hargis, 2008).

According to Karen Glickstein (2008), this online screening issue affects those in Generation Y more than in older age groups. This is most likely due to the fact that members of Generation Y were exposed not only to computers but to the Internet at an earlier point in their lives. Ms. Glickstein concludes that:

"Similarly, if employers determine that online background checking has benefits that outweigh potential litigation risks (and, for many employers, this may be the case), employers should consider affirmatively informing applicants of this practice and obtaining signed documentation acknowledging this fact. Such a practice would, at the very least, give the applicant an opportunity to reset privacy settings on an online

account before potentially embarrassing personal information can be found” (Glickstein, 2008, p. 4).

This suggestion is an excellent proposal because not only does it give the applicant the opportunity to recognize and correct mistakes, but also it almost serves to protect the organization from litigation if a spurred applicant complains. Because if all else fails, the company can prove that the applicant was forewarned of screening practices.

AREAS OF EXPLORATION

Because this is such a relevant topic, there are many questions that come to mind when discussing it. For example, what are employers looking for when they view SNS pages? Obviously the employer is not allowed to look for aspects protected by Equal Employment Opportunity (EEO) laws, but that only accounts for a small amount of information that can be found on SNS pages. Other questions include whether or not people are revealing any red flags for which employers are looking. Obviously there have been studies of whether employers were using SNS, but not much discussion on the number of observations regarding specific issues. The final and perhaps largest question is that of the ethical implications involved in using SNS as a screening tool. For employers, this could cost them everything; so the importance of due diligence in regards to behaving ethically when using SNS as a screening tool is paramount.

What Are Employers Looking For?

The main benefit of a SNS for an employer is whether or not the potential employee will fit into the company’s corporate culture. This means looking to ensure that the applicant’s values, beliefs, and personal ethics fit with those of the corporation. If there is not a fit, it increases the likelihood that hiring that applicant would result in a short turnover and in having to start the hiring process again—thus wasting time and money for an organization. Another aspect that would be very evident to hiring managers during a SNS screen is the communication ability of the potential employee. Granted, this will also be demonstrated at an interview, but if the ability can be determined beforehand it can either reduce the candidate pool or allow the interviewer to focus on more important items during the interview.

Hiring managers also can use SNS to discover if an applicant makes derogatory comments about former or present employers and/or coworkers. Doing this displays a flagrant lack of discretion and would be of great concern to a perspective employer. This is especially true in organizations with very strict confidentiality agreements, such as firms dealing with proprietary information or the Health Insurance Portability and Accountability Act (HIPPA) for the medical field. Employers need to know that their employees can keep the trade secrets that are asked, and talking negatively about former employers on a public forum like a SNS is a flagrant sign that the applicant cannot discern when and where it is appropriate to vent frustrations. Finally, a large concern of employers is discovering whether or not there is a history of alcohol abuse or drug use that would impair an employee’s ability to perform a job properly. Certainly something like a drug conviction would appear on a background screen, but generally employers wait to perform one until they have more or less decided to hire. Therefore, if they could discover earlier in the process that an applicant had an addiction that would impair his or her ability to work or put other employees in danger, then an organization could put the time and effort into pursuing other applicants. Obviously this is an easier argument when referenced to using illegal drugs, but alcohol abuse can be just as detrimental to an organization because if employees come into work drunk or hung over, it would be a very dangerous situation for

everyone present. Further, if an employee is posting pictures of himself or herself drinking or acting inappropriately in another fashion while wearing a shirt with a company logo, for example, then that could expose the company to some negative attention.

What are People Revealing on Profile Pages?

Perhaps it is because the Internet provides a degree of perceived anonymity, but people seem to be revealing quite a lot of information on profile pages. This to some degree is the fault of the designer of the individual SNS. But often the web site requests so much information that the person, if not discerning, simply fills it out without thinking twice. However, especially in the “About Me” section of MySpace, anything revealed is at the sole discretion of the profile page creator. People are volunteering most everything from their age, gender, religion, education level, political views to the number of children they have, their marital status and their sexual preferences. People are revealing their taste in music, television, movies, books, their personal heroes, and even who they want to meet—and this is only the information from what they type.

Most SNS have areas to upload pictures and videos. This alone can damage an applicant’s chances at a position if there are multiple pictures of the applicant making inappropriate gestures, displaying sexually provocative poses, or drinking and partying excessively. The old saying that a picture is worth a thousand words certainly rings true in this arena as many people do not even bother to type information but simply post graphics which they feel match their personalities.

What are the Ethical Issues Revolving Around SNS Screening?

There are some very concrete ethical issues in this topic as with every aspect of Human Resources. Performing this screen exposes hiring managers to information that they are not supposed to have or use to discriminate illegally against an applicant. For example, applicants are protected by EEO laws that make it inappropriate for an employer to ask for their gender, race, marital status, or age, other than establishing the person is over eighteen; however, SNS display such information prominently. Somehow the hiring manager must either consciously attempt to overlook those particular sections of the profile pages, or they must in a way, seek deliberately to forget such information. “Some information may be learned which in traditional settings would never be revealed. It has been said that with information, comes knowledge—and, in today’s legal environment, that knowledge can often impute liability” (Glickstein, 2008, p. 4). Of course, the whole process hinges on the assumption that applicants build and maintain their respective profile themselves and that they create the profile as an honest representation of themselves. It could have negative ethical ramifications if they build their profile as a joke and are not hired because of untrue information presented with that mindset.

ASPECTS EXAMINED

For this project, MySpace was chosen as the SNS to explore. This was because of its popularity and how very customizable it can be for each profile creator. Customization helps to ensure that the profile creator’s true personality can be expressed. Facebook was also looked at; however, as Facebook encourages page creators to choose privacy options in the process of registration, it is harder to view Facebook pages unless the owner opts out of the privacy options or is in a person’s network. MySpace, on the other hand does not focus on privacy options during registration, and it is up to the page owner to go in later and make their page private if they choose to do so. Therefore, when creating the survey instrument that would be used to examine the profiles, the categories of profile name, profile picture, page content,

comments, blogs, photograph albums, and the presence of EEO information were chosen. Profile names were chosen because they are most often what is used by a person to attract others to their page. Obviously if it is something innocent like their true name, there is no issue; but often people use this space to act as a headline which can be either inappropriate or innocuous. The profile picture was of interest because not only did the page creator upload it, but also it is the picture that the creator specifically chooses to be the first visual representation of himself or herself to a visitor. Information about page content, comments, blogs, and photograph albums was gathered to document content in these areas. And finally EEO information was gathered to determine how prevalent such potentially discriminatory data was to anyone viewing a social networking site.

SAMPLING

In designing this study, providing as random a sample as possible was quite important. However, due to the sheer number of registered members on MySpace and the fact that each time the researcher entered a different but representative number of profiles appeared, there was some limitation in this regard. Specifically upon each login, MySpace presented a new randomly generated list of 3000 profiles to investigate. Overall, this process actually increased the likelihood of a varied and, therefore, more representative gathering of information as it allowed profiles which were not selected for one viewing to be available for subsequent viewings. Nonetheless, a consistent sampling procedure was established and followed until a convenience sample of 100 profiles was completed.

The first step was to locate the "Browse People" page on MySpace. Next the search both men and women option was selected. MySpace automatically set the age parameters of 18-35, but that was acceptable for this study as this age bracket is representative of the age group that would potentially be most likely to use SNS and thus be affected by the use of this screening tool. After navigating each time to the above stated page and checking the parameters, the process always started with the fifth profile presented and then every thirteenth observation thereafter. Specifically the respective profile was clicked on and examined according to the survey instrument. Then the backspace key was clicked until once again the previous list of profiles was presented. The next profile in the sequence was selected and examined; thus the process was repeated until all 100 observations were accomplished.

FINDINGS AND DISCUSSION

Profile names, as was previously stated, are a means by which others are drawn to one's page. For analysis, names were considered from a human resources management view. The first distinction was between whether the name was an actual name, i.e. a regular name whether real or fictitious. Then, assessment as to whether the name would be potentially harmful or harmless or just unprofessional was made. Multiple categories could apply. Results are in Table 1 below.

Table 1: Display Name

	Yes	No	Total
Actual Name	51 53.7%	44 46.3%	95 100.0%
Potentially Harmful	30 31.9%	64 68.1%	94 100.0%
Harmless	59 62.8%	35 37.2%	94 100.0%
Unprofessional	47 50%	47 50%	94 100.0%

The majority at 53.7% used an actual, recognizable name, whether it was their real name or not. For example, the person's actual name could be John, and the name Brad was used instead. There was no way to distinguish between actual and fictitious names in this case. If the name was an actual name like John and included symbols like \$\$ before and after it or a cutesy phrase in parentheses after the name, (Just Yeah) for example, then the name was also coded as Harmless and Unprofessional. Fully 62.8% of profile names were harmless from a human resources screening perspective. The 31.9% that were in the potentially harmful category presented the most concern. Examples of these are Ms. Sexy, His pet name for me was ..., and Titty Titty Bang Bang. If these names were displayed along with actual pictures of the individual certainly this would be potentially harmful for a job applicant if seen by a human resources manager during the screening process.

Profile pictures on a SNS are also revealing information about a job applicant. If the photo is a sexually provocative picture or it reveals drinking or other inappropriate behavior, then it speaks very plainly of the creator's values and lifestyle. Table 2 below shows a summary of the Display Photo screening. Specifically, indication of alcohol/drug paraphernalia or provocative/sexually inappropriate pictures was recorded.

Table 2: Display Photograph

Display Photo	Yes	No	Total
Alcohol/Drug Paraphernalia	4 4.2%	91 95.8%	95 100.0%
Provocative/Sexually Inappropriate	4 4.3%	90 95.7%	94 100.0%

Clearly almost all of the display photos, at 95.8% and 95.7% respectively, showed no evidence of alcohol/drug paraphernalia or provocative/sexually inappropriate material. The very small percentage of photos in the "yes" category for display of alcohol/drug paraphernalia was related to alcohol and not drugs.

When analyzing page content, however, a different finding emerges. Two areas were recorded in this regard, specifically drug/alcohol use and drug/alcohol abuse. These findings are contained in Table 3.

Table 3: Evidence of Drug/Alcohol Use or Abuse

	Yes	No	Total
Drug/Alcohol Use	46 50.5%	45 49.5%	91 100.0%
Drug/Alcohol Abuse	6 7.0%	80 93.0%	86 100.0%

In analyzing page content 50.5% of SNS profiles indicated use of drugs or alcohol. Of these, almost all at 87% were alcohol related, 6.5% drug related, and 4.3% related to both drug and alcohol usage. This evidence could certainly influence a human resources manager in choice amongst job applicants.

As might be expected a low percentage, i.e. 7 %, demonstrated evidence that would be seen as drug/alcohol abuse. Of those in this category, four profiles were alcohol abuse related, one was drug abuse related, and one had evidence of both drug and alcohol abuse.

Photo albums on a SNS are another source that is very revealing about the person and can affect the employment decision for hire. Most albums, 95.3%, were public while only 4.7% were private. Of course the nature of a social network does not make this percentage surprising. However, the potential for negative effects to a job candidate is substantial. Of those with public photo albums, 20.9% contained pictures of sexually explicit material, 33.7% displayed drug/alcohol use, and 23.3% showed inappropriate gestures. Given that any human resources manager or anyone for that matter could view these photos, individuals should take more care about pictures that are in their albums.

Even though most profile owners seemed to be on the careful side of which photographs they chose to post, tagged photographs of them were consistently less guarded. Tagged photographs are uploaded by others, and then the people in the photograph are labeled and that photograph is automatically linked to the profiles of each person in the photograph. Recently it became an option that persons could remove a tag on a photograph of themselves. However, an employer could still find the picture of them if it is labeled with their name; so until the person who tagged them originally removes the picture completely, there still is a risk. This pattern was first noticed in this research when looking at the photograph albums of a young lady who posted perfectly acceptable pictures of herself with friends and family, but then upon clicking on the "Tagged Pictures" album, pictures of her drinking and partying heavily were found. If one had been a hiring manager at a firm that emphasized family values, this person would have been fine until the hiring manager clicked on that particular album.

Videos represent another venue for visual observation. Overall, 28.9 % of profiles had videos. Of these, only one had a video with graphic/illegal content. There were, however, 14.3 % of profiles with additional graphics that could be used in a discriminatory manner. For example, one video showed a wet t-shirt contest and another had a vastly inappropriate sexual picture. Currently, with these low numbers of improper content, not much detrimental human resources related information can be obtained about most profile owners by observing videos. Nonetheless, all information is critical and adds a dimension to the job applicant portfolio during the hiring process.

Comments are normally left by friends; however profile creators have the option of deleting inappropriate comments at their discretion and not doing so indicates that they do not believe the comments are inappropriate—suggesting that they are possibly not a fit to the corporate culture. Furthermore, comments can reveal habits of the page creator that are otherwise not evident. For example, on one page there was a comment about the page creator and the commenting person getting drunk, and nowhere else on the page was there even an indication that the page creator drank alcohol.

In viewing page content, most people made little or no mention of employers or coworkers, either present or past. This could be because of the attention being paid to SNS screening lately that the profile owners have decided to simply not expose themselves to the ramifications that could potentially follow because of an angry rant. It is in a sense forced discretion, but perhaps the mere presence of discretion shows an improvement in understanding amongst the general public regarding what potential employers frown upon. Approximately 85% made no mention of employers, and the rest at most mentioned the name of their employer or their general field of occupation. Most just revealed their occupational title. Of those who mentioned their employers by name, none made negative comments about them.

Blogs were a part of 46.2% of owner profiles. Of these 26.2% updated them regularly. The content of blogs can convey important insight about a potential hire. Specifically, four blogs expressed racist sentiment, three articulated religious intolerance, two indicated alcohol/drug abuse, and two revealed additional EEO violations. This demonstrates a lack of prudence or possibly ignorance of the consequences that “blogging” can have on a person’s career.

Every single profile, except three that were private profiles with no data available, revealed at least one EEO protected facet. Table 4 contains the results for the potential EEO violations.

Table 4: Comparison of Revealed Potential EEO Violations

Potential EEO Violations	Number Revealed & Percent	Number Total & Percent
Gender	97 100 %	97 100 %
Age	94 96.9 %	97 100 %
Relationship Status	74 76.3 %	97 100 %
Sexual Preference	71 73.2 %	97 100 %
Family Planning	68 70.1 %	97 100 %
Religion	50 51.5 %	97 100 %
Veteran Status	1 1.0 %	97 100 %
Disability	0 0.0 %	97 100 %

All profiles revealed the owner's gender, and 96.9 % included the owner's age. Further, the remaining information was present in a list form in a single space on the profile. This would make it easy for an employer to skip that area; however, there were other places in the profile that the person could additionally enter that information and put the hiring manager in an ethical dilemma. Of the sample, relationship status at 76.3 % and sexual preference at 73.2 % were the next most revealed potential EEO violations behind gender and age. Most identified themselves as single, but any relationship status identified could potentially have different implications for employers and has its own potential for discrimination. Following closely behind revealing sexual preference was revealing family planning of any type. Often this consisted of identifying whether or not the profile owner either had children or had any intention of ever having children. Specifically 70.1 % of those sampled revealed their family planning objectives. Apart from veteran status and disability, the least identified aspect was religious affiliation. Only 51.1 % of those sampled revealed what religion they most identified with—perhaps due to the volatile environment that disagreements regarding religion can sometimes elicit.

Communication skills were another area of interest in profile page content. It was found that only 28% of profile owners had adequate communication skills. Because MySpace is a personal networking site, one would not expect contributors to be exceptionally professional in their method of communication; however, the general poor communication skills were simply atrocious. Even overlooking minor grammar and spelling mistakes, there were several profiles where it was virtually impossible to read what they wrote because tHeY wRoTe LiKe ThIs. As a hiring manager, that would most likely instantly disqualify them for lack of proper basic communication ability.

Furthermore, on a few occasions there were just flagrantly inappropriate and shocking profiles. These profiles not only demonstrated minor infractions such as poor communication abilities, but also revealed flagrant use of drugs, use of racially inappropriate language, and upload of improper graphics. Frankly, it is shocking that people would knowingly create such public images for themselves; yet it brings up a potential problem for SNS screening. Specifically in this research, these troublesome profiles were created by young African-Americans, and they appeared to be heavily influenced by a rather negative subset of this subculture. Surely if a potential employer performs a SNS screen for any of those applicants, those applicants would be removed from the hiring pool. This is a potential EEO issue as it seems to discriminate possibly against a particular subculture. This possible ethical infraction, of course, needs to be weighed against the possible ethical implications of hiring a drug user. Therefore an organization must decide which decision will be the most ethical and protect the organization.

CONCLUSION

In conclusion, SNS screening is a good tool for hiring managers because it ensures cultural fit, helps complete background screens, and eliminates organizational liability for hires who might potentially expose the organization to litigation. While acknowledging the benefits of SNS, an employer should not use SNS screening as the sole screening device, perhaps merely as one of many multiple hurdles that candidates must clear. This in large part is because there is a degree of anonymity that the Internet provides, and therefore it is easy for a profile creator to use a larger degree of artistic license when creating and updating these profiles. Finally, as with other human resources functions, the hiring manager must remember at all times in SNS screening to maintain the ethical standards of the company and vigilantly to maintain legal standards to avoid violating equal employment opportunity laws.

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MARKETING STUDENT DISHONESTY: HOW NATIONALITY, CULTURAL VALUES, AND SELF-REPORTING IMPACT THE ACADEMIC INTEGRITY OF MARKETING STUDENTS

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Abstract: This study explores the linkage between student dishonesty and cultural values, and compares marketing students' self-reported level of honesty to the perceptions of the university's faculty.

Self-reported surveys administered to the students reveal that cultural groups are significantly different from one another. When self-reported student evaluations are compared to faculty observations there is a difference between the cultural groups in what they self-report compared to what faculty observe. It was determined that there is a significant difference in the values of Indian and US students using Schwartz's (1992) cultural values questionnaire. The researchers found that there are major differences in perception of dishonesty between cultural groups. The Indian students were perceived to be much more dishonest than other cultures based on faculty evaluation. However, the self-reported scores for the Indians reflected a much lower level of perceived dishonesty. The results reflect that academic dishonesty is a culturally-bound perception and therefore is perceived relative to the culture of the evaluator.

INTRODUCTION

This study explores the linkage between student academic dishonesty and cultural values, and compares marketing students' self-reported level of academic integrity to the perceptions of the university's faculty. While previous research has proven that student nationalities impact behavior in academic dishonesty (Rawwas, Al-Khatib and Vitell, 2004; Rawwas, Swaidan and Isakson, 2007), little research focuses on the wide range of nationalities attending college in the United States. The majority of the research relies on students' self-reported academic dishonesty and does not consider the amount of academic dishonesty perceived by the faculty. This study examines the impact of nationality in three ways: 1) by assessing significant differences in frequency and severity of self-reported academic dishonesty between two national groups (US and Indian); 2) by evaluating how differences in cultural values of national groups might affect academic dishonesty; and 3) by comparing students' self-reported academic dishonesty to faculty-perceived academic dishonesty in the same university business school.

RELEVANT LITERATURE

Many factors contribute to students' participation in academic dishonesty. Studies in this area use students at different universities worldwide. These studies have found that the opportunity to participate in academic dishonesty is a leading factor in the frequency of exhibiting the unethical behavior (Bolin, 2004; Burke, Polimeni and Slavin, 2007; and McCabe, 2005).

While there are cultural differences in perceptions of academic dishonesty, the issue is not isolated to any culture or set of cultures. The problem is global, and appears to be related to pressure to perform. 2004 saw college entrance exam scandals in China (leaked exam

questions) and Korea (cell phone cheating). Cheating scandals recurred in 2006 (in China, using electronic devices to cheat), 2008 (in China, proxy exam takers), and 2009 (in China, electronic devices; Korea, leaked SAT test questions). In 2007 34 MBA students at Duke University were implicated in take-home exam cheating; nine were expelled. Students of all nations are facing increasing pressure to improve their grades in entrance exams as well as college course scores. Students continue to face pressure from family, potential employers and graduate schools to improve their performance. Evidence suggests that the problem is getting worse; McCabe (1993) found that the rate of self-reported serious test cheating had increased from 39% to 64% between surveys done in 1963 and 1993. And the problem may be worse within the business student population than the general student population; McCabe's (2006) study of dishonesty in graduate business programs found the self-admitted rate of cheating in the past year to be 56% for graduate business students, but 47% for nonbusiness students.

According to Rawwas, Al-Khatib and Vitell (2004), the study of academic dishonesty has been well-researched in the US while there is a dearth of research on academic dishonesty among nonUS students. Several studies explore topics that are possibly culturally linked but do not address national culture as a variable. Sierra and Hyman (2006) show how cheating intentions are shaped by both cognitive assessment of risk and emotional anticipation of imagined outcomes. Singhapakdi (2004) determined that student ethical intention is predicted by the perceived importance of ethics in a situation, which is affected by relativistic moral philosophy—possibly a culturally-linked factor. Nill and Schibrowski (2005) experimentally studied the effects of corporate (not national) culture, reward system, and perceived moral intensity on students' ethical decision making. Considering the increasing pressures mentioned above, it is logical to posit that the pressures on foreign students will be exacerbated by the high cost of tuition, family expectations and educational practices which are different from the foreign educational system. This perception leads to the first hypothesis.

Hypothesis 1: Due to increased pressure there will be greater frequency of academic dishonesty among foreign students compared to US students.

This line of research also has ramifications to business ethics. Burton and Near (1995) found that cheating on an exam is the equivalent to misreporting time worked or fudging an expense account report. They inferred that students who exchanged fake papers for higher grades would develop into business people who also resorted to similar unethical behaviors.

Ethical behavior research reflects that perceptions of ethics vary between cultural groups (Armstrong, 1996). Armstrong's research study sought to identify whether there is a relationship between ethical perceptions and culture. An examination of the cultural variables suggests that there is a relationship between two of Hofstede's cultural dimensions (i.e., Uncertainty Avoidance and Individualism) and ethical perceptions. This finding supports the hypothetical linkage between the cultural environment and the perceived ethical problem variables posited in Hunt and Vitell's General Theory of Marketing Ethics (1986). Rawwas, Swaidan and Isakson (2007) found that values vary between cultural groups and are related to academic dishonesty. Other researchers have studied how beliefs and values help explain ethical behavior (Foltz and Miller, 1994). These findings lead to the second hypothesis.

Hypothesis 2: There will be a significant difference between cultural values of foreign students compared to US students.

Memberships in certain groups also impacts academic dishonesty. For example, studies by Tibbetts (1999), Jordan (2001) and Chapman, Davis, Toy and Wright (2004) have proven

that the encouragement of a friend to cheat increases a student's propensity to cheat. Other studies, Crown and Spiller (1998), Whitley (1998) and Storch and Storch (2002), conclude that students involved in fraternities and sororities are more likely to participate in academically dishonest behavior.

According to Hard, Conway and Moran (2006), the relative accuracy of student's beliefs about peer descriptive norms has received less attention with inconsistent results. Two studies reflected that student peer groups underestimated student dishonesty (Jordan, 2001; Wajda-Johnston, Handal, Brawer and Fabricatore, 2001). There has been very little research on faculty perceptions of academic dishonesty among students or different student cultural groups concerning the frequency of student misconduct. One study on faculty beliefs regarding the estimate of undergraduate dishonesty showed that faculty were fairly accurate in the estimation of student dishonesty (Kolijatic and Silva, 2002). These perceptions lead to the third hypothesis.

Hypothesis 3: There will be a difference between the students' perceptions of academic dishonesty compared to the faculty evaluations of dishonesty.

RESEARCH METHOD

After pretesting the student questionnaire on a group of marketing students, a self-administered questionnaire (Appendix A) was distributed to classes of marketing students on the graduate and undergraduate levels. The sample was conducted at a medium-sized southeastern US university. The university has a population of 397 marketing students. A sample of 184 yielded a response rate of 46%. The predominant groups of nationalities responding to the survey were United States students (39.7%) and students from India (29.3%). There were also small groups of Turkish, Japanese and Chinese students. Unfortunately, these groups were so small that these nationalities would not be significant in the study and were therefore removed. Both groups of students completed English versions of the questionnaires during the beginning of class periods. All responses were anonymous and the researchers were not present to administer the questionnaire. There was a fairly equal representation of males and females with age ranges from 18 to 42.

The faculty questionnaire (Appendix B) was administered to business faculty during a major faculty meeting. A sample of 22 (53.6%) of a total population of 41 faculty responded. Participating faculty included marketing and nonmarketing faculty who see the marketing students in their nonmajor courses.

MEASUREMENT

The study measures three elements: student attitudes toward dishonesty, student values, and faculty perceptions of student dishonesty.

Student Attitudes toward Dishonesty

Student attitudes toward dishonesty were measured with a ten-item scale (Appendix A) which was adapted from Rawwas, Al-Khatib and Vitell (2004); this instrument measures various forms of college cheating. The original 20 item scale was reduced to a ten-item scale based on the results of the explained variance from the pretest. Respondents were presented with an ethical scenario involving a student in academic distress who needed help; various forms of cheating behavior were offered to would-be helpers. The scenario was developed when the

pretest yielded very little variance between the student groups in the situation presented by Rawwas, Al-Khatib and Vitell (2004).

A five-point Likert scale was used to measure the likelihood of participation with the behaviors presented from Likely To Participate to Never Participate. The scale was tested for reliability using Cronbach's alpha and yielded an alpha of .79 which according to Nunnally (1978) is generally acceptable.

Student Values

Student values were measured with Schwartz's (1992) cultural values scale consisting of 56 items. The reliability of Schwartz's scale was also measured with Cronbach's alpha, yielding an alpha of 94%.

Faculty Perceptions of Student Dishonesty

Faculty perceptions were measured using a self-administered questionnaire (Appendix B) to measure the different nationality groups against scales measuring frequency of cheating occurrences on a five-point Likert scale ranging from Infrequently to Very Frequently and severity of actions taken to cheat ranging from Low Severity to High Severity again on a five-point Likert scale. The overall purpose of the faculty questionnaire was twofold: first, to evaluate the honesty of student perceptions versus observations of the faculty; second, to develop a vector to measure observations of dishonesty across nationality groups.

RESULTS

Hypothesis 1: Due to increased pressure there will be greater frequency of academic dishonesty among foreign students compared to US students.

Table 1 records the results. Only the US and Indian students' samples were used due to the small sample sizes of the other nationality groups. The mean of the Indian students' answers was 4.605 on a 5 point scale, with 1 being likely to participate in the behavior and 5 being unlikely to participate. The mean of the United States students' answers was 4.391. Remembering that a higher number indicates that the students report themselves to have lower levels of academic dishonesty, comparing the means indicates that the Indian students perceive themselves as less likely to cheat. The Standard Deviations reflect that dispersion of the Indians was less than the Americans. This may indicate that there is more of a Halo Effect bias in the Indian students' responses. That is, the Indian students are more likely to respond in ways that are intended to please the researchers.

Table 1
Students' Self-Reported Level of Academic Dishonesty

Academic Dishonesty Variables	US Students		Indian Students	
	Mean*	Std. Deviation	Mean	Std. Deviation
1. Allow him to copy off your paper during exam	4.300	1.089	4.410	1.174
2. Communicate answers to him through whispers or hand motions	4.530	0.944	4.380	1.259
3. Make him a "cheat sheet" for the exam*	4.440*	0.943	4.920	0.436
4. Encourage him to fake an illness so he could have more time to study*	3.700*	1.232	4.550	0.889
5. "Hack" into your professor's computer to change the grade	4.890	0.567	4.940	0.305
6. Switch test papers, so that he will receive your grade and you will receive his	4.820	0.714	4.860	0.700
7. Ask someone who has taken the exam earlier for the questions that were on the test*	2.850*	1.569	3.450	1.671
8. "Hack" into your professor's computer to find a copy of the test	4.890	0.636	4.980	0.137
9. After you finish the exam, pass him a note with the answers	4.670	0.817	4.640	0.787
10. Find someone to take the test for him	4.820	0.653	4.920	0.331
Averages	4.391	0.916	4.605	0.769

* These are significantly different

** Based on a five point scale. Choosing '5' indicates that the student never participates in the act, while choosing '1' indicates that they would be likely to participate in the act.

Hypothesis 2: There will be a significant difference between cultural values of foreign students compared to US students.

To evaluate Hypothesis 2, the significant differences between cultural values of foreign students and US students were tested. Schwartz's value survey utilizes 56 items; Table 2 shows the 25 items found to be significantly different for the two student groups in our survey. The scale ranges from '-1' to '7'. Seven reflected that students supported the value as important to their culture. The only surveyed value that the US students rated higher than the Indian students was "enjoying life." Compared to the US students, Indian students found all of the following to be more important: honoring parents and elders, national security, respect for tradition, self-discipline, social order, cleanliness, creativity, pleasure, social power, wealth, authority, being daring, choosing own goals, being capable, world peace, social justice, accepting their portion in life, helpfulness, taking responsibility, unity with nature, a world of beauty, protecting the environment, social responsibility and healthfulness.

Table 2
Cultural Values That Differ Significantly Between US and Indian Students

Cultural Value	US Students	Indian Students	p value
	Mean*	Mean	
Honoring of parents and elders	6.21	6.81	0.002
National security	6.04	6.70	0.001
Respect for tradition	4.68	6.23	0.000
Self-discipline	5.96	6.50	0.008
Social order	5.21	5.94	0.004
Clean	5.56	6.44	0.001
Creativity	5.29	6.13	0.002
Pleasure	5.03	5.63	0.044
Enjoying life	6.15	5.31	0.000
Social Power	3.29	4.63	0.001
Wealth	4.04	5.61	0.000
Authority	4.14	5.37	0.000
Daring	4.59	5.56	0.005
Choosing own goals	6.07	6.56	0.009
Capable	6.00	6.39	0.036
A world at peace	5.72	6.35	0.026
Social justice	5.56	6.40	0.000
Accepting my position in life	4.90	5.91	0.002
Helpful	5.67	6.32	0.007
Responsible	6.36	6.68	0.038
Unity with nature	4.44	6.02	0.000
A world of beauty	4.43	5.77	0.000
Protecting the environment	5.14	6.36	0.000
Social responsibility	4.43	5.76	0.000
Healthy	6.26	6.59	0.056

* A higher number indicates that the student places supreme importance on the value and a lower number indicates that the student is opposed to the value

Hypothesis 3: There will be a difference between the students' perceptions of academic dishonesty compared to the faculty evaluations of dishonesty.

To test Hypothesis 3, Table 3 shows that there is a difference between the students' self-reported level of academic dishonesty compared to that observed by the faculty; for both groups, the faculty perceive higher levels of academic dishonesty than are self-reported. Table 3 indicates that Indian self-reported scores rated high for honesty but were rated lowest among the cultural groups by the faculty. The US students self-reported honesty scores were among the lowest of all the cultural groups but were rated in the middle by the faculty. The other interesting observation is that the top self-rated groups India, Nepal and Turkey virtually flip-flop in position on the Table when faculty observations are included.

Table 3
Academic Dishonesty As Self-Reported By Students and Observed By Faculty

National Origin	Student		Faculty	
	Mean*	Std. Deviation	Mean**	Std. Deviation
India	4.605	0.769	1.250	1.136
Nepal	4.607	0.432	1.895	1.293
Turkey	4.606	0.002	1.905	1.197
US	4.391	0.916	2.762	1.261
China	4.670	0.430	3.000	1.065
Japan	4.342	0.776	3.333	1.106
Germany	4.468	0.177	3.647	0.493

*Based on a five point scale. Choosing '5' indicates that the student never participates in the act, while choosing '1' indicates that they would be likely to participate in the act.

**Based on a five point scale. Choosing '1' indicates that the faculty member has frequently observed students from the particular country participating in academic dishonesty and choosing '5' indicates that the faculty member has infrequently observed students from the particular country participating in academic dishonesty.

CONCLUSIONS

Self-reported surveys administered to the students reveal that cultural groups are significantly different from one another. However, self-assessment reflects that Indian students compared to US students are less likely to participate in academic dishonesty; therefore, we must reject Hypothesis 1. However, when self-reported student evaluations are compared to faculty observations there is a difference between the cultural groups in what they self-report compared to what faculty observe. Therefore, academic dishonesty is relative and culturally-bound. What is the norm in one culture may not be acceptable behavior in another. For example, in some countries low levels of cheating behavior may be more accepted and not considered to be unethical due to the behavior being commonplace in academic institutions. This seems to be case with the Indian students who do not perceive that they are unethical or taking part in cheating behavior. It also may be the case that students who choose to cheat may also lie on questionnaires.

It was posited that students' perceptions of academic honesty and dishonesty are some function of the cultural environment. Cultural values certainly play a role but to identify the values associated with cheating behavior and costs of achievement may be difficult to parse. It was determined that there is a significant difference in the values of Indian and US students using Schwartz's (1992) cultural values questionnaire—Hypothesis 2 is accepted. When these values are considered together, it is very hard to identify a pattern. But if these values are considered from the perspective of Hofstede's cultural values i.e., placed under the four cultural dimensions developed by Hofstede, a pattern begins to emerge. As Table 4 shows, the differences may be attributed to the Indian students' higher level of collectivism and power distance. According to Hofstede's Dimension of Culture Scales (2001), India scored 48 (more collectivist) and the US scored 91 (more individualistic), with 100 being highly individualistic.

This means that relative to the US students, Indian students are more collectivist. The following cultural values were found to be significantly more important to Indian students and are also collectivistic values: respect for tradition, accepting portion in life, capability, a world at peace, social justice, unity with nature, a world of beauty, protecting the environment, honoring parents, self-discipline, creativity, choosing own goals, helpful, and responsible. Also, in Hofstede's Dimension of Culture Scales (2001), India was found to have a higher power distance score of 77 and the US scored 40, with 100 indicating the highest amount of power distance. Those values that were significantly different and indicative of India's higher amount of power distance are: social power, wealth, authority, and social recognition.

So how do higher levels of Collectivism and lower levels of Power Distance impact student honesty?

Collectivism measures an individual's reliance on groups. Indian students rely more heavily on groups than U.S. students. This reliance on groups implies an increased need to share information, increased dependence on others when studying or writing papers, lower levels of personal responsibility and an increased need to improve the success of the group. Being a good group member may promote behavior that is judged unethical in the context of a more individualistic culture.

The lower level of Power Distance which measures the relative power of the students compared to the faculty is quite low for Indian students. This may be the rationale for the high self-reported scores by the Indian students. They may feel a greater need to please a relatively more powerful faculty member. It is telling that Power Distance and Collectivism/Individualism related most to the value differences. These dimensions are conceptually different but related; i.e., Power Distance is reliance on more powerful people and Collectivism/Individualism is reliance on groups.

Table 4
Significantly different cultural values explained by Hofstede's Dimension of Culture Scales vs. Schwartz

Collectivism		Power Distance
<u>Universalism</u>	<u>Tradition</u>	<u>Power</u>
World at peace	Respect for tradition	Social power
Social justice	Accept portion in life	Wealth
Unity with nature		Authority
World of beauty	<u>Conformity</u>	Social recognition
Protecting environment	Honor parents	
	Self-discipline	
<u>Achievement</u>		
Capable	<u>Self-direction</u>	
	creativity	
<u>Benevolence</u>	Choose own goals	
Helpful		
Responsible	<u>Stimulation</u>	
	Daring	

The third hypothesis was accepted. The researchers found that there are major differences in the students versus faculty perception of dishonesty between cultural groups. The Indian students were perceived to be much more dishonest than other cultures based on faculty evaluation. However, the self-reported scores for the Indians reflected a much lower level of academic dishonesty. Therefore, the results reflect that academic dishonesty is a culturally-bound perception and thereby interpreted relative to the culture of the evaluator. The difference in the answers that the students gave and those that the faculty observed can be explained by the culturally-relative nature of dishonesty. While students were basing their answers on their own perceptions of academic dishonesty, faculty members were measuring against their own cultural values and the policy of the university.

More research needs to be conducted on student cultural differences so that marketing faculty and other faculties can deal with student dishonesty. A focus on Power Distance and Collectivism/Individualism may help explain differences in behavior between cultural groups. More explanation may also emanate from the investigation of Hofstede's other dimensions—i.e., Uncertainty Avoidance and Masculinity/Femininity.

It is important to note that using cultural relativism to explain differences in perceptions does not solve (or excuse) the problem of academic dishonesty. But understanding the basis of differing perceptions may help faculty devise better methods for calibrating nonUS students to local ethical expectations. To be most effective, faculty need the ability to frame academic ethics in a way that appeals to students' strongly held cultural values but avoids potentially undesirable implications of those same values.

Appendix A: Student Attitudes Toward Dishonesty

The student survey consists of two pages: a survey of national origin and a survey of responses to a set of possible cheating behaviors.

Student Attitude Survey

[Cultural Traditions and Behavior]

[February 2008]

Please check the box that best indicates your national origin

- | | |
|---------------|--------------------------|
| United States | <input type="checkbox"/> |
| India | <input type="checkbox"/> |
| Nepal | <input type="checkbox"/> |
| Turkey | <input type="checkbox"/> |
| Japan | <input type="checkbox"/> |
| China | <input type="checkbox"/> |
| Other | <input type="checkbox"/> |
-

Consider this situation:

You and your friend, Jim, are taking a college class together. Jim is struggling to earn a passing grade in the class. His parents have invested a lot of money in his education and they will be very upset with him if he has to retake the class. He must earn a good grade on the final exam in order to pass the class. While he has spent a good amount of time studying for the exam, he knows that he will not be able to make the grade that he needs to pass the class. Since Jim knows that you have an A in the class and will more than likely receive an A on the exam, he asks for your help. On a scale of 1 to 5, please rate how likely you would be to participate in each of these activities. '5' meaning you would not participate and '1' meaning that you would most likely participate.

	Likely to Participate	May Participate	Neutral	Sometimes Participate	Never Participate
1. Allow him to copy off your paper during the exam	1	2	3	4	5
2. Communicate answers to him through whispers or hand motions	1	2	3	4	5
3. Make him a "cheat sheet" for the exam	1	2	3	4	5
4. Encourage him to fake an illness so he could have more time to study	1	2	3	4	5
5. "Hack" into your professor's computer to change the grade	1	2	3	4	5
6. Switch test papers, so that he will receive your grade and you will receive his	1	2	3	4	5
7. Ask someone who has taken the exam in an earlier section for the questions that were on the test	1	2	3	4	5
8. "Hack" into your professor's computer to find a copy of the test	1	2	3	4	5
9. After you finish the exam, pass him a note with the answers	1	2	3	4	5
10. Find someone to take the test for him	1	2	3	4	5

Appendix B: Faculty Survey

Frequency and severity of academic dishonesty among nationalities

Instructions: Please consider each of the following ethnic groups and your awareness of their participation in academic dishonesty. Choose '5' to indicate that the group very frequently participates in academic dishonesty and '1' to indicate that the group rarely participates in academic dishonesty.

Also, choose '5' to indicate that the group acts severely in its behavior in academic dishonesty and choose '1' to indicate that the group acts mildly in its behavior in academic dishonesty. Some cheating is less severe, e.g., glancing at another's paper versus organized group test taking.

Notice: Academic dishonesty includes plagiarism, cheating during an exam, assisting someone else with cheating, and any other intentional action that gives the student an unfair advantage.

	Frequency of cheating occurrences					Severity of actions taken to cheat				
	<i>Infrequently</i>		<i>Very Frequently</i>			<i>Low Severity</i>		<i>High Severity</i>		
	1	2	3	4	5	1	2	3	4	5
United States	1	2	3	4	5	1	2	3	4	5
India	1	2	3	4	5	1	2	3	4	5
Nepal	1	2	3	4	5	1	2	3	4	5
Turkey	1	2	3	4	5	1	2	3	4	5
Japan	1	2	3	4	5	1	2	3	4	5
China	1	2	3	4	5	1	2	3	4	5
Germany	1	2	3	4	5	1	2	3	4	5
Other	1	2	3	4	5	1	2	3	4	5

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