DISCLOSURE APPREHENSION: THE INFLUENCE OF MEDIA AND SURVEY TECHNIQUE ON THE DISCLOSURE OF SENSITIVE INFORMATION

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Abstract

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Measuring behavior that has a social stigma attached to it is difficult because people do not respond exactly the way they behave. This is due to the apprehension that people have about disclosing such behaviors. The repercussion that they may face is a powerful fact that mitigates their responses. Therefore, to study specific contexts such as unethical behavior, researchers have devised techniques to keep the respondents anonymous (Dalton & Metzger, 1992). In this study, unethical behavior is measured by using two techniques that are compared in an online setting: unmatched count technique (UCT) and a nominal technique. Using these techniques, the impact of technology on the disclosure apprehension is studied. Disclosure apprehension is a perception that has positive and negative valence for a subject who is faced with a request to disclose sensitive information. The results show that UCT is better for obtaining disclosure of

sensitive information. Individual traits such as neuroticism and openness to experience along with media characteristics (persistence and interactivity) were shown to affect disclosure apprehension. Persistence is the ability of the media to retain content that passes through it. Both persistence and interactivity were found to have significant overall effects.

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To all those who showed me that life is a delicate balance

Chapter 1

Introduction

Disclosure of information is a critical aspect in many fields. The field of finance and medical health are prime examples of where disclosure is very prevalent. Finance (includes all commercial activity) has placed high importance in disclosing any information about the organization's financial state. Tadesse (2006) explains how the banking systems in countries that have better disclosure and transparency leads to less banking and related financial crises. Along the same lines, Francis, et al. (2005) shows data that proves firms that require external financing such as debt and equity capital are more likely to engage in higher levels of disclosure because it leads to lower cost of attaining the capital. The direct incentive that is observed here may not be possible in other fields such as medical health.

Medical health disclosure is not very common, however, there is some research to show that at a macro-level (such as all hospitals in a county) there is reduced legal compensation when medical mistakes are disclosed (Ba, 2002). Though there is usually no premeditated actions to unethical behavior in the medical health industry, the unethical part of the discussion arises when one thinks about the whole issue from the patient's perspective; to disclose would mean that patient may have other options that can be availed of; on the other hand if the hospital does not disclose it does not run the risk of a legal ramifications (Ba, 2002).

1.1. Disclosure of unethical behavior

Even in academic research, disclosure about unethical practices are not completely open (Wenger, et al., 1999). Disclosure depends on who is asked about the unethical behavior, for example, the researchers who are directly involved in the research project hold themselves accountable to only the project team to which they are associated with, while institutional leaders are more responsible to the community and other authorities outside the institution and therefore tend to disclose unethical behavior more often (Wenger, et al., 1999). Therefore, the researcher's behavior could be construed as either "professional self-regulation or cover up" (Wenger, et al., 1999).

There are other types of associated behaviors that disclosure can bring about such as physical washing of hands and other body parts, also referred to as "Macbeth effect". According to Zhong and Liljenquist (2006) simple daily hygiene will reduce the threats of unethical behavior and disturbing perception of unethical behavior.

An example from the corporate world is disclosure of unethical behavior by employees. This is difficult to obtain because of the possible negative sanctions that are associated with the disclosure. Since most data collection for any sort of behavior is obtained using questionnaires that are directly completed by the subject, the issue of evaluation apprehension by the subject always comes into play (Shadish, et al., 2001). Therefore researchers are constantly trying to improve their techniques for acquiring data on one hand while on the other protecting those who disclose information from facing the repercussions that are associated with unethical behavior.

There are other forms of employee disclosure that are quite prevalent in our society; whistleblowing is a very well known phenomena that became very prominent

with the demise of the energy company called “Enron” in 2001. There have been numerous studies on whistle-blowing as an act of disclosure of some unethical behavior. Nader, et al. (1972) defines whistle blowing as an act by a person who believes that the public interest overrides the interest of the firm that the person is working in, and publicly ‘blows the whistle’ if the firm is involved in unethical practices. Other definitions of whistle blowing are a disagreement with upper management about normal practices (Bok, 1980), or a more generic forms such as an act of speaking out about a wrong doing (Brabeck, 1984).

From the different research studies that focus on disclosure by whistle blowing there are certain underlying characteristics that must be explained. First, there is a public interest that is present (Guy, 1990). Second, the person who does the whistle-blowing does not have the power to change the situation and therefore appeals to someone higher to change the situation (Near and Miceli, 1985). Third, the severity of the act is proportional to the probability that a person will whistle blow (Miceli and Near, 1991). In other words if a person finds someone else who has committed a minor unethical behavior then the person may not whistle blow, on the other hand if the person perceives that someone else has committed a serious unethical act, whistle blowing is more likely to occur (Miller and Thomas, 2005).

1.2. Disclosure in academic environments

A study by McCabe, et al. (2006) showed that nearly 44% of students participated in some form of cheating. A majority of the students said that they engaged in plagiarism. One fourth of the graduate students that took the survey admitted to plagiarism. This

extensive survey showed that the highest levels of cheating were done by business students and the lowest by science students. A similar incident was brought up at an MBA program of a business school. Keenan and Sullivan (2007) reported the issue and mention that this is a major problem in most business schools and that the impact of the Enron and WorldCom scandals have not instilled in MBA students that the 'means to the end is equally important as the end itself'.

Students from high school are modifying their techniques of cheating (Boone, 2007). A few years ago students who cheated wrote answers on their clothes such as shirt sleeves, and under a hat. This caused school administration to ban certain type of hats and sensitized teachers about different aspects about clothing. Nowadays students are using portable media players and other digital devices to store the information and then during an exam they play it back discretely. They also use cell phones to text each other messages during tests. This behavior is leading to school banning digital media such as cell phones and media players. Another incident that came to the limelight was cheating at a major Ivy League business school (Keenan and Sullivan, 2007). The result was that some of the students were expelled as a disciplinary measure. Though cheating is a common phenomenon, how do administrators and teachers know that students have modified their cheating behavior? Who gives them the information that new cheating techniques are being used in their institution? Who discloses this sort of information?

As mentioned above, students are using technology to cheat in unpredictable ways. Since the changes that technology offers are remarkable and in some ways constraining, there are times when the impact of technology does not change our perceptions and behaviors while at other times it severely affects them.

1.3. Disclosure and technology

When unethical behavior crosses into the technology realm, there are certain aspects that technology helps facilitate. The most commonly known facilitation that technology helps achieve is that of anonymity (Nunamaker, et al., 1991). Technology helps both unethical behaviors to be conducted and also detected. Disclosure of unethical behavior using technology is not a common notion, however, there are other forms of disclosure that technology helps facilitate. For example, technology can facilitate the quick acquisition of data such as addresses, phone numbers and even salary information. An example of this would be on a career or job search site which requires individuals to disclose their personal information and stores this information in an online database. In short, individuals show the willingness to provide sensitive personal information over the internet. Using this example as a reason, there is a need to understand information disclosure in new technology mediated environments.

1.4. Volume or rate of disclosure

Though disclosure is of many forms, protecting the identity of the person who is disclosing is an important part of the process to motivate the person. On the other hand identity protection should not hinder the data collection or make the data interpretation impossible. While this may seem to be a double standard that is being set by researchers, the main focus is to be able to document with a certain level of surety that a particular type of behavior does occur and to determine a base rate of occurrence (Dalton and Metzger, 1992; Dalton and Wimbush, 1997; Fox and Tracy, 1986). Owed to the nature of certain types of disclosure, the researchers will have to provide assurances that the

subject will be free of repercussions from the disclosure, otherwise, as mentioned earlier, the apprehensions of the subjects will cause them not to disclose or provide correct data.

1.5. Conclusion

Disclosure of sensitive information is an area of research that has been dealt with in the past, however, the advances in technology that have provided for new realms of communication and social structures, need to be explored more in detail. This study intends to look at some of the factors that influence the behavior of disclosure in technology mediated environments. The two research questions that are proposed are:

RQ1: Are the existing methods of obtaining disclosure of sensitive behavior robust to the changes in media used or changes in media characteristics?

RQ2: Will the apprehension of a subject to disclose information be able to predict actual disclosure behavior?

Chapter 2

Literature Review

2.1. Disclosure

Disclosure of information can be of many forms and even need not be voluntarily expressed by the subject. Researchers who collect disclosure information can do so by looking at secondary or alternate sources (Dalton and Metzger, 1992). For example when studying employee theft from an inventory, researchers could get information about the volume of goods that has reached the customer, the volume that has been damaged, the volume that is still in inventory and the rest would account for pilferage. Another source would be to monitor the behavior of a set of employees (Dalton and Metzger, 1992). Behavior monitoring would include monitoring by closed circuit cameras, telephone taps, and other taps into an employee's communication channels. Though this is cumbersome and time consuming, the unethical behavior rate can be accurately assessed. On the other hand if an employee is aware of being monitored, there is bound to be restricted and modified behavior so that he or she will not be implicated in an unethical act. Behavior monitoring also brings up legal issues such as privacy and others related to harassment (Weisband and Reinig, 1995).

Disclosure in general, has six elements for its definition: act of disclosure, actor, disclosure subject, target, disclosure recipient, and outcome (Jubb, 1999). The act of disclosure is when the subject openly expresses the information about an unethical act that has been committed in the past. The actor is the subject that has either committed the

unethical behavior, as in the case of self disclosure or witnessed the unethical behavior as in the case of whistle blowing. The target is a person or an entity that will face the repercussions of the unethical behavior. The disclosure recipient is the person or the system that receives or 'listens to' the subject or actor when he is disclosing the unethical behavior. The outcome is the repercussions that maybe faced by the target who has committed the act.

There are other forms of disclosure such as industrial and financial disclosures which present users information to aid their decision-making. The most common disclosure of this form is that which is found on food container labels, stating the nutritional value. Such forms of disclosure are very effective when the disclosed information is used to a great extent (Weil, et al., 2006).

Self-disclosure is the area of interest for this study. In this case the act of disclosure is a confession of the unethical behavior (disclosure subject) that was committed; the actor is the same person as the target. The disclosure recipient may be a law enforcement agency, friend, or even a catholic priest! The outcome of self-disclosure varies depending on who is the recipient of the disclosed information, for example, if a subject discloses murder to the police, there will be serious consequences, on the other hand if the subject discloses the same information to a catholic priest, there most probably won't be any repercussions to the same magnitude.

'Whistle blowing' is an increasingly common phenomenon of disclosure that is becoming of interest to managers (Miceli and Near, 1985). Rothschild & Miethe (1999) shows that whistle blowing is more predominant in public sector companies. A couple of reasons mentioned are that protection against management retaliation is more possible in

public companies. Rothschild & Miethe (1999) also mention that there are no distinguishing characteristics between a whistleblower and a silent observer. The authors go on to find that there are some psychological benefits because after the disclosure, the whistleblower perceives themselves as a person who protected the workplace from unethical behaviors.

As compared to self-disclosure of unethical behavior, whistle blowing has an inverse relation with the type of unethical behavior that is disclosed (type of unethical behavior will be discussed later). This is due to the fact that the whistle blower is not the person who is doing the unethical behavior. Therefore, disclosure by whistle blowing is more predominant when the type of unethical behavior has very serious consequences, on the other hand self – disclosure of unethical behavior is more predominant when the type of unethical behavior has trivial consequences (Guy, 1990).

Another difference between self-disclosure and whistle blowing is that self-disclosure is based on guilt (Farber, 2003) or shame (Farber, et al., 2004; Yourman, 2003) and whistle blowing is based on the actor's loyalty towards the public or 'greater good'. Though both forms of disclosure expose unethical behaviors, self – disclosure is the only disclosure that this study is focused on.

The most frequent technique for obtaining self – disclosure is by using a questionnaire that is presented to each subject (Fox and Tracy, 1986). The survey technique of using a questionnaire is effective and does not run into the legal issues such as privacy and harassment. The problem with any survey is that there are certain errors that influence the data when it is collected. Two such errors are non–response bias and response bias. Non–response bias is when subjects do not respond to the survey for some

reason and response bias is when subjects give false responses to the survey questionnaire. More discussion on this will be conducted in the methodology section.

One of the strongest reasons for the response biases to influence the data is when the questionnaire is asking about sensitive behavior, such as sexual behavior, drug abuse, fraudulent or unethical behavior, etc (Fox and Tracy, 1986). As mentioned above, for any subject to disclose their unethical behavior they have to perceive that there will be no repercussions in order to reduce the resistance to disclosure.

Other factors that could influence resistance to disclosure are anonymity, individual differences, media characteristics, and the environment in which the subject is questioned.

2.2. Resistance to disclosure

When faced with a situation to disclose any sensitive behavior, people often refrain from doing so. In most cases, people feel ashamed that they are being asked sensitive questions and they become sullen or in other words develop a negative affective state (Schwarz, 1990). The negative affective state that is induced will put the person in a more alert state and therefore they will opt for careful processing of the information regarding disclosure (Schwarz, 1990). The active thought processes that evaluate whether to disclose or not, forms the resistance to disclose sensitive behavior. Though in a very strict sense it is not right to say that increased processing leads to denial of disclosure, the process of information rumination within the mind of the individual delays the decision of whether to disclose his or her sensitive behavior.

There are a couple of other perspectives similar to negative affective states that can be used to understand the resistance to disclosure. Disclosure of unethical behavior is a narrow field in decision – making because of the range of behavior that is expected from a subject; i.e. the outcome of a subject that is involved in this study is to either disclose an unethical behavior or not to do so. As compared to other decision-making studies such as financial analysis or knowledge sharing, the outcome of disclosure is limited, however, the disclosure may have severe repercussions and hence decision - making by a subject is a very rational and carefully thought out process. One of the rational decision-making process is a cost benefit analysis of the situation of disclosure. The cost – benefit framework (Payne, et al., 1993) may be used to explain one rational process of thought while disclosing. Each individual that is faced with a dilemma to disclose sensitive information or not, may utilize the cost benefit framework to rationalize the decision that is to be made. This rational approach to decision-making has a very rich research history (Bettman, 1978; Klein, 1983; March, 1978; Payne, 1976; Payne, et al., 1978; Shugan, 1980; Tversky, 1972). The cost benefit framework has branched out into various domains of research to explain the ambiguous decision-making environment for an individual.

One of the key elements that this framework brings about is the concept of risk involved with a decision process. When decision-making involves risky and ambiguous situations the individual usually tries to evaluate more than one option. The effort involved in evaluating the different options is directly associated with the cost of decision-making (Payne, 1982). Therefore prior work from this research domain points to the notion that individuals in high risk situations undergo extensive processing to

understand all the different options presented before them. They may also search for alterative options if the initial set of options is insufficient (Payne, 1976).

The cost of disclosing sensitive information is viewed from two perspectives: the cost of processing the impact of disclosure and the second is the cost of processing the impact of not disclosing. In most cases of sensitive information disclosure, the cost of not disclosing is negligible. Therefore, the impact of disclosure is the menacing part for an individual to evaluate. In disclosure situations where the individual is asked for very sensitive information, the cost (or repercussions) is high and there is almost no motive to divulge any information. For example, if an individual is asked about his deviant sexual preferences, there is a strong possibility of legal action against him. On the other hand if an individual is asked about theft of office stationary, there might only be minimal legal action. Though these are two simple examples of disclosure, this does not cover the entire spectrum of disclosure situations; for example in some situations the individual may feel pressured by a manager or by law enforcement. In such cases, the cost benefit analysis becomes more complicated because it has to account for the external pressures and also the possibility that the individual may 'get away with it' or be pardoned if he chooses to disclose. Under more complicated situations the cost benefit framework looks at the effort required to process each alternative and how accurate each alternative will be in predicting the outcomes (Johnson and Payne, 1985; Shugan, 1980).

The cost of disclosing unethical behavior is very high and therefore subjects are not very willing to disclose anything that will affect them adversely. Therefore the use of a decision-making framework to explain disclosure is limited because the framework does not expose any of the factors that will affect the act of disclosure. Unless you can

bring the cost of disclosing unethical behavior down by providing legal guarantees or immunity (or increase the cost of not disclosing – threat of harm), the cost benefit framework will have limited advantage, but does explain the lack of disclosure.

In short, the only possible course of action for an individual who evaluates the situation with the cost – benefit framework is never to disclose any sensitive information at any time. There is a clear rationale as to why there should be resistance to disclosure of any sensitive information. Though this may seem obvious, people do not act rational at all times and this framework reaches it limitation (Simon, 1986) to provide an understanding of disclosure. The other limitations of this framework are that there is no easy way to measure the amount of effort exerted by the individual and there is a lack of agreement on how to measure the accuracy of decision (Johnson and Payne, 1985).

Another model that can predict the resistance to disclosure is the theory of planned behavior (TPB) (Ajzen, 1988; Ajzen, 1991). This theory is based on the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980). Both TPB and TRA have been widely used to predict behavior from intentions and attitudes. The similarity between TRA and TPB are that both predict behavior from intentions.

A subject's intent (ion) to perform a particular behavior is assumed to capture the motivation to perform that behavior and the amount of effort the subject will exert to perform that behavior (Ajzen, 1991). The link between intention and behavior has had varying results. There are numerous studies that prove a strong relation between intention and behavior (Armitage and Conner, 2001; Bredahl, 2001; Dennison and Shepherd, 1995) and on the other hand this relation can be weakened by how the measure of behavior is collected (Armitage and Conner, 1999; Hessing, et al., 1988). The difference

between self reported behavior and observed behavior is the crux of the intention – behavior relation (Sutton, 1998), because self reported behavior tends to correlate highly on intention while the actual behavior may not be so. This may also be because self reported behavior has a large subjective component as compared to the measure of actual behavior. Therefore, self reported behavior overlaps with intention while observed behavior does not. Since this study delves into disclosure, there is a strong possibility of response biases in the self reported behaviors (please see Section 2.5, pg. 31 for further review). One study by Beck and Azjen (1991) looks at predicting dishonest intentions and actions. Beck and Azjen combine TPB and the social desirability scale (Crowne and Marlowe, 1964) to show that intentions are slightly affected by social desirability (approximately 5% of the variance in intentions came from the social desirability scale) , however, Armitage and Conner (1999) reported negligible effects of social desirability on TPB measures.

Another similarity between TRA and TPB is the attitude measure. "Attitude towards the behavior reflects the individual's global positive or negative evaluations of performing a particular behavior" (Armitage and Conner, 2001 pg. 474). Therefore, more positive attitude would lead to higher intention which in turn would result in the particular behavior. Another perspective on the attitude – intention link is that a measure called 'desire' may mediate this link. For a detailed review of the measure of desire and the link between attitudes and intention refer to Bagozzi (1992).

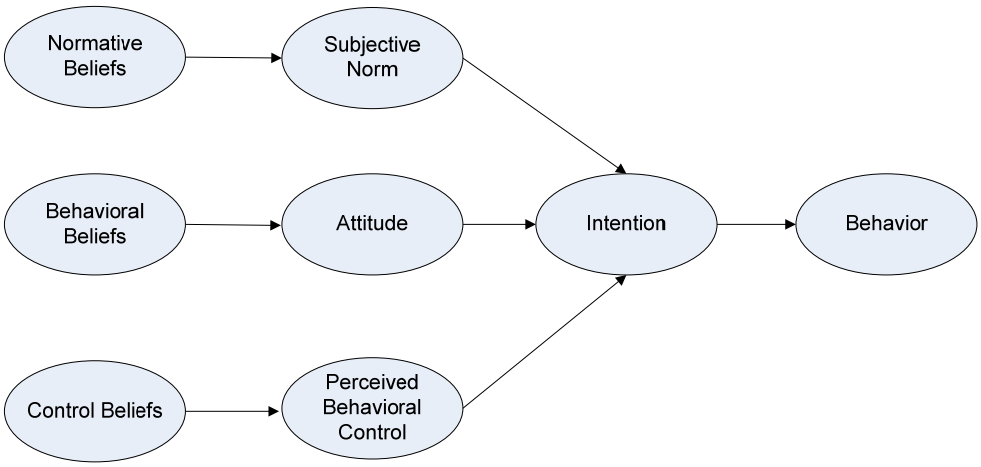
Subjective norm forms the third similarity between TRA and TPB. This measure captures the influence of the surroundings that a person faces when deciding to commit a particular behavior. This influence could originate from a range of people, such as

teachers, parents, social leaders, and other opinion leaders. Therefore subjective norm is the person's perceptions of general social pressure from significant others. If the pressure (or perception) is high then it is likely that the person would engage in a particular behavior.

The main difference between TPB and TRA is the measure of perceived behavioral control (PBC) that is present in TPB, which provides for volitional control of the person towards a particular behavior. PBC is defined as the perception of how easy or difficult a particular behavior is going to be (Ajzen, 1991). The reason for adding this measure to TPB is to account for behaviors that are not completely under the control of the person who is committing the behavior. For example, smoking cessation and other health related behaviors, fall into this category, whereby subjects are not completely in control to commit a particular behavior. In our situation, impact of PBC on actual behavior may not be of high importance because there is almost complete volitional control over disclosure. The interesting aspect is when different media are used to extract disclosure; volitional control of the individual over a particular media will come into play. Ajzen mentions the interaction of PBC with the intention – behavior link, however, there were no significant results in the meta-analysis that he conducted. According to Ajzen (1991), PBC is said to influence both intention and the actual behavior, i.e. under low volitional control, the behavior is said to be influenced by intention and PBC. This is because if a person who is low in volitional control will exert more effort to commit the behavior if he develops more control. On the other hand, under conditions of high volitional control, intentions will mediate the relation between PBC and behavior. In this study, disclosure is a not a very clear-cut act with high levels of control and therefore the

level of intention may not dictate the behavior level, as volitional control may reach its ceiling of influence on the disclosure outcome. It must be noted that measuring PBC accurately is difficult and will cause related issues with the intention measure (Armitage and Conner, 2001).

Figure 2.1: Theory of Planned Behavior (Ajzen, 1991)



All the three antecedents to intention have an associated belief structure. Therefore, attitude has a behavioral belief, subjective norm has a normative belief and PBC has control belief. These three beliefs present the strength of the attitude that is formed towards a behavior. Do keep in mind that all three antecedents to intention (attitude, subjective norm and PBC) and their related beliefs may all not be salient in every case (Ajzen, 1991). The combined effect of the beliefs will predict the intensity of the behavioral intention (Ajzen, 1991).

Both TRA and TPB do not explicitly look at the impact of demographic and psychographic measures to influence the behavior or intention. However, there is an assumption that the influence of these factors will be mediated by the salient factors of TRA or TPB depending on the case (Ajzen, 1991).

2.3. Individual differences

There are many individual differences that can have an impact on disclosure. The personality of the person who is faced with disclosure is a strong influence on how that person will be willing to disclose. Individual differences provide a common antecedent for a wide array of issues, especially in decision–making literature. The impact of individual differences on decision-making (Newton and Roberts, 2003; Punj and Stewart, 1983; Roberts, et al., 1997; Schunk and Betsch, 2006) is found at different levels. At an individual level, in the influence of intoxication (Abbey, et al., 2005), long term planning (Bearden, et al., 2006), use of computer decision aids (Benbasat and Dexter, 1982; Zinkhan, et al., 1987; Zmud, 1979), career planning (Boone, et al., 2004), ethical judgments (Boyle, et al., 1998; Capen and Minton, 1995; Davis, et al., 1998; Knouse and Giacalone, 1992), end user computing (Doll and Torkzadeh, 1989), training (Gully, et al., 2002), computer interface (Hess, et al., 2005), impulsive decision-making (Hinson, et al., 2003), risk taking (Lauriola and Levin, 2001), affective influences (Peters and Slovic, 2000), commitment (Rao and Monk, 1999). At a group level, in groups decision-making (LePine, et al., 1997; Malter and Dickson, 2001),financial analysis (Mear and Firth, 1990), academic dishonesty (Lucas and Friedrich, 2005), accepting unethical behavior (Winter, et al., 2004), At an organizational level in organizational development (Sample, 2004), knowledge sharing (Wang, 2004), and leadership (Wally and Baum, 1994).

In each of the studies mentioned above there are numerous individual differences that have been studied to understand human decision-making. For example, the need for cognition is an individual difference variable that will influence rational decision-making (Simon, et al., 2004; Stanovich and West, 1998), personal ethical ideology is a variable

that affects moral judgments (Davis, et al., 1998) and attitude towards risk and ambiguity (Lauriola and Levin, 2001). Many of the studies have a unique individual difference that is of importance and therefore focus on just one or two individual difference variables. However, it may be possible that for each study to have numerous other individual difference variables could be measured and studied.

Suspicion, paranoia, computer anxiety, and factors of the Big Five (personality inventory) are those individual difference factors that may influence disclosure behavior. The choice of these factors of individual differences shall be explained next.

2.3.1. Big Five

The Big Five is a set of constructs that are commonly used to describe personality traits. The word 'Big' is used to emphasize the broad nature of the constructs rather than its importance (Goldberg, 1992). The five traits that form the Big Five personality inventory are extraversion, neuroticism, agreeableness, conscientiousness, and openness. It must be noted that these five traits are commonly referred with these labels and there are numerous researchers who do not agree to these labels nor the minimum number of personality traits that are required to categorized people (Block, 1995; Eysenck, 1992; Eysenck, 1997; Pervin, 1994). The Big Five traits are very well empirically tested and have a bipolar aspect to each of the traits (Potter and Balthazard, 2002).There are over 100 distinct personality traits that are documented, however, over a period of time researchers have come to an agreement on the five mentioned earlier (Cattell, 1945; Tupes and Christal, 1961).

2.3.1.1. Extroversion

The extraversion personality trait is one of the most commonly accepted traits of human personality (John, 1990). This personality trait was first explained by Eysenck and Eysenck (1975) and is sometimes referred to as Eysenck's extroversion/introversion trait. People high on extraversion tend to have personalities that are outgoing, sensation seeking, dominant, assertive, likes other people and look for variety in life. Extroverts show a great deal of outward energy and like to openly talk. They are usually relaxed and confident about life and generally happy. The opposite of extraversion would be introversion, which is characterized by unassertive, shy and withdrawn personalities. The extroversion - introversion trait is based on the intensity of interaction of an individual with the surroundings and the level of stimulation that individual requires from his surroundings. A person high on extroversion will require higher levels of stimulation from the environment and therefore will be more sensation seeking and usually in the company of others, while an individual high on introversion (the other end of the spectrum) will not require as much external stimulation and will tend to be more reserved and occupied with their own work . There are some researchers that would like to split this trait into two dimensions. For example Hogan (1986) uses ambition and sociability as the two dimensions of the extroversion personality trait. Therefore based on this information, extroversion-introversion trait may not be a good predictor for disclosure of unethical behavior.

2.3.1.2. Neuroticism

Neuroticism is a personality trait that is the most studied after extroversion (John, 1989; McCrae and Costa, 1995). When behaviors such as disclosure of unethical actions

are in focus, people with certain level of neuroticism tend to be more refrained. For people with high levels of neuroticism, risky situations, pose a definite threat. In a study that looked at personality and risks perceived through video display terminals (VDT), it was found that individual disposition (along with experiential factors) had a strong influence on risk perceptions. The most influential Big Five factor in the VDT study was neuroticism (Broach, 1991) along with agreeableness and openness to experience.

People that are high on neuroticism show many more behaviors. Neurotic people have a strong tendency for undermining other people and this tendency is more pronounced if they have high levels of self – esteem and in a group setting (Duffy, et al., 2006). Research has also shown that people with high neuroticism will flee from any physical sensation if there are bodily threats, especially death. The rejection of physical sensation is so strong that they will also reject pleasurable sensations too (Goldenberg, et al., 2006)! In another study, researchers found that health habits of neurotic people were dependent on attempts by others to influence their behavior rather than a personal choice (Tucker, et al., 2006). In short, neuroticism has a self reinforcing mental process that prevents neurotic people from switching to positive thoughts. Response preservation is one of the major reasons that neurotic people experience more negative emotion (Robinson, et al., 2006). Therefore, once a person is caught in the self reinforcing thought cycles that maybe initiated by asking them about unethical behavior, it becomes quite difficult to for them to think of anything good that will lead to disclosure.

Neurotic traits are not all bad, there are studies that show that people with high neuroticism perform better in busy work environments than stable people (Smillie, et al., 2006). There are also studies that have shown neuroticism leads to high variability in

reaction tasks and in turn variability in cognition and behavior (Robinson and Tamir, 2005). Therefore neurotic people tend to be more careful in their actions. From an advertising perspective, neuroticism is a powerful predictor of consumer attitudes to ad-provoked feelings (Mooradian, 1996).

In short, neuroticism poses a strong factor that will affect the disclosure of certain behavior.

2.3.1.3. Agreeableness

This personality trait encompasses characteristics like altruism, tender-mindedness, trust and modesty (John and Srivastava, 1999). An individual high on agreeableness will be more likely to be pro-social and community oriented. The contrast is a person who is agnostic, hostile, and rebellious. Though agreeableness is the most accepted label there are many other labels that have been provided to this personality trait, such as friendliness (Guilford and Zimmerman, 1949), social conformity (Fiske, 1949), and love (Peabody and Goldberg, 1989).

The agreeableness trait may be able to provide some insight into what leads to more disclosure. However there are certain aspects of this personality trait, such as modesty or hostility, which may prevent it being a significant antecedent to disclosure by people with very high or very low agreeableness

2.3.1.4. Conscientiousness

Conscientiousness describes the ability of an individual to follow rules or delay gratification. A conscientiousness person has more "socially prescribed impulse control" (John and Srivastava, 1999). This personality trait has also been referred to as conformity, dependability (Fiske, 1949; Hogan, 1986), will to achieve (Digman, 1989)

and work (Peabody and Goldberg, 1989). There is quite a bit of contention between different researchers about what the exact definition and characteristics of this trait are (Digman, 1990). Some researchers have mentioned that this trait consists of dependability (i.e. careful and organized) (Fiske, 1949; John, 1989), while others have mentioned that this trait consists more of choice or preference aspects such as persevering and wanting to achieve (Digman, 1990; McCrae and Costa, 1995; Peabody and Goldberg, 1989).

This personality trait does not provide a clear foundation for understanding disclosure but comes close in some aspects such as, conformity and controlling oneself. There could be a relation that drives people with high conscientiousness (i.e. with high conformity) to disclose more than others who are not so high on this trait.

2.3.1.5. Openness

The openness personality trait is the most widely contested trait in the Big Five (John and Srivastava, 1999). The reason for the difference of opinion is based on the fact that openness is largely a cognitive process that is perceived quite similar to IQ. "Creativity, originality and cognitive complexity" are common characteristics of people who are high on this trait and these characteristics are distinctly different from IQ tests (Barron, 1968; Helson, 1967; Helson, 1985). This trait has also been referred to as openness to experience, which provides a slightly different perspective to this cognitive personality trait (McCrae and Costa, 1995). Other characteristics that are commonly associated with openness are, broad-minded, curious, and artistically sensitive.

Openness is a trait that has a combination of all the above mentioned characteristics (Digman, 1990). From the disclosure perspective, openness may not have any significance at all.

All five personality traits mentioned above form a set of dimensions with which an individual's personality can be scientifically mapped. As mentioned previously there are numerous objections to this classification, however, this is currently the best set that is most widely accepted among psychologists and therefore provide an apt platform for this study to gauge individual differences. For this study, the five traits (extroversion, neuroticism, agreeableness, conscientiousness and openness) is based on John and Srivastva (1999)

2.3.2. Anonymity

One of the ways disclosure can be induced is by providing anonymity to the subject. Our society has changed so much that the concept of anonymity has been seriously challenged because of the increasing dependence of information that is held by technology (Teich, et al., 1999). What it means to be anonymous in the modern world is quite different from what it used to be (Nissenbaum, 1999). Previously, the concept of anonymity would mean 'not giving out your name' but in the IT enhanced world anonymity means unreachable, untraceable (Wallace, 1999). To provide anonymity today would entail ensuring that numerous facets of information do not provide a composite picture. In other words, if you have the information pieces that would lead to a final objective, then making the objective anonymous will not suffice (Nissenbaum, 1999). For example, if a person contributes to an online discussion forum about beer-making and mentions that he is based in New York, graduated from Washington State University, has

condominiums in New York and Florida and is a regular flier on United Airlines, then it is quite easy to identify this person.

By providing anonymity, subjects feel that they cannot be traced and therefore develop the perception that they cannot face any repercussions due to their disclosure. The theoretical reason for this perception is based partially in the deindividuation theory (Diener, 1979). This theory states that with an increase in anonymity, an individual is less constrained by social norms and fears and so tends to express themselves more freely. The deinividuation theory is usually used to predict aggressive behavior of individuals when in social groups (i.e. Developing a group identity) or under a disguise (e.g. A mask) (Festinger, et al., 1952). However, there is no conclusive evidence that anonymity leads to aggressive behavior because in many cases people with aggressive behavior use anonymity (e.g. use of a mask) to prevent harm to themselves (Prentice-Dunn and Rogers, 1980). Either way, anonymity provides an apt platform for an individual to express nonsocial behavior (Silke, 2003). There is a concern for anonymous usage of the internet because of this reason (Davenport, 2002). Accountable behavior is difficult to maintain if there are anonymous people on the internet and that can cause a gradual deterioration of society and our freedom in turn (Davenport, 2002). Anonymity over the internet will also affect the law enforcement (Froomkin, 1999). On the other hand, increased propensity to disclose sensitive information is provided by anonymity and is a vital aspect to collecting data that is wrought with social stigma (Nunamaker, et al., 1991).

Anonymity is developed using different techniques, such as asking subjects in a particular fashion will help increase the perception of anonymity (Aquilin, 1994). Aquilin

found that admission of guilt for drug and alcohol abuse was more likely when using self administered questionnaire and less when there was face to face questioning. The effect of anonymity is most profound in group behavior and especially when an anonymous person has to perform some task willingly. The perception of anonymity is also related to the willingness to exert effort (Barreto and Ellemers, 2002). On the other hand Burnham (2003) found that perception of anonymity decreased the willingness to help others. In a computer mediated environment, anonymity increases the number of contributions from each member, however, it does not affect any other quality parameters (Connolly, et al., 1990; Cooper, et al., 1998). Also in CMC environments, users perceived that the effectiveness of the system was higher when users are anonymous (Jessup and Tansik, 1991). When in group situations, anonymity of oneself to the group differentiates that person from the group and when members of the group are anonymous to each other there is less interpersonal attraction but entitativity of the group is increased (Sassenberg and Postmes, 2002).

The general theory of deindividuation mentions that anonymity will decrease the inhibition to participate (Diener, 1979) and Kahai et al (1998) shows that the general theory does not draw a complete picture of the process of how anonymity affects initial participation. Kahai et al (1998) argues that anonymity does not affect the inhibition to participate, however, it does affect what a subject does when they participate.

Though gender does not have effects on the perception of anonymity, gender does have effects on anonymity based behavior (Durant, et al., 2002). One of the reasons for this may be because men and women are different socially and since anonymity reduces social presence (Sia, et al., 2002) men and women react differently to situations when

they feel anonymous. Overall, anonymity provides better perception among subjects for collecting sensitive data (Durant, et al., 2002).

Pinsonneault and Heppel (1997) points out that anonymity is not a unidimenionsal construct but a multidimensional construct. He presents that anonymity consists of five separate constructs: diffused responsibility, proximity, knowledge of other members, confidence in the system, and public self-awareness. Each of these constructs can be thought to influence the disclosure behavior of an individual.

The construct 'confidence in the system', leads into the next important aspect of disclosure; media characteristics.

2.4. Media Characteristics

As mentioned earlier, for any subject to disclose their unethical behavior the media used to present the questioning will have an impact. Initially, in the early 1960's when computers were new to the general public, the respondents felt that computer-based questionnaires were more anonymous than paper-based. However, in recent times this is not so, as the feelings have reversed. People no longer trust computer-based questionnaires as much as paper-based (Richman, et al., 1999). This is a bigger controversy in the realm of e-voting, because people are skeptical of how their votes are being tallied (DiFranco, et al., 2004). According to Richman et al. (1999), there is "no overall effect of computerization". The effect will depend on how the interface makes the respondents feel; the more a computer instrument resembles a traditional instrument, the more the two instruments should produce similar responses" (p. 756). Thompson et al (2003) found that web-based surveys had no difference as compared to paper-based

surveys for administering ethical climate surveys. Therefore the impact of technology could be similar to a hygiene factor, below certain conditions there are negative appraisals and above certain conditions there is no impact of using technology other than for convenience of the researcher.

On the other hand, medium can have an impact on the way people respond (Weisband and Kiesler, 1996). Computers tend to provide a sense of security and people do not have misappropriations about where their responses are sent. Therefore a sense of well being is maintained and causes respondents to be more open about themselves with computers. This happens when people consider computers as social actors (Reeves and Nass, 1996). The anthropomorphic nature of computers causes people to increase their interaction with computers (Hess, et al., 2005) and thereby feeling more comfortable to disclose their unethical behavior.

Some of the media characteristics that may affect disclosure are interactivity, rehearsability, reprocessability and persistence.

2.4.1. Interactivity

Interactivity is the ability of the medium to allow people to communicate without regard to time or distance (Blattberg and Deighton, 1991). Interactivity is also defined as "the extent to which users can participate in modifying the format and content of a mediated environment in real time" (Steuer, 1992, p. 84). Notice that both the definitions and descriptions of interactivity are not quite in agreement. This is owed to the lack of an accepted definition of interactivity (Heeter, 2000). Unfortunately, there is not a clear understanding of what comprises interactivity and how media can be evaluted with this concept (Liu and Shrum, 2002; McMillan and Hwang, 2002). There has been a certain

level of conformity in the interactivity literature that points to three main areas: user – machine interactivity, user – message interactivity and user – user interactivity (Liu and Shrum, 2002).

The user – machine interactivity is dependent on the relations between the user and the machine (Hoffman and Novak, 1996). The user – message interactivity is when the user gets to control the content in the virtual world. This interactivity is very dependent on manipulating the graphics that are available to the user. The user – user interactivity is focused on the communication between two people or entities. Ha and James (1998) present that user – user interactivity improves as the medium that is used approaches the level of interaction that is possible in a direct face – to – face communication. Steuer (1992) mentions that speed of communication is an important factor that would define interactivity. Therefore user – user interactivity perspective would be a dependent on the communication speed of the medium.

Steuer (1992) presents two other factors that would help define interactivity: range and mapping. Range is the amount of possible actions that can be conveyed through the medium. Dennis and Valacich (1999) also present a similar factor called symbol variety to define media characteristics. Mapping refers to the ability of the medium to convey the users' actions in a natural way and as expected by the users.

Though interactivity is not very well defined, it is postulated to have a strong relation with a subject's disclosure apprehension because it affords a level of control over the media for the subject that may lead to increased disclosure apprehension.

2.4.2. Rehearsability

Rehearsability is the ability the media provides to edit the message before it is sent (Dennis and Valacich, 1999). When media has the potential for rehearsability, then the sender can compose the message to be able to deliver an exact meaning that is contemplated by the sender. This aspect is increasingly important when there is a lot of ambiguity present in the message or communication.

This is an important aspect because media that has high capability for rehearsability will be able to create a sense of control for the user to mold the message so as to increase the perception of anonymity. Dennis and Valacich (1999) points out that "media with high rehearsability tend to have lower feedback," (pg 2) therefore this aspect may not meld well with the disclosure scenario, however feedback or negotiation is not expected between the subject and the person collecting data. The influence of rehearsability on disclosure behavior is not certain and therefore may not be explored further.

2.4.3. Reprocessability

There are certain situations in which messages need to be processed over again to ensure that the receiver understands the message. When a medium allows for reprocessing, it "improve[s] understanding regardless of the information or communication process…" (Dennis and Valacich, 1999, p. 3). This is especially true when conveying a message that requires deliberation, such as that which is found when questioning unethical behavior.

However, the media characteristic that reprocessability intends to capture has very little overlap with the overall disclosure of information context because the process of

deliberation is a cognitive process that an individual may choose to engage in. A better concept to capture this media characteristic is called persistence. Persistence may better explain why there is deliberation by a subject who is solicited with disclosure.

2.4.4. Persistence

The concept of persistence is based on the notion that media has the potential to retain the information that is shared through it. There is hardly any literature that directly points to this notion. A close relative of this notion of persistence is usually found in the advertising literature (Dekimpe and Hanssens, 1995; Little, 1979) because the longer information is retained in a particular media, the longer will be its exposure to the target audience. Similarly, print media is considered to have a high level of persistence, however promotions are found to have the least persistence even though the advertising information is in a print media (Blattberg and Neslin, 1989).

Along the same vein there is a concept called hysteresis. Hysteresis is a process in which there are lags present in one factor when another factor changes rapidly. In the context of disclosure, when information is being sent over a medium, will additional information be disregarded (i.e. will there be a saturation point of disclosure information)? The inverse aspect of hysteresis in this context is that a certain amount of information will be retained by the medium for a later date (Little, 1979), i.e. hysteresis may lead to persistence of information.

With respect to disclosure of information, any subject would be apprehensive if their disclosure would have a temporal component (i.e. if what they disclose will be documented so that it can be referred to later). The temporal aspect of this media characteristic function along the lines of a legal document that can be retrieved at a later

date. For example, most email servers have the capability to log all messages that have been transferred through it. This is an important aspect of information disclosure over newer media such as the internet (Andrejevic, 2002).

2.5. Environment of questioning

When collecting data about unethical behavior, questionnaires are usually used (Fox and Tracy, 1986). The sensitive nature of these questionnaires creates an impact on how the process of disclosure occurs. The environment that the person is in when answering the questionnaire plays an important role in how much disclosure is obtained. This is owed to the social desirability distortion that occurs (social desirability distortion is also referred to as response bias, socially desirable responding, response distortion or overreporting). With respect to disclosure, social desirability distortion occurs to hide sensitive personal information (Richman, et al., 1999).

The environment is also defined by the type of media that is used to elicit responses from people. The traditional method is to use paper and pencil to record the responses, while the technology approach has provided for computer-based questionnaires.

2.5.1. The technique of questioning

The idea that people are more willing to disclose sensitive aspects of them when asked using particular techniques has been studied extensively (Fox and Tracy, 1986). Many of these techniques of questioning use a shielding component to protect the subject that is disclosing the information. Some of the techniques use a randomizing component that shields the subject so that the researcher does not know who answered what

questions (Fox and Tracy, 1986). This study proposes two such techniques that were described previously, i.e. randomized response technique (RRT) and unmatched count technique (UCT). Both these techniques differ in the way they protect the subject who is disclosing. To compare these techniques to regular questioning, this study includes a normative questionnaire that asks questions directly without the use of any technique.

2.5.2. Type of protocol (RRT /UCT /Nominal)

By introducing a couple of alternate techniques such as randomized response technique and unmatched count technique, the subjects are provided with a way to increase their anonymity. On the other hand, the technique will not hinder the researcher being able to find evidence of disclosure behavior. One of these techniques, the randomized response technique (RRT) was developed by Warner (1971) to protect the identity of the subjects that took his survey. The advantage of RRT is that there is no deception involved. All subjects are told about how RRT works and how it will provide increased anonymity to them. One variant of RRT introduces a question to the questionnaire that creates an additional probability. The subjects' response is therefore shielded with this additional level of chance, however, when the results are aggregated at the sample level, the researcher can see trends. The subject finds that by answering a RRT questionnaire, it cannot conclusively show that he or she answered a particular question. This level of assurance, though implicit in this technique, has been found to increase the level of responses to sensitive questions. However, the randomizing techniques and the calculations that are required for RRT can sometimes become quite cumbersome.

For RRT, a layer of anonymity is added by incorporating a random event, such as a coin toss, for each individual. The result of the coin toss is only known to the person who is taking the survey and therefore those who are conducting the survey will not be able to tell how each person answered each question. Now, depending on the result of the coin toss (heads or tails), the questions are answered differently. The person would check (mark) the answer if the coin landed heads, and be required to disclose sensitive information behavior mentioned in the question. On the other hand if the coin landed tails, the person would go the next question. This concept is what provides individual level anonymity, because we don't know if the person checked the questions because he got a heads or because he wanted to disclose his sensitive information. We can aggregate the answers and find a pattern for the entire group. Aggregating the result is a simple procedure: for example, assume 100 people took the test and we received 60 checked questions. If we assume that the chance of getting a head on the coin flip is 50%, i.e. 50 of the responses were due to heads. Therefore it is practical to assume that the excess of 10 people have got heads and done the specified unethical behavior. So the estimate of unethical behavior for this sample of people would be 20% (10[excess that was not part of the coin toss chance]/50[the expected number of tails]).

Unmatched count technique (UCT) was initially developed to overcome the limitations of the RRT. UCT was first shown by Raghavarao and Federer (1973) and later improved by Smith et al (1974) and Raghavarao & Federer (1979). UCT also provides for additional chance by providing two sets of questionnaires. One set will have an additional question that points to the sensitive information disclosure. The difference in

responses to the two sets is statistically found and reported as the amount of sensitive behavior that is disclosed for that sample of subjects.

UCT is different from RRT because it compares one group of people's responses for a set of questions to another group's responses for a set of questions that contains a question about sensitive information. An example of UCT is when there are 2 sets of questionnaires. One set contains questions that are innocuous and the other set contains the same questions but also include questions about unethical behavior. The group of people who respond to the first set do not respond to the other set. Each questionnaire is divided in sub sections and each sub section has an empty box to fill a number. All that a respondent has to do is to put the number of questions that are true in his case for each sub section. To aggregate the results we take the mean of the first group of people and compare it to the other group. If, hypothetically, the mean of one group is 3.40 and the mean of the other group is 3.60 then the difference between the groups is 0.20 (i.e. 20% of the people have sensitive information) A few things to note here are that the groups that receive the questionnaire with the additional (sensitive) questions will usually have the higher mean and that the 20% calculated is the best estimate based on both the groups of people.

2.6. Type of sensitive behavior solicited

Depending on the type of sensitive behavior that is solicited, individual disclosure may vary. One class of sensitive behaviors that proves to be a powerful stigma is unethical behaviors. There is a range of unethical behavior that can arise, from stealing a pen from the office to insurance fraud to physical assault. What makes one behavior

worse than another? Though there is no absolute measure that ranks each unethical behavior, Jones (1991) presents a framework that gauges the relative moral intensity of behaviors. Jones presents six dimensions along which moral intensity could be gauged: social consensus, magnitude of consequences, probability of effect, temporal immediacy, proximity and concentration of effect. Jones and Huber (1992) test 5 of these dimensions, however, only social consensus was significant. On the other hand Singhapakdi et al. (1996) found that all the dimensions were significant for most of the unethical scenarios that were presented but, when factor analysis was conducted the dimensions fell under two factors. Singhapakdi et al. found that one factor they labeled as 'perceived potential harm/no harm' contained the dimensions of magnitude of consequences, probability of effect, temporal immediacy and concentration of effect. The second factor was labeled as 'perceived social pressure' and was found to contain social consensus and proximity dimensions of moral intensity.

The type of unethical behavior does not affect the perception of anonymity, however it does affect disclosure. Using this framework, we can present a more stable measure of the type of unethical behavior because more unethical a behavior is, the less likely it will be disclosed.

Therefore, sensitivity of the behavior will severely affect the disclosure of that behavior by an individual and forms a strong predictor of the resistance to disclose information (Jones and Huber, 1992).

2.7. Summary

This research study looks at the phenomena of disclosure of sensitive information. Some of the possible factors that may influence the disclosure are presented and their relevant background is explored.

The two types of individual disclosure are described; self – disclosure and whistle blowing. Next the various aspects of resistance that is faced for self – disclosure are explored with the help of a few theoretical frameworks, such as affective state, cost – benefit and theory of planned behavior. Other aspects that may influence disclosure are presented, such as individual differences, media characteristics, environment of questioning, and the type of sensitive behavior that is solicited.

The literature review provided a strong foundation for the next chapter to develop the research model and hypotheses.

Chapter 3

Theoretical Model and Propositions

In the previous section (Literature Review), we discussed a variety of phenomena about disclosure of sensitive information. There were also a number of factors that were presented to affect the disclosure. The theoretical model is now presented and will place the previously mentioned factors into a coherent model that may be able to predict what effects the behavior of disclosure.

3.1. Act of Disclosure

As mentioned in the literature review, disclosure has six elements for its definition: act of disclosure, actor, disclosure subject, target, disclosure recipient, and outcome (Jubb, 1999). The act of disclosure is when the subject openly expresses the information about a sensitive act that has been committed in the past. The actor is the subject that has either committed the sensitive behavior, as in the case of self disclosure, or witnessed the sensitive behavior as in the case of whistle blowing. The target is a person or an entity that will face the repercussions of the unethical behavior. The disclosure recipient is the person or the system that receives or 'listens to' the subject or actor when he is disclosing the unethical behavior. The outcome is the repercussions that may be faced by the target who has committed the act.

The act of disclosure is proposed to have numerous factors that affect the subject who is deciding to disclose some sensitive information. Sensitive information is defined as anything that can be used against the subject who divulges this information (see

Appendix A). This information could range from home address to medical history. Another person who acquires this sort of information can use this information to harm the person who disclosed the information.

Therefore, the person disclosing sensitive information will make a conscious effort to understand how the sensitive information will affect him. The proposed factors that affect the act of disclosure may hinge around the fear of disclosing sensitive information, i.e. the subject will develop disclosure apprehension before the act of disclosure.

3.2. Disclosure apprehension

Disclosure apprehension is the central aspect of this research study. To understand the how, why and under what conditions disclosure occurs, a theory is required to provide the 'lens' by which the research will be conducted. Numerous researchers have pointed to the necessity of theory (DiMaggio, 1995; Sutton and Staw, 1995; Van Maanen, 1995; Weick, 1995). The theoretical foundations that are used in this study may fall into different categories depending on the taxonomy that is chosen to be followed (DiMaggio, 1995), for example, there are theories that are considered 'big T' theories, such as structuration theory (Giddens, 1984) and 'small T' theories such as channel expansion theory (Carlson and Zmud, 1999). Even if the theoretical foundations are still in the process of being theorized, it could be considered a theory (Weick, 1995).

One such theory is called the deindividuation theory (Diener, 1979). Deindividuation theory deals with the anonymity of the subject when in a group of

people. Based on the deindividuation theory, people feel that they can express themselves more because of the lack of social expectation and bindings of social norms.

Anonymity develops from the theory of deindividuation (Diener, 1979) and could be considered as "still in the process of being theorized" because there are aspects of anonymity that cannot be completely explained by deindividuation (Silke, 2003). Subjects faced with making decisions based on their previous unethical behavior tend to be very cautious in divulging any information related to that behavior because there could be repercussions. The repercussions could range from exclusion from a social group to incarceration. Therefore, it is obvious that subjects who are asked about their unethical behavior will prefer to refrain from answering the question or answer in a socially acceptable way. Anonymity provides a shield for a respondent to be able to disclose his unethical behavior (Nunamaker, et al., 1991). By providing anonymity we are able to provide the subject to either build the confidence that they will not be identified or have the confidence that even if they are identified, their responses will not be linked to them. The perception of anonymity may decrease the disclosure apprehension of a subject and lead to an increased rate of disclosure.

Thus proposition 1 suggests:

P1: Disclosure apprehension will influence actual disclosure behavior.

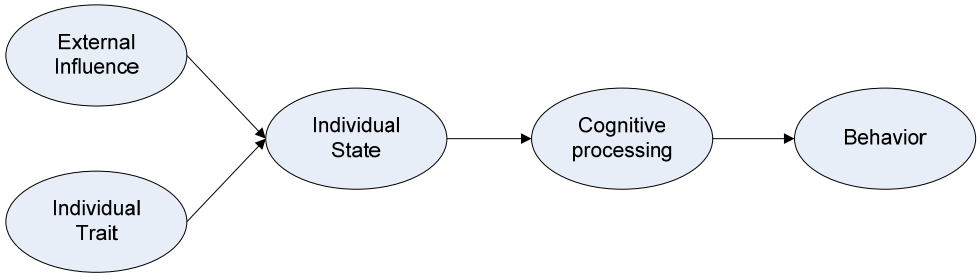
3.3. Individual differences

When disclosure of sensitive information is requested of an individual, there is a sense of risk that is associated with it based on the repercussions that an individual may face. Therefore, disclosure in our context is an important decision – making task for the

individual. The normative assumption that rational processing will occur for decision – making is not guaranteed and therefore this study intends to use a better predictor of behavior i.e. individual differences (Stanovich and West, 1998).

There are two distinct parts of individual differences that are to be considered, one is the personality trait and the other is the state of a person at a particular point in time (Eysenck, 1982). Personality traits usually manifest in the form of state before it affects the outwardly behavior of a person. This is shown by Eysenck (1982, refer figure 3.1) in the trait - state theory shown below.

Figure 3.1: Trait – state process



The contention to this theory is based on the cognitive appraisal perspective which shows that personality traits and their respective states are linked via cognitive evaluation by an individual (Scherer, 2001), i.e. the evaluation proceeds in a rational manner and the individual enters into a particular state. However, Peters and Slovic (2000) suggests that affective processes (irrational or emotional processing) are equally influential in determining the state of a person. Though both trait – state theory and the cognitive appraisal perspective show sufficient support for the underlying mechanisms of individual differences, there are other perspectives that show that trait – state relation is much more complex (Corr, 2000). According to Matthews, et al. (2003) the trait – state theory and cognitive appraisal perspective are parallel processes that both have to occur

in an individual to manifest as a behavior. Whether it is assumed that the underlying mechanism is to follow the trait – state relation, the cognitive appraisal perspective or a combination of both, it is clear that individual differences will be a strong predictor for individuals disclosing sensitive behavior.

Of the five individual differences that were mentioned in the literature review chapter, all of them may have some effect on disclosure behavior. Neuroticism is one factor that possesses a very strong chance of being dominant with respect to providing information to predict disclosure behavior because, negative thoughts associated with sensitive information disclosure will tend to get reinforced and will result in the subject not disclosing (Robinson, et al., 2006). Agreeableness is another factor of individual difference that has a potential to predict disclosure behavior. This is owed to the characteristic of subjects high on agreeableness to have pro – social behavior (John and Srivastava, 1999).

All individual difference factors are not expected to have an impact on sensitive information disclosure; however those factors that do have an impact will influence the disclosure apprehension level of a subject. This is because individual difference traits such as neuroticism affect the fear (i.e. disclosure apprehension) an individual has towards a particular behavior, such as disclosure (Goldenberg, et al., 2006). Therefore, proposition 1 suggests:

P2: Individual differences will influence disclosure apprehension.

Next the effect of media characteristics can be considered for disclosure apprehension.

3.4. Media Characteristics

When asking an individual about his or her unethical behavior, the medium used for communication will affect the response (Daft, et al., 1987; Fulk, et al., 1987). The characteristics of the media are varied and their influence on the task depends on numerous other factors (Lee, 1994). According to Carlson and Zmud (1999) the factors influencing the outcome of a particular media usage will depend on three main aspects:

1. The acquaintance of the user with the topic that is being conveyed with the media.
2. The acquaintance of the user with the receiver of the topic of conversation.
3. The acquaintance of the user with the media.

Since there is no deception in this study the need for acquaintance with the topic is a negligible aspect. Also the method of questioning is quite straightforward (mentioned in the next chapter). The method of questioning is a one – time exposure and therefore there is no dialogue required. The user is interacting with the researcher (receiver) and since there is no conversation with the researcher, i.e. there is only one – round trip communication, (the researcher asks the question and the subject provides an answer), the acquaintance with the receiver is also negligible. The final aspect is the acquaintance with the media. The subjects' understanding of the characteristics of a particular media may affect how much the subject is willing to disclose. This is because different media have the potential to identify a particular subject during a brief interaction (Joiner, et al., 2005). For example, use of web based questionnaires (even though no identification is asked for) may generate a sense of apprehension among users because it is possible to track users based on IP addresses. This may also be true if surveys are conducted using mobile

phones. However, using simple media such as paper based surveys may not have that effect among users (Richman, et al., 1999).

The other aspect is that the response itself may carry some inherent identification of the subject that is responding. Therefore, if the media that is used for eliciting unethical behavior does not have the facility to edit the information that is sent to the researcher or if the media requires quick response from the subject (i.e. does not allow for time for editing) (then this may be another avenue for apprehension. The interactivity capability of different media types will form a spectrum of levels of apprehension. On one end the apprehension will be high due to media characteristics which will not allow any form of editing and review, while on the other end of the spectrum there will be low apprehension because subjects can review and edit the information they will submit.

Apprehension may also result from the fact that certain media has the potential to retain the information (persistence) that it handles. For example, in a face - to - face disclosure of unethical behavior, there is no proof of disclosure (from a legal stand-point). However, if you had a voice recorder or if the disclosure was done over email, there is a high possibility that the media will be able to retain the information of the disclosure for future retrieval.

Therefore, media characteristics will influence disclosure apprehension because of aspects such as interactivity and persistence. Thus, proposition 2 suggests:

P3: Media characteristics will influence disclosure apprehension.

Next the effect of the environment of questioning that will affect disclosure apprehension is considered.

3.5. Type of questioning

When the researcher presents the question of unethical behavior to a subject, the surroundings of the particular question may affect the response. This is due to the fact that sensitive questioning such as unethical behavior, tend to inculcate socially desirable responses (Richman, et al., 1999). When social desirability becomes a large part of the response behavior, the data that is collected is said to have a response bias, which shows up as a systematic error. The problem with systematic error is that it cannot be accurately modeled when the cause is social desirability and therefore data analysis cannot determine if there are any effects (Fox and Tracy, 1986).

Social desirability arises because of the subjects' perception that he or she will have to justify their actions (or disclosure). The apprehension that is caused by this thought process may send the subject into feeling that they are being scrutinized by the researcher who has provided the question. In order to prevent this perception this study uses techniques and questioning protocols to mask the identity of the subject.

This study considers the questioning protocol as part of the environment of questioning that is used to ask the subject about his or her unethical behavior. As mentioned above this protocol will shield the identity of the subject and therefore will influence the disclosure apprehension. There are numerous statistical techniques that have been developed to help respondents to disclose stigmatized or incriminating information(Lee, 1993, p. 82-90). Some of these techniques are based on the different types of questioning that are presented to a respondent. The two most common ones are randomized response technique (RRT), and the unmatched count technique (UCT). The RRT technique uses a randomizing device so that the researcher cannot associate a

subject to his response. The most common randomizing device is a coin, however, sometimes a die is used. The randomizing device is used by each subject independent of others and the result is not revealed. Since the probability distribution for a particular randomizing device is know (e.g. coin P(heads) = 0.5), it adds to the data as a systematic error that can be later removed. The key idea of the randomizing device is to help mask the identity of the subject and therefore help the subject reveal the truth about the particular unethical behavior (Fox and Tracy, 1986).

The UCT technique is similar, since it masks the identity of the subject from the researcher and anyone else who has access to the disclosure data. However, there is no randomizing device and therefore much more easy to implement. There are two sets of questions. Each set is given to a group of subjects. The difference between the sets of questions is that there is one extra question in one of the sets. The extra question is the sensitive question that points to the sensitive behavior or interest. The response from each subject is the number of questions that are true for them. A comparison between the means of the two groups will reveal the difference that the sensitive question has introduced into the survey result. Therefore it is quite straightforward to calculate the rate of sensitive behavior in that group (Dalton, et al., 1994).

Both these techniques have shown a remarkable increase in disclosure rates as compared to direct questioning (Burton and Near, 1995; Dalton and Wimbush, 1997; Dalton, et al., 1994). Along the same vein, both these techniques have been found to be more effective when the level of anonymity that is perceived by a respondent is lower and the type of behavior to be disclosed is very sensitive (i.e. more sensitive information

will show a marked difference between these techniques and direct questioning) (Dalton and Wimbush, 1997).

Thus, proposition 3 suggests:

P4: Type of questioning will influence disclosure apprehension.

Next consider the influence of the type of disclosure behavior that is asked of a subject.

3.6. Type of disclosure behavior

Disclosure of certain aspects of a subject's life will be considered to be more sensitive in nature than others. For example, disclosure of one's salary is usually considered to be a sensitive issue, since most people do not like to be compared to others based on their income. Another example of sensitive personal information is health history. For this study we shall look at disclosure of unethical behavior. The characteristics of this sort of behavior are described next.

As mentioned previously there are a range of unethical behaviors that people perform. Some of them are considered trivial, such as stealing office stationary and the consequences are also minor. There are other unethical behaviors such as accounting fraud that attract much higher consequences. The main issue with unethical behavior is that of deciding the amount of consequences. Jones (1991) developed a construct called moral intensity that provides a framework for understanding the consequences of unethical behavior. Moral intensity is based on six factors: social consensus, magnitude of consequences, probability of effect, temporal immediacy, proximity and concentration

of effect. There has been no conclusive evidence that all six factors affect moral intensity, however, all of them have been found to be significant (Singhapakdi, et al., 1996).

A point to raise here is that the type of unethical behavior (or disclosure behavior) may not affect the perception of anonymity. For example it may not matter whether a subject feels anonymous or not if he is asked to disclose his drug usage. Since this example of unethical behavior has high consequences associated with it, the identity mask provided may not be important to the influence of behavior disclosure. However, the disclosure apprehension will be affected by the intensity of the unethical behavior (or disclosure behavior). The primary reason of using Jones' moral intensity measure is that it also provides a uniform level of consequences, i.e. a particular behavior is highly unethical if a majority of the people asked state that the consequences are also very high. Therefore, when an act of unethical behavior is committed that has high consequences, people will be more reserved in disclosing that unethical act. This apprehension will be similar to disclosing sensitive personal information, such as health history or income level. Thus proposition 5 suggests:

P5: The moral intensity of the behavior will influence disclosure apprehension.

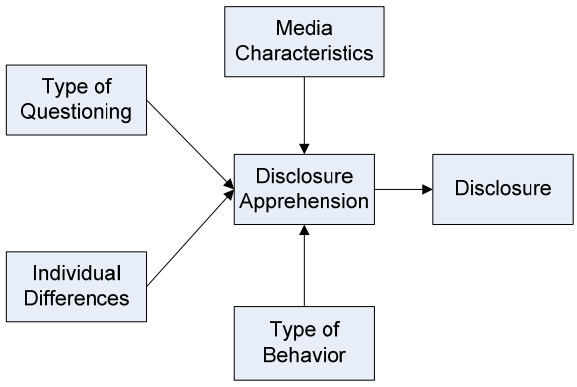
3.7. Conceptual model

The conceptual model shown below posits that disclosure apprehension is a powerful indicator of the actual disclosure behavior. Disclosure apprehension is determined by four antecedents. Disclosure apprehension is said to be affected by individual differences or personality traits, media characteristics, environment of questioning, and the type of disclosure behavior.

There are five distinct personality traits that this study intends to measure and assess the influence on disclosure apprehension. Of the five, neuroticism is posited as the most powerful personality trait that will influence disclosure apprehension, because people who tend to be high on neuroticism will have higher levels of paranoia and suspicion and therefore will not perceive complete anonymity.

Media characteristics seem to have an important influence in determining disclosure apprehension. For some extreme subjects there will be certain types of media that will always create a sense of suspicion and no extent of assurances will get that subject to accept that his or her responses will be anonymous. On the other hand there will be subjects who do not care about the media while communicating their sensitive behaviors.

Figure 3.2: Conceptual model



The variation in responses may be due to the ability of the media to retain the content of the communication that passed through it. Email is a good example that has this characteristic of being able to retain text that is sent through an email system. Another reason could be the characteristic of the media to provide a unique identification for each subject that uses it. For example, people with high knowledge about computer

networks will not trust that a web based survey is completely anonymous because of the various tracking capabilities.

The environment of questioning is defined as the technique of questioning that will be used to increase the perception of anonymity. There are two techniques that are commonly used to collect sensitive behavioral information and these are randomized response technique and unmatched count technique (Fox and Tracy, 1986). Both these technique have a randomizing device that should increase the perception of anonymity for a subject and thereby reduce the disclosure apprehension. For this study only the unmatched count technique will be used, so that the methodology complexity is minimized.

The type of disclosure behavior that is sought will also affect the disclosure apprehension and the eventual disclosure behavior. As mentioned earlier, certain types of sensitive information will be harder to disclose for a subject, than others. This will result in the subject disclosing more if the sensitive information is more trivial (with respect to consequences) as compared to sensitive information that is considered very unethical.

In sum, the model shows four antecedents to disclosure apprehension that will influence the disclosure of sensitive information. The table below summarizes the propositions developed previously.

Table 3.1: Propositions

P1	Disclosure apprehension will influence actual disclosure behavior.
P2	Individual differences will influence disclosure apprehension.
P3	Media characteristics will influence disclosure apprehension.
P4	Environment of questioning will influence disclosure apprehension.
P5	The moral intensity of the behavior will influence disclosure apprehension.

3.8. Summary

In this chapter, the overarching relationships between the different factors of interest are presented. The central idea of this study is to show that disclosure apprehension is a guiding factor for disclosure to occur. Therefore the antecedents to disclosure apprehension become very important; media characteristics, type of questioning, individual differences and type of disclosure behavior that is solicited.

The next chapter presents the research model that is used and the theories that are involved in developing the research model.

Chapter 4

Research model

In this chapter, the conceptual model presented in the previous chapter is modified so that it falls into an existing testable framework. The other reason that the conceptual model is embedded in an existing framework is to provide more grounding to the theoretical relationships that were developed in the previous chapter. The framework that will be used is the theory of planned behavior (Ajzen, 1991). The reason for using this framework is explained in detail next.

4.1. Disclosure as behavior

The concept of disclosing any sensitive information is a conscious effort on behalf of the subject who chooses to disclose. The conscious effort or deliberation is due to the consequences that are associated with disclosure of sensitive information. Therefore the act of disclosure could be considered similar to the actual behavior construct that is found in the theory of planned behavior (Ajzen, 1991). The current research model assumes that the act of disclosure is preceded by the intention to disclose. This aspect provides for a similar construct in the TPB framework called intention. Intention in the TPB framework is succeeded by the actual behavior. A subject's intent (ion) to perform a particular behavior is assumed to capture the motivation to perform that behavior and the amount of effort the subject will exert to perform that behavior (Ajzen, 1991). For the current study, intention will capture the effort that the subject will have to muster to overcome the fear of disclosure, thus

H1: Intention will positively correlate with actual disclosure behavior.

4.2. Disclosure apprehension similar to attitude

Disclosure apprehension is the fear of divulging sensitive information. Disclosure apprehension intuitively suggests that there will only be negative evaluations of the disclosure behavior that is solicited, however, for this study it is modeled as both positive and negative evaluations of the disclosure behavior. The negative evaluations are straightforward, i.e. if subjects disclose sensitive information then they are vulnerable to being harmed with the use of the disclosed information. However, the positive evaluations of disclosure are not so obvious, there are numerous situations in which disclosure is considered as a relieving mechanism for a subject, i.e. "to get this off my chest" feeling. For example, interpersonal relations have a strong link between self – disclosure and satisfaction (Hendrick, 1981; Martin and Anderson, 1995). In a corporate environment, disclosure has satisfaction associated with it (Futrell, 1978). Under these conditions, disclosure apprehension is considered as a positive evaluation.

Another critical purpose of this construct is to create an understanding of the mediating influence between the independent constructs and the actual behavior of disclosure. The independent constructs which are mentioned in the previous chapter are media characteristics, type of behavior solicited, individual differences and type of questioning.

In the TPB framework, there are three preceding constructs to intention; attitude, subjective norm and perceived behavioral control. The attitude construct is considered

similar to disclosure apprehension because it provides for the capture of negative and positive evaluations of performing the actual disclosure behavior.

H2: Disclosure apprehension positively correlates with intention.

4.3. Type of unethical behavior influences subjective norm

A person who does unethical behavior may face the consequences if revealed, but the measure of consequences that will be faced by the person is not very clear (Jones, 1991). Hence, the classification of how unethical a behavior is, may be ambiguous from a theoretical standpoint. Jones does provide a framework that shows unethical behavior as a function of relative moral intensity. In other words, moral intensity will define how unethical a behavior is. Jones and Huber (1992) test the different aspects of moral intensity to reveal that only social consensus was a significant factor. Therefore, this study looks at the classification of the type of unethical behavior as a social consensus.

Looking at the theory of planned behavior, one of the antecedents to intention is the factor called subjective norm. Subjective norm measure captures the influence of the surroundings that a person faces when deciding to commit a particular behavior. Therefore, in the current study this is pertinent as subjective norm can be modeled to be influenced by the type of unethical behavior. As mentioned in the literature review chapter, the type of unethical behavior can range from trivial theft of office supplies to murder of a human being. Since type of unethical behavior is defined by social consensus, it can be a substantial influence that is levied on to a subject in a disclosure situation.

H7: Type of unethical behavior positively correlates with subjective norm.

Therefore, according to theory of planned behavior, subjective norm influences intention, thus

H3: Subjective norm positively correlates with intention.

According to later developments to the TPB framework, subjective norm will also influence attitude (Chang, 1998), which in this study is modeled as disclosure apprehension.

H5: Subjective norm positively correlates with disclosure apprehension.

4.4. Media characteristics influence perceived behavioral control

The medium used to convey the questions to the subject is posited to have an influence on disclosure apprehension. The impact of media depends on the type of media that is used to solicit disclosure information from a subject (Richman, et al., 1999). Some media, such as web based surveys, may provide an increased disclosure apprehension. On the other hand, there could be a possibility that paper-based surveys provide the least disclosure apprehension. The characteristics of a medium that would provide for the change in disclosure apprehension would depend on range of conversation that can be conducted via that medium. For example if two – way simultaneous communication can be conducted via a medium then that would provide a different level of anonymity as compared to a medium that can only conduct one way communication with significant delay between the messages.

From the theory of planned behavior, one of the antecedents of intention is the factor called perceived behavior control. Perceived behavioral control is defined as the perception of how easy or difficult a particular behavior is going to be (Ajzen, 1991).

When put in the current study's context, perceived behavioral control is the perception of how easy it would be to disclose the sensitive information but not be affected by such a disclosure. This would mean that the perception of control is based on the medium that is used to deliver the disclosure and not whether a person is in control of his or her disclosure. Hence the media characteristics would influence the subject's perception of control of the media (Pavlou and Fygenson, 2006) to help them disclose sensitive information.

Therefore, according to theory of planned behavior, perceived behavioral control influences intention, thus

H4: Perceived behavioral control positively correlates with intention.

According to earlier developments of the TPB framework, perceived behavioral control will also influence attitude especially in situations where there is fear or apprehension (Burnett, 1981). Since in this study attitude is modeled as disclosure apprehension:

H6: Perceived behavioral control positively correlates with disclosure apprehension.

There have also been differing views on the extent of media impact especially on data collected for surveys (Thompson, et al., 2003; Weisband and Kiesler, 1996). In all these previous studies, there is a common notion that the level of control that a subject has over the media that is employed for data collection is a critical element that is unstated (Richman, et al., 1999).

Therefore the two media characteristics that are considered are persistence and interactivity [1].

4.4.1. Persistence

The concept of persistence is defined as the potential of the media to retain the information that is shared through it. Therefore, based on this definition, a subject's control over the media's ability to capture and store information may affect the disclosure behavior. If the subject is not clear about his control over the media capability, this may result in low perception of control over the media. On the other hand a subject may perceive that they have good control of the media's capability to store information. Thus:

H8: Persistence is positively correlated with perceived behavioral control.

4.4.2. Interactivity

As mentioned in the literature review, there are multiple definitions of interactivity. For this study the definition that is used is based on Liu (2003) and Wu (2006). Liu (2003) and Wu (2006) describe interactivity as the ability of the user to manipulate the contents with the medium during the process of the message being transmitted to and from a receiver. Higher interactivity usually means the user has more control over how the content or message is presented to himself and to the receiver. Therefore:

H9: Interactivity is positively correlated with perceived behavioral control.

[1] There were two other factors that were considered: rehearsability and reprocessability. These two factors were not included after the first stage of the research as they were found not to significantly influence any outcome.

4.5. Individual differences

Disclosure apprehension is influenced by individual differences. The Big Five factors of personality will be used to capture the individual differences as a trait measure. All the five factors are collected as part of this study.

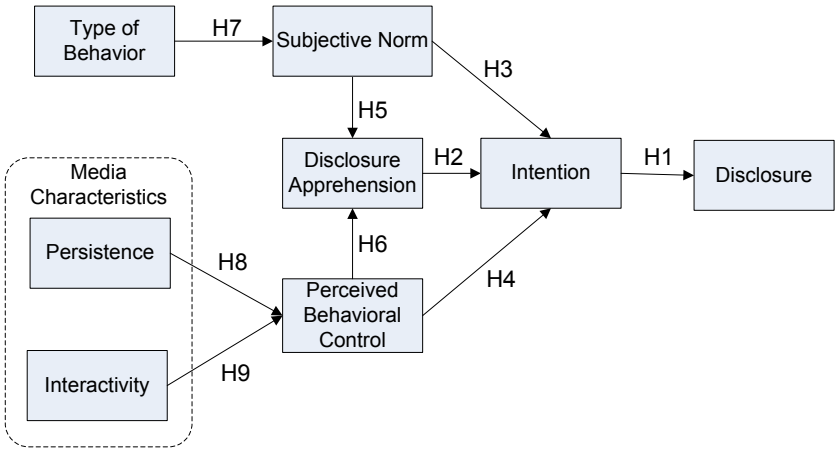
While using the theory of planned behavior as the framework, individual differences are assumed to be a part of the framework. Though there are no explicit variables or factors that are used to model individual differences, the theory of planned behavior has shown that the relationships between the factors varies depending on different levels of individual differences (Armitage and Conner, 2001). Therefore, there are no formal hypotheses that is presented involving individual differences. However, the entire model is tested at different levels of each individual difference factor (see results chapter).

4.6. Type of questioning

The type of questioning is an important aspect to developing the disclosure apprehension to a subject. As mentioned in the literature review, there are numerous questioning techniques that can be used for this study. These techniques have been used previously for numerous studies that required increasing the perception of anonymity (Dalton and Wimbush, 1997; Fox and Tracy, 1986). The power of this questioning technique lies in the fact that subjects develop a feeling that the randomizing device can shield their exact responses. Though it is not possible to match exact responses of a subject to the subject himself, it is possible to obtain an accurate estimate of the behavior within a sample of subjects.

A specific hypothesis for the influence of the type of questioning is not developed because of the nature of the results that will be obtained. When using these mentioned techniques for soliciting disclosure information from a subject, an individual level response cannot be obtained. However, sample level characteristics can be obtained. Further discussion on this reasoning is provided in the methodology chapter.

Figure 4.1: Overall research model



4.7. Summary

In this chapter, the research model presented and the associated testable hypotheses are completely developed.

In short, the use of the theory of planned behavior (Ajzen, 1991) is justified and all the constructs in the conceptual model are placed in the theoretical framework. Disclosure is modeled as a behavior and disclosure apprehension is modeled as attitude in the TPB framework. Disclosure apprehension is hypothesized to predict intention. Other factors in the framework such as subjective norm, perceived behavioral control are maintained. The antecedent to subjective norm is hypothesized as the type of disclosure

behavior that is solicited and the antecedent to perceived behavioral control is hypothesized as media characteristics (interactivity and persistence).

Table 4.1: Hypotheses

H1	Intention will positively correlate with actual disclosure behavior.
H2	Disclosure apprehension positively correlates with intention.
H3	Subjective norm positively correlates with intention.
H4	Perceived behavioral control positively correlates with intention.
H5	Subjective norm positively correlates with disclosure apprehension.
H6	Perceived behavioral positively correlates with disclosure apprehension.
H7	Type of unethical behavior positively correlates with subjective norm.
H8	Persistence is positively correlated with perceived behavioral control.
H9	Interactivity is positively correlated with perceived behavioral control.

The next chapter presents the methodology for the study and will also provide justifications for hypotheses and arguments presented in the current chapter.

Chapter 5

Research Methodology

5.1. Methodology characteristics

Every research technique has positive and negative aspects (Dennis and Valacich, 2001). The three main aspects for researchers to balance when making a decision to select a research technique are precision, generalizabilty and realism (McGrath, 1982).

Precision refers to the control that the research study has over the variables of interest. Usually the researcher sets the level of control he or she would like to achieve. For example, from a statistical perspective, there are numerous indicators that will point to level of control, such as Cronbach's alpha, type I and II error rate, confidence intervals and many more. The cumulative effect of these indicators will provide a statistical perspective of how precise the measurements are. This precision of measurement is what is sought after when a research technique is employed to observe phenomena very closely. Usually lab experiments maximize precision because of their tight control of the environment in which the data is collected.

Generalizabilty refers to the ability of the research technique to account for a wide variety of research settings or environments. Field surveys are the best research techniques that show high levels of generalizabilty because these surveys are usually conducted in large populations and different environments. Therefore, the results coming from these studies will be able to account for a broader number of situations. As opposed to lab experiments, field surveys have very low precision because the process of data

collection is not very controlled. However, lab experiments, owed to their high degree of control lacks the generalizabilty that is inherent to field surveys. The concept of generalizabilty is based on the notion that a phenomenon will have a 'general' impact on a population at large (i.e. external validity).

Realism refers to how a subject that is part of the research feels about the study, i.e. how close to reality is the research study setting. Studies that are done in a natural setting tend to have high levels of realism and therefore, results that come from these studies have a very well defined focus on where it can be applied (Zmud, et al., 1989). Field studies are a prime example that offers high realism but is low on generalizability and precision.

A point to note is that very high precision will sterilize the research from any generalizability and realism. Also very high generalizability cannot be coupled with high precision and realism. On the other hand, high levels of realism will ensure that generalizability and precision are low. Therefore as Dennis and Valacich (2001) mentions, there is no methodology that is perfect or imperfect but some research methodologies have certain strong points that others do not.

In short, the overall aim for research is to be able to provide a complete understanding of the phenomenon, however, this may not be possible with just one research aspect or methodology, but through the use of numerous techniques that employ differing shades of precision, generalizability and realism (McGrath, 1982).

5.2. Chosen Methodology

Deciding on a research methodology was based on the need to maximize internal validity of the research study. This is due to the fact that most of the factors that are of interest in this study have already been explored and what we intend to accomplish in this study is to confirm that this particular set of factors are related in the posited manner. In order to achieve this goal we intend to have a procedure that is sensitive to the precision of measurement and hence the subsequent conclusions. Since laboratory experiments are the ideal procedure to maximize precision of measurements as compared to survey methodology that maximizes external validity or field studies that maximizes realism of the study, we thought that laboratory experiments will be ideally suited for this study.

The research method that will be used is an experiment by design. Since the aim of the study is to understand the disclosure behavior for different types of questioning and different types of media, it is best to apply the different protocols and media as treatments and observe their impact. The experimental methodology is chosen as such, because there are no strong measures that can be developed to observe any unethical behavior of the subjects, i.e. we cannot collect data on actual unethical behavior as it is happening due to various restrictions such as privacy and other legal issues. Therefore to collect data about unethical behavior is only possible with consent and will be based on the subjects ability to recollect the past. Also such behaviors would have been in the past and extensive data collection on past behaviors may not be recollected very accurately. Therefore, it is of importance that what is measured is precise so that interpretation based on this research study is valid.

Another major obstacle is that the level of apprehension that subjects face will cause them not to provide the truth and hence distort the result (Fox and Tracy, 1986). Since unethical behavior causes social desirability bias when responding to questionnaires that seek this information, an alternate questioning technique, UCT (unmatched count technique), is employed for this study. Therefore this study is designed to collect data only on whether a subject has engaged in a particular behavior or not. It must be noted that the treatment of questioning techniques has a dual purpose; that of the experimental treatment and that of measuring the amount of unethical behavior in a sample.

5.3. Research design

As mentioned previously, this study intends to look at factors that can affect disclosure of unethical behavior. The central tenet of this study is that the level of disclosure apprehension will be able to predict disclosure of unethical behavior. The two research questions that were of focus are:

RQ1: Are the existing methods of obtaining disclosure of sensitive behavior robust to the changes in media used or changes in media characteristics?

RQ2: Will the apprehension of a subject to disclose information be able to predict actual disclosure behavior?

The research questions mentioned above provided the guidance to develop the research model (Section 3). To recapitulate the model, actual disclosure behavior may be predicted by disclosure apprehension. The antecedents to the disclosure apprehension are

individual differences, media characteristics, type of disclosure behavior and the type of questioning.

To answer these questions, the study is undertaken in three stages. The first stage is a pilot study that will be able to explore the constructs and the procedures which is used for the second stage. There are refinements to the scales, treatments and procedures after the first stage. The second stage is a complete data collection that involves testing of all constructs. The third stage is similar to the second but it has minor scale refinements and procedure refinements. Both the stages will be conducted using a between subjects full factorial design.

The design manipulates the type of disclosure behavior sought and observes media characteristics, individual differences, disclosure apprehension, subjective norm, perceived behavioral control and actual disclosure behavior. There are 2 types of questioning techniques used (Nominal and UCT). The types of questioning are manipulated as a within subjects design but since UCT does not provide for individual level data (only sample aggregates are available), within subject analysis is not possible (See Results chapter). All the other constructs will be measured using Likert-type scales.

Table 5.1: Experiment conditions

Treatment	Type of behavior	Type of questioning
1	Academic cheating	Nominal, UCT
2	Digital piracy	Nominal, UCT

5.3.1. Threats to Internal Validity

Internal validity of an experiment addresses the ability to detect the correct causal relationship between the hypothesized variables. Internal validity is the most sensitive aspect of experimentation and most likely to get disrupted (Cook and Campbell, 1979). There are a total of thirteen threats to internal validity, eight of these threats are owed to failure to randomly assign subjects to different treatments. Four are owed to subject interactions (with each other and others outside the experiment) and one based on insufficient theoretical foundations. For this study there are five threats to internal validity that are considered important: history, mortality, diffusion, selection, and theoretical.

5.3.1.1 History

The history threat to internal validity happens when there is a strong environmental or situational influence for the subjects that are undergoing the experiment. The situational influence will in turn affect the results of the study(Cook and Campbell, 1979). For example, a strong situational influence for this study could be the news in the media that points to the monitoring and surveillance by the government. The fear that 'big brother' is looking over all the internet traffic, may cause a history effect on the experimental results. There could also be personal situations that arise for a student that may affect the way student responds. To mitigate this effect, we made sure that the experiment was conducted during a time when no major news events occurred. Also students were allowed to change their assigned section if they felt the need to do so.

5.3.1.2 Mortality

The mortality threat to internal validity happens when subjects start to drop out of the experiment due to unknown reasons. Mortality usually happens because there is a battery of tests or when the experiment length is quite long. We took a two pronged approach to contain mortality: first, the number of subjects that participated in the second and third stages of the experiment was much higher than that in the first stage because the permission was granted to use introductory business class students. Second, the experiment length for the third stage was reduced.

5.3.1.3 Selection

The selection threat to internal validity happens when a sample of subjects is unusual (i.e. skewed on some particular characteristic). We would not be certain that the results obtained from such a sample are due to an experimental manipulation or due to the characteristics of the sample (Cook and Campbell, 1979). To mitigate the impact of the selection threat, we randomly assigned subjects to each treatment.

5.3.1.4 Diffusion

The diffusion threat to internal validity happens when subjects in one experimental group starts to share information about that group to subjects in another group. Since the experiment lasted over three days, there is a possibility that participants can share experimental conditions with those who have not yet been exposed to the experiment. Diffusion of information may create additional issues such as resentment or rivalry between subjects or between groups (Cook and Campbell, 1979). Diffusion is usually a problem when there are multiple groups that are exposed to the treatment at different times. To mitigate the impact of the diffusion threat, the subjects were randomly

assigned to each treatment within each lab section. Also, the experiment interface (website) was made quite similar, so that when subjects make casual glances at another subject's screen, they will not find any differences. Finally, all subjects were requested not to disclose any of their responses or treatment characteristics until all of the subjects have been exposed to a treatment.

5.3.1.5 Theoretical

The theoretical threat is based on ambiguous causal relationships that are posited by the researcher without having a theory that speaks to that relationship. For example, a researcher posits that factor A causes B and there is no theory or empirical relation between A and B. Therefore, it could be possible that B causes A. To mitigate the theoretical threat, we made sure that our arguments are well grounded in strong theory and therefore causal relationships have a defined direction.

5.3.2 Threats to Construct Validity

The construct validity of the research is based on the question: did you measure what you intended to measure or did you measure something else? When construct validity is low, then it is almost certain that there is a confound in the study. A confound is a factor that is present in the study which was not intended, or was not thought of when the study was designed. The presence of a confound means that the results obtained from the study may not be because of the experimental manipulation but may also be because of the additional confounding factor (Cook and Campbell, 1979).

There are ten threats to construct validity. Four are based on participant behavior and six are based on the researcher. There is only one participant based threat that poses a

significant challenge and needs to be accounted for: evaluation apprehension. The researcher based threats are negligible and will not be explained further.

5.3.2.1 Evaluation apprehension

Evaluation apprehension is a participant based threat to construct validity because subjects that are concerned about the impression they make or concerned about their self – image, will provide responses that are not true but that which they think others will want them to be (Fox and Tracy, 1986). The fear of being evaluated is a strong threat in this study and therefore we have modeled it as part of the observed variables. The concept of disclosure apprehension is partly based on the evaluation apprehension threat and helps account for it (see section 4). Also as part of the experimental procedure, there was a great deal of care to make sure that the subjects felt anonymous and the environment in which the participants provided the responses (web-based questionnaire) was completely anonymous (see Appendix D for experiment script).

5.3.3 Threats to External Validity

External validity is the ability to generalize your findings across people, research settings and time. A research study that is high on external validity is synonymous to high generalizability. As mentioned earlier, experiments tend to have low external validity because of the high level of precision that is employed (Dennis and Valacich, 2001), however, Benbasat (1989) argues for the opposite, i.e. experiments are a subset of a complete natural setting that is devoid of realism, and therefore is generalizable.

There are three basic threats to external validity and only one is of concern for this study: selection – treatment interaction threat

5.3.3.1 Selection – treatment interaction threat

Selection – treatment interaction is based on the sample characteristics that combine with the treatment to produce a result that cannot be replicated across other people, research settings, or time. In other words, there is a threat that the sample of students that has participated in this study could provide a result that is not generalizable. To mitigate this threat we have conducted three separate samples, one for each stage. The samples and their characteristics are mentioned below. The sample selection was also spread of a period of one year.

Given the focus of this research study to test the posited hypotheses, and the limitation of time and resources, further studies in alternate settings should be conducted to improve the generalizability the findings (Dennis and Valacich, 2001).

5.3.4. Samples

This section contains a brief description of the subject samples that were used for each stage of the research (pre-test, pilot test and experiment).

The sample for the first stage (pre-test) is collect from two classes, a senior class from the college of education and a sophomore class in the college of business. The class from the college of education had 35 subjects and the class from the college of business had 21 subjects. No demographic information was collected because that may be perceived as a threat to the anonymity of the student and therefore may result as a confound in the study.

The sample for the second stage (pilot test) was comprised of students from an introductory Information Systems course in the college of business. Since this was a mandatory course in the college of business, there was a wide variety of students for this

sample. The second stage was conducted in the fall semester. A total of 421 students participated in this stage. Eight students were dropped from the sample because they did not complete the pilot test. Incompletion was due to random failure of the network for those students. Again, no demographic information was collected during the pilot test. All students who attended the second stage got rewarded in the form of class credit. Subjects made sure they were marked on the attendance sheet to obtain class credit, which was kept separate from the pilot test data.

The sample for the third stage (experiment) was comprised of students from the same introductory Information Systems course in the college of business. The third stage was conducted in the spring semester. A total of 353 students participated in this stage. Fifty – four students were dropped from the sample because they did not complete the pilot test. Incompletion was due to a database space restriction that was set by the IT department. The issue was immediately corrected so that subsequent data collection sessions would not be affected. Again, no demographic information was collected during the experiment. All students who attended the third stage got rewarded in the form of class credit. Subjects made sure they were marked on the attendance sheet to obtain class credit, which was kept separate from the experiment data.

5.3.4.1 Appropriateness of the sample

The topic of disclosure is a broad arena that could range from financial disclosure, medical disclosure, to trivial office stationary theft. Therefore, choosing the appropriate sample would contingent on the specific disclosure behavior that is solicited. Since our sample was based in a university setting we decided to look at the appropriate and sensitive issues that surround a university environment. It was found that academic

cheating and digital piracy were found to have significant consensus as unethical behavior for this student sample. The results section will delve more into the statistical appropriateness by providing significance of the results that were collected from this sample.

5.4. Research Procedures

5.4.1. Pre-test

The pre-test was conducted to understand a few aspects of the research study. Namely, does the questioning technique provide the results as mentioned in the literature (Dalton and Wimbush, 1997). Will the subjects feel comfortable to disclose their unethical behavior using this technique? Will the questions asked to the subjects be perceived as sensitive questions?

The pre-test consists of 6 treatments. The treatments included three levels of questioning techniques and two levels of media type. The three techniques that were used: nominal (direct questioning), randomized response technique (RRT) and unmatched count technique (UCT). The first treatment is nominal/paper – based. The nominal questioning technique is a direct question about the unethical behavior of interest. The sensitive question and the related measures of individual differences, disclosure apprehension and media characteristics are all presented on the same paper questionnaire.

For the RRT/paper – based treatment, the subjects had to follow a set of steps in order to respond. The RRT involved question sets that each had a sensitive question and a non sensitive question. There were 2 questions per question set and only one of them had

to be answered with a yes or no. Each subject was also given a randomizing device, in our case it was a coin. The subject was asked to toss the provided coin twice, and if they got heads on either or both of the tosses then they would have to answer the first question (i.e. the unethical behavior question). If they got tails on both tosses then they would have to answer the second question. They were asked not to reveal the result of their coin tosses as it would show which question they answered. The example of the instructions for the pre – test is found in Appendix B.

The UCT/paper – based treatment did not have the coin toss requirement. The unmatched count technique was a bit simpler in procedure. Each subject was given a set of questions that had a sensitive question along with innocuous questions in it or a set that had only innocuous questions in it. Each subject was asked to read through the question sets and provide the number of questions that were true for them for each question set (see Appendix B). They were assured that their responses will be anonymous.

Each student also completed a personality inventory along with a questionnaire of items that constituted the factors of interest. Each factor and their items are described later in this chapter.

For the pre – test study only 3 treatments were used because of the small sample size. The treatments that were used were all paper – based questionnaires. From the pre-test, we found that the RRT process of questioning was time consuming and cumbersome. This was because the use of the randomizing device took quite some time to explain how this device will help mask the subjects response (Fox and Tracy, 1986). The length of the overall questionnaire was also found to be quite long.

5.4.2. Pilot test

The second stage was the pilot test. It was conducted to test the validity of the constructs that were used, the operationalization method of each of the constructs and process of conducting the study. Some of the constructs had slightly different operationalizations from the first stage, such as type of questioning, and therefore their validity was important to be satisfactory in order to proceed to the third stage. The consent form and the instruction script were also included in the pilot study to make sure all aspects of the study conformed to what was designed.

From the data collection experience from the first stage, we decided to omit the paper – based questionnaire for a couple of reasons. The primary reason was that paper – based questionnaires are usually not used to collect survey based information (Thompson, et al., 2003). Over the last decade, there has been a significant move to online data collection, because of the ease of disseminating the survey and the ease of aggregating data in the business environment. That brings us to the second reason which is, web based survey techniques acquire data through a web page interface and the data is collected in a database. Retrieving data from the database is a very simple procedure and the subsequent data analysis can be started immediately.

The RRT was dropped due to the cumbersome nature of the randomizing device for the pilot test and the final experiment. Since nominal (direct) and UCT were the only questioning types that were used, the design for the questioning type was changed so that every subject will be exposed to the UCT questioning technique and also the nominal technique (more description is provided later in this chapter under dependent variables).

The web based interface helped provide a single platform for the entire pilot test and there was no need for any other paper or documents for the subject. Also there were two types of unethical behavior that was manipulated between subjects. The complete procedure will be explained later.

5.4.3. Experiment

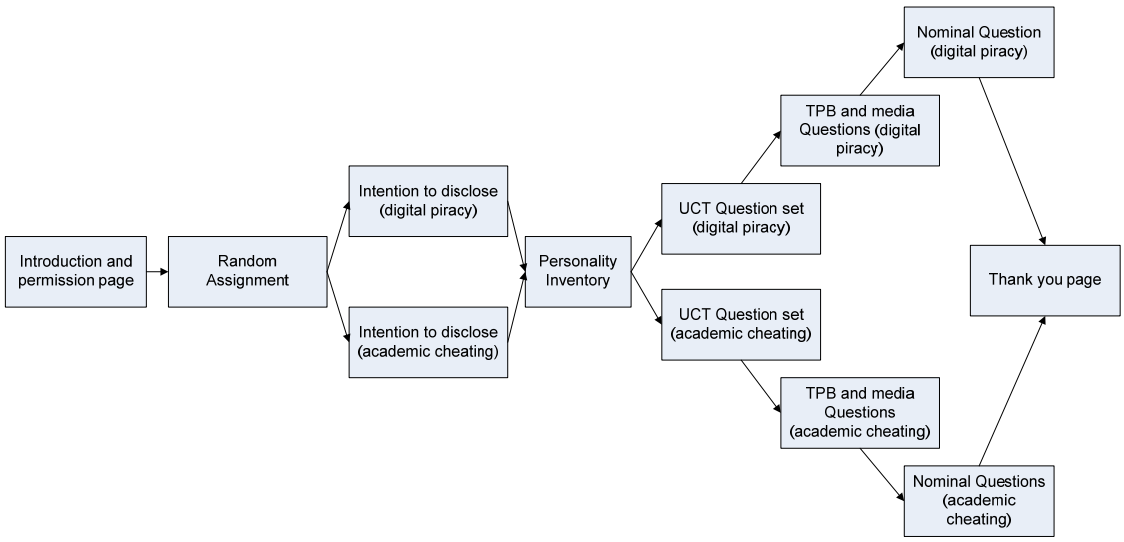
The third stage consisted of the full experiment. This stage was similar to the second stage but the number of questionnaire items was reduced so that the overall length is shorter. In the second stage there were 101 questionnaire items which was reduced to 74 items in the third stage. The reduction came from the construct validation process in the second stage where the items that were low on their respective factor loadings were removed. Some of the latent constructs in the model were found to correlate significantly with other latent constructs and were also removed from the model and hence this also contributed to the reduction of items. There were minor modifications done for the sensitive questions on unethical behavior.

5.5. Procedure

Only the first stage of data collection was not in a computer lab because only paper – based questionnaires were used. Second and third stage was in a computer lab housed in the college of business. The subjects were pre assigned to particular lab session by the instructor of the course. The sample size varied from 27 students to 40 students per lab session. The lab had 50 personal computers that were networked and had access to the internet.

Once the students entered the lab, they made sure they were marked on the attendance sheet and were seated randomly throughout the lab. Each lab session was conducted by the same experimenter and the duration for the entire process took from 20 – 30 minutes (the pre – test and pilot test took a bit longer for completion). First the experimenter read through part of the script (see appendix D) and then stopped and asked if there were any clarifications required. The part of the script that was read assured the subjects that their responses will be completely anonymous and to ensure that a common login and password will be provided. This particular login will have no tracking mechanisms associated with it and since everyone is on one login there is no chance that one person's response can be located. Next the experimenter presented the common login and password to the lab. The experimenter ensured that all subjects were logged in and then again assured that all responses are anonymous using this common login. Next the subjects were asked to open up a web browser and proceed to the experiment's uniform resource locator (URL). Once the subjects had completed the entire task they were free to leave the lab or stay and do their own work.

Figure 5.1: Process of experimental sequence



The URL provided the starting point for the entire experiment. The web based application stepped each subject through a sequence that involved capturing personality type questions, randomly assignment to one treatment (digital piracy or academic cheating), capturing their intent to disclose their unethical behavior, exposing them to the treatment of nominal and UCT questioning, and finally capturing their perceptions of the other constructs of interest.

Next the operational definition of the different constructs is presented.

5.6. Measures

Since we cannot measure most of the constructs of interest directly, the alternative is to use an instrument with items that represent the construct of interest (Straub, 1989). If these construct representations are flawed then the experimental results will be flawed too, therefore using existing instruments that represent the same constructs is the ideal approach whenever possible (Boudreau, et al., 2001; Straub, 1989). In the following section we present the operationalization of all the constructs that are used in this study. An operational definition along with the source of the measurement scale is provided.

5.6.1. Independent variables

5.6.1.1. Big Five personality inventory

The personality of the person that is faced with disclosure is a strong influence on how that person will be willing to disclose. The items for the five personality dimension (extroversion, neuroticism[1], agreeableness, conscientiousness, and openness) were used

[1] For this construct, there are many scales that are available (Cattell, 1945; Eysenck and Eysenck, 1975; Trapnell and Wiggins, 1990; Gough, 1987; Bales and

directly from John and Srivastava (1999). Each personality dimension is defined separately: Extroversion is the personality trait that is characteristic of people who are out going, sensation seeking, likes other people and looks for variety in life. The extraversion measure consists of 8 items. Neuroticism is a personality trait that increases the perception of threat in numerous situations (John, 1989). Neurotic people have a tendency to think about all the negative aspects in a repetitive fashion and this causes them not to think about anything else (Robinson, et al., 2006). Neuroticism consisted of 8 items. Agreeableness is a personality trait that encompasses characteristics like altruism, tender-mindedness, trust and modesty (John and Srivastava, 1999). Agreeableness consisted of 9 items. Conscientiousness describes the ability of an individual to follow rules or delay gratification. A conscientiousness person has more "socially prescribed impulse control" (John and Srivastava, 1999). Conscientiousness consisted of 9 items. The last dimension of personality is openness. Openness to experience is a trait that is a combination of broad-minded, curious, and artistically sensitive characteristics (Digman, 1990). Openness consisted of 10 items. There were 44 items in total and all of them had a seven point Likert-type scale, anchored at 1 as 'strongly disagree' and 7 as 'strongly agree'.

5.6.1.2. Type of unethical behavior

What constitutes unethical behavior for the given sample was tested in the pre – test. Every subject stated that both the behaviors, academic cheating and digital piracy, were significantly unethical. The type of unethical behavior was manipulated for the

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Cohen 1979; Costa and McCrae 1992), however, neuroticism is just one of the constructs that is focused on in these scales. There are also scales that are used to gauge people that are highly neurotic and on the brink of psychosis such as Groningen Neuroticism Scale (Ormel, J. 1980).

experiment. Therefore the two levels of unethical behavior (academic cheating and digital piracy) were coded as 0 and 1.

5.6.1.3. Media Characteristics

When asking an individual about his or her unethical behavior, the medium used for communication will affect the response (Daft, et al., 1987; Fulk, et al., 1987). The characteristics of the media are varied and their influence on the task depends on numerous other factors (Lee, 1994). The two factors that are considered to describe media characteristics in a disclosure scenario are persistence and interactivity.

5.6.1.3.1. Persistence

Persistence was a new construct that has not been explored in the information systems literature. Though there are aspects of persistence in advertising, the concept of persistence is different in advertising as compared to information systems. Since advertising looks at the availability of the media at a later date (Blattberg and Neslin, 1989; Little, 1979) while, information systems perspective would be to look at the capability to acquire or record the information as it passes through the media, a set of new items were generated to tap into this different perspective. A total of nine items were generated for this new construct.

5.6.1.3.2. Interactivity

For this study the definition that is used is based on Liu (2003) and Wu (2006), who define interactivity as the ability of the user to manipulate the contents with the medium during the process of a message being transmitted to and from a receiver. There are a few interactivity scales that are available specifically for measuring website interactivity (Cho and Leckenby, 1999; Liu, 2003; McMillan and Hwang, 2002; Wu,

2006). For this study a modified version of Liu (2003) and Wu (2006) is used. There are six items and all of them have a seven point likert-type scale, anchored at 1 as 'strongly disagree' and 7 as 'strongly agree'.

5.6.1.4. Type of questioning

The type of questioning is the technique that is used to solicit disclosure behavior from a subject. Two discrete levels for this construct are: UCT and nominal. Each level is coded as 0 or 1 depending on what is presented to a subject (only for first stage). For second and third stage each subject was exposed to both types of questioning (i.e. UCT and nominal). The choice of the unethical behavior that is asked is based on academic cheating and digital piracy.

5.6.2. Dependent variables

5.6.2.1. Disclosure

The actual behavior that is of interest is the disclosure of unethical behavior. Therefore, the measures that are used to capture this construct are based on the two type of questioning. The nominal type directly asks whether the subject conducted a particular unethical behavior. The functioning of the UCT type of questioning is mentioned above.

Since UCT does not provide an individual level measure (only sample level measure is available), it is not possible to use UCT results in any of the modeling techniques such as structural equation models. However, UCT results and nominal results can be directly compared using graphs. Another technique is to analyze the data using the different data sets and then compare the models developed by each of the data set (one data set will be for UCT and another for nominal).

The structural equation models will use data only from the nominal questioning type as it provides subject level responses to disclosure.

5.6.2.2. Disclosure apprehension

Disclosure apprehension forms the central construct of interest for this study. This construct is based on the attitude construct from the theory of planned behavior (Ajzen, 1988; Ajzen, 1991). Even though intuitively the idea of disclosure apprehension points to only a negative valence, it is modeled with negative and positive valences (see Research model chapter). All the items that are used in this research for this construct are modified items from TPB (see Taylor and Todd, 1995). There are five items for disclosure apprehension and all of them have a seven point Likert-type scale, anchored at 1 as 'strongly disagree' and 7 as 'strongly agree'.

5.6.2.3. Subjective norm

Subjective norm is also based on the theory of planned behavior (Ajzen, 1988; Ajzen, 1991). This construct represents the influence of the environment on the subject while disclosing. Subjective norm is also referred to as the general social pressure from significant others. There are five items for subjective norm and all of them have a seven point Likert scale, anchored at 1 as 'strongly disagree' and 7 as 'strongly agree'.

5.6.2.4. Perceived behavioral control

Perceived behavioral control is also based on the theory of planned behavior (Ajzen, 1988; Ajzen, 1991). This construct represents the perceived control the subject has over the media while disclosing. There are five items for perceived behavioral control and all of them have a seven point Likert scale, anchored at 1 as 'strongly disagree' and 7 as 'strongly agree'.

5.7. Summary

In conclusion, this chapter provided the rationale for selecting the laboratory experiment methodology in order to test the hypotheses that are posited in the previous chapter. We also went through in detail about the research design, design issues, sample characteristics, research procedures and the variables used.

The next chapter shall present results for the research study and the analysis preformed.

Chapter 6

Data Analysis and Results

This chapter describes the data analysis and presents the results that were found. The first section presents the preliminary data analysis for the entire research study. The second section presents the chosen data analysis technique, the justification of the choice of the technique and validation. The third section presents the hypotheses testing and post hoc analysis of the data.

6.1. Preliminary data analysis

The preliminary data analysis is based on means and standard deviations presented in Table 6.1. All the measurement scales were based on a 7 point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). There were two types of unethical behavior that were solicited in this study; digital piracy and academic cheating (see Appendix B for details).

For both types of behaviors, the perception of persistence of the media did not change much. Subjects perceived that the web – based media provided a constant level of persistence.

Subjects found similar perceptions for the interactivity variable. For both types of behaviors, the perception of how interactive the web – based media was did not change significantly.

The influence of significant others (subjective norm) did not change for both types of behaviors that were solicited.

Table 6.1: Descriptive statistics

Variable	Type of unethical behavior solicited			
	Digital (N=147)		Academic (N=151)	
	Mean	SD	Mean	SD
Persistence	5.68	1.44	5.85	1.25
Interactivity	5.06	1.33	5.12	1.31
Subjective Norm	3.40	1.48	3.44	1.51
Disclosure Apprehension	4.11	1.35	3.94	1.58
PBC	5.73	1.11	5.36	1.30
Intention	5.27	1.84	5.12	1.31

The fear of disclosing (disclosure apprehension) was found to be slightly higher for the behavior of digital piracy as compared to academic cheating. Further investigation should be conducted.

Perceived behavioral control (PBC) also exhibited higher values for digital piracy as compared to academic cheating. Further significance testing revealed that this difference is significant (see Appendix E).

The change between the behaviors for intention to disclose is also along the same lines as PBC. The significance of this difference will have to be tested.

The individual characteristics were not manipulated but were captured in the experiment. The means and standard deviations of the five personality factors that were assessed for the experiment (see Appendix E). For the post hoc analysis of the entire data, each personality factor was used to split the data set into high and low for the respective factors and then the analysis was done.

The results of the preliminary data analysis show that there are no large differences between the two conditions of solicited behavior and is what was expected.

6.2. Measurement Validation

The process of validation of the data consists of five validity assessments: content validity, manipulation check, factorial validity (EFA), construct validity (both convergent and discriminant) and reliability.

6.2.1. Content validity (also referred to as face validity)

When there are numerous items on a questionnaire there is a possibility that some of the items may not pertain to the underlying construct. Therefore content validity ensures that the items are close to or represents the construct or domain of interest. Content validity is usually tested with the help of an expert who reviews the items. Since most of the items are obtained from validated scales, the content validity should be good. To ensure this, an expert colleague also reviewed the questionnaire.

6.2.2. Manipulation check

To ensure that the manipulation of questioning type worked, the check that was used to confirm is the overall disclosure for different types of questioning. There was a significant difference of the three types of questioning used. All three disclosure rates are similar to those found previously (Dalton and Wimbush, 1997).

Table 6.2: Manipulation check for pre-test, pilot and experiment

Type of questioning	Pre-test	Pilot	Experiment
Nominal	38%	22.7%	27.89%
UCT	44%	49.79%	53.96%
RRT	54%	Not conducted	Not conducted

6.2.3. Factorial Validity

Since there are numerous measurement items in the questionnaire, the underlying constructs that they intend to represent are confirmed with factorial validity. Factorial validity is an exploratory technique that shows which observed variables are related to which unobserved (latent) variable. More details between the differences of these variables are found in the structural equation modeling section. The factorial validity technique that is used is referred to as exploratory factor analysis (EFA). There was no EFA conducted on the pre-test sample since the sample size was too small. The experiment sample was not subject to EFA either because a confirmatory factor analysis technique was used. There was no need for an EFA in the experiment sample since the goal was to confirm the model, that was developed in the pilot sample, was a good fit for the experiment sample too. Only the pilot test sample was subject to EFA.

The results from the EFA is used to remove all the items that do not load sufficiently on a latent factor (Straub, et al., 2004). Items that load greater than 0.6 on a single factor are to be retained, also provided they do not load on another factor greater than 0.4 (Boudreau, et al., 2001). The technique that was employed for factor extraction was Principal component analysis (PCA). For factor clarification the principal components of the factors were rotated using the Varimax technique and was orthogonal. The number of factors that were extracted from the data was based on the Kaiser criterion of an Eigen value greater than 1.The SPSS 15 software was used to run the EFA on the data.

The results show that there were a total of seven factors that was extracted. Only six factors were expected however, the extra factor was a result of certain items that

would not load on anything else. All items loaded on unique factors except for 2 items from the persistence construct, 1 item from interactivity construct and 2 items from the disclosure apprehension construct. These items were dropped from the item list before the experiment item list was run. (see Appendix C for detailed results).

Table 6.3: Summary of EFA results

Construct	No. of items	Loading range	Cross loaded items
Persistence	9	0.669 – 0.902	2 items
Interactivity	6	0.667 – 0.731	1 item
Subjective Norm	3	0.795 – 0.871	None
Perceived Behavioral Control	3	0.799 – 0.827	None
Disclosure Apprehension	5	0.607 – 0.784	2 items
Intention	3	0.951 – 0.958	None

6.3. Statistical Methodology

The statistical methodology that was used for this research was structural equation modeling (SEM). All the hypotheses and overall model was tested using SEM. Along with the SEM technique, ANOVA was also used to test some of the data characteristics. Next, an overview of the SEM technique is provided.

6.3.1. Structural equation modeling

Structural equation modeling (SEM) is a family of analysis techniques. Path analysis, confirmatory factor analysis, structural regression analysis and latent change analysis belong to the SEM family. SEM is used to analyze the models that are multivariate and have a causal ‘structure’ associated with it (Ullman and Bentler, 2004). In SEM the causal structure is generated using a simple regression equation format, i.e. SEM could be considered as simultaneous linear system of equations that are solved together (Byrne, 2001). Causal structure in a research model means that there are a priori

reasons for certain phenomena occurring (Byrne, 2001). When SEM tests models with a priori reasons, the tests provide for a robust inferential data analysis technique as compared to other multivariate tests such as exploratory factor analysis (Raykov and Marcoulides, 2000). Therefore SEM is considered for a more confirmatory route of testing models as compared to EFA.

One of the striking differences between SEM and classic statistical testing is that of the null hypotheses should be rejected. Since SEM requires a hypothesized model, this model is considered as the null hypothesis! Therefore, in SEM methodology, the null hypothesis should not be rejected, i.e. the model should be acceptable (Raykov and Marcoulides, 2000).

6.3.1.1. Observed variables and latent variables

When studying social aspects of human behavior (or any other aspect), there are numerous facets of behavior that cannot be observed directly. Some of the latent variable examples are pain (from medical sciences), motivation (from psychology) and socialism (from sociology). Each of these variables cannot be observed directly and therefore researchers rely on alternate observations that can proxy for these variables. Usually a group of observed proxies are combined to provide a latent variable (Jöreskog, 1993). In the current study, the influence of subjective norm variable cannot be measured directly but only with questionnaire items that indirectly point at variable. So the questionnaire items form the observed variables and the cumulative effect of the observed variables can be modeled as the latent subjective norm. The differentiation between observed variables and latent variables to develop a research model is important because most social theories do not provide relations between observable variables but between latent variables.

6.3.1.1.1 Exogenous and endogenous latent variables

There are two types of latent variables used in SEM; exogenous and endogenous variables. Exogenous variables are those that affect other latent variables in a model. They are considered similar to independent variables in regression equations. In the current study, examples of exogenous variables are media characteristics and type of unethical behavior solicited. Endogenous variables are those variables that are affected by exogenous variables and can affect other endogenous variables. They can be considered similar to dependent variables in a regression equation. The quest of SEM to obtain these characteristics of the endogenous variables that is present in the model (Byrne, 2001). In the current study, examples of endogenous variables are disclosure apprehension and intention.

6.3.2. Choice and Justification of SEM

The primary reason for the choice of using SEM is because of its capability to model observed and unobserved (latent) constructs (Raykov and Marcoulides, 2000).

Another important characteristics of SEM is that error estimates have explicit parameters (Byrne, 2001). When measuring variables in a study there is bound to be some error in measurement, either due to error in observation or error in the measuring instrument. Older multivariate methods do not account for this error explicitly (i.e. they assume errors get neutralized with procedures like random sampling) and therefore there is a possibility that those methods could derive spurious results if the measurement errors are significant. In SEM, these errors are explicitly accounted for in the model (Byrne, 2001).

6.3.3. Full latent variable model

The full latent model provides the ability to model all the causal relationships between the latent variables and observed variables. The full latent model also allows for causal direction to be tested because of the regression structure that is possible (Byrne, 2001). The model is considered full because it consists of two parts: the measurement model and the structural model (Raykov and Marcoulides, 2000).

6.3.3.1. Measurement model

The measurement model consists of links between the observed variables and latent variables. These links are referred to as factor loadings, i.e. observed variables are related to the latent variables and the strength of their association is captured as factor loadings (Gefen, et al., 2000). The measurement model is akin to the factor analytic technique called confirmatory factor analysis (CFA), where the research has a priori knowledge about which observed variables will load on which latent factors and the model is created to test the hypotheses. There are no causal relationships between the latent factors in the measurement model.

6.3.2.2. Structural model

As mentioned above, the structural model consists of causal relationships between the latent factors, along with observed variables relating to their respective latent factors (Byrne, 2001).

6.4. Model testing

There is a rare possibility that the data from a sample will fit the data perfectly. When fit is imperfect then the difference between the sample data and the hypothesized

model is referred to as the residual (i.e. sample data = model + residual). To test the hypothesized model there are three alternatives: strictly confirmatory, alternating models and model generating (Jöreskog, 1993). The strictly confirmatory approach is based on a researcher that develops a model from theory and collects the appropriate data to test the model. If the fit tests fail to reject the null model then the model is accepted, however, if the model is rejected by the fit test then model is not accepted. The researcher does not change the model after it is hypothesized.

For the alternating models situation, the researcher comes up with a few competing models that are developed from theory. Each of the models is tested after a sample data is collected. The best model that fits the data (i.e. with minimum residual) is selected. The researcher does not change any model after it is hypothesized.

For the model generating situation, the research hypothesizes one model from theory and then collects the data to test the model. If the model is a poor fit to the data then the researcher modifies the model based on the areas where the model is a misfit (Segars and Grover, 1993). This process of modification is exploratory and is a theoretical. Usually modification of SEM is done by referring to modification indices for each latent variable and observed variable loadings (Byrne, 2001).

6.4.1. Model Fit

When the entire model is tested to fit the data, the difference between the model and the sample is calculated using fit function that is based on the estimation technique that is used (e.g. ML, GLS, WLSMV). The fit function is used to find a goodness-of-fit test statistic such as:

$$T = (N - 1)F_{min}$$

Where, N is the sample size and F_{min} is the calculated fit function. T is the test statistic that approaches the Chi – square distribution when large samples are used and when model is correctly fitted to the sample data. Therefore, significant Chi – square test ($p < 0.05$) means that the model is to be rejected (remember that with SEM, the null model should not be rejected). The issue with this Chi – square test is that it is sensitive to sample size and large samples are bound to be rejected (Raykov and Marcoulides, 2000). There are many other fit indices such as the goodness-of-fit index(GFI), adjust goodness-of-fit index (AGFI), normed fit index (NFI) and non-normed fit index (NNFI) that are based on the T statistic.

An alternate class of fit indices are based on the concept of the non – centrality parameter (NCP). NCP reflects the amount by which the data does not fit the model. When the data fits the model the T statistic will approximate to the Chi – square distribution, however, when the model is misspecified then it will follow a distribution that is not centered around the Chi – square distribution. The new distribution could be considered as an offset to the central Chi – distribution and hence this offset would be the value of the non – centrality parameter (Raykov and Marcoulides, 2000). Based on the NCP, some of the fit statistics that are developed are root mean square error of approximation (RMSEA) (Browne and Cudeck, 1993), and comparative fit index (CFI) (Bentler, 1990).

Even though both classes of fit measures give good result, it is possible that the model is not a good depiction of the sample data. This is because the fit indices mentioned above are overall fit measures and therefore possible to have one part of the model not fit well and the rest fit very well. To overcome this aspect, researchers must

look at residuals of each part of the model (for each observed and latent variables) (Raykov and Marcoulides, 2000). The standardized residuals such as Standardized Root Mean Square Residual (SRMR) make comparisons quite easy. All the analysis is run using the MPlus software (Version 4.01).

Table 6.4: Recommended Fit Indices used for this study

Fit Indices	Critical Value	Source
CFI	> 0.9	Hu and Bentler, (1999)
RMSEA	< 0.05	Brown and Cudeck (1993)
SRMR	< 0.05	Bryne (2001)

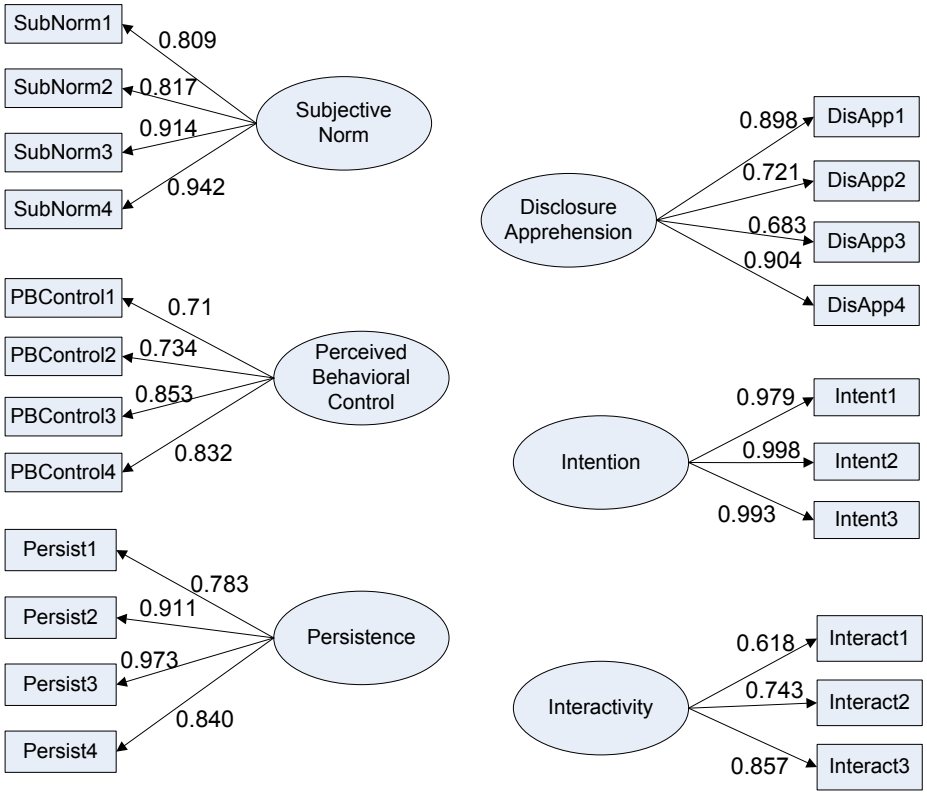
The fit statistics for the measurement model are presented next.

Table 6.5 Fit Indices of the measurement model

Fit Indices	Value
CFI	0.95
RMSEA	0.06
SRMR	0.06

Based on these indices, the model shows a good fit to the data. The values of RMSEA and SRMR are slightly above that which is recommended but values ranging from 0.06 – 0.08 are considered a good fit (Browne and Cudeck, 1993; Hu and Bentler, 1999; MacCallum, et al., 1996).

Figure 6.1: Measurement Model



To avoid excessive lines on Figure 6.1, the correlations between the latent constructs are provided separately.

Table 6.6: Correlations between the latent constructs

	Intention	Subjective Norm	Disclosure Apprehension	Perceived Behavioral Control	Persistence
Intention	1				
Subjective Norm	0.312	1			
Disclosure Apprehension	0.4	0.678	1		
Perceived Behavioral Control	0.399	0.228	0.356	1	
Persistence	0.035	-0.009	-0.041	0.243	1
Interactivity	0.117	0.194	0.284	0.359	0.407

6.4.2. Factor Reliability

This measure is presented using Cronbach's alpha (Cronbach, 1951; Cronbach, 1971). Cronbach's alpha is an item total correlation between one item and the latent construct (which is calculated as an aggregation of all the items the latent construct is made of). The following table presents Cronbach's α for each construct. The reliability is calculated using the SPSS software.

Table 6.7: Factor reliability

Latent Construct	Cronbach's α
Persistence	0.920
Interactivity	0.757
Subjective Norm	0.908
Perceived Behavioral Control	0.804
Disclosure Apprehension	0.853
Intention	0.990

6.4.3. Construct Validity

Construct validity consists of two separate measures of validity; convergent validity and discriminant validity. Convergent validity is a measure of how close are the items of a construct to the latent construct itself, i.e. do the items converge on the theorized construct (Straub, et al., 2004)? Discriminant validity is a measure of how unique a latent construct is, i.e. does each latent construct distinguish itself from another latent construct significantly (Campbell and Fiske, 1959). Though there are other techniques that can be used to determine construct validity and discriminant validity, CFA is the most powerful technique that is in use.

6.4.4. Convergent Validity

The critical information that is dervived form CFA is the factor loadings on their respective latent constructs (Segars, 1997). Factor loadings should range from 0.6 and

higher for an item to have a sufficient level of shared variance with the latent construct (Bagozzi and Yi, 1989; Straub, et al., 2004). The factor loadings that are found in the model range from 0.613 to 0.998, proving that there is significant convergent validity.

6.4.5. Discriminant Validity

Discriminant validity is a measure of how different are items of one construct to items of another construct. There are two ways discriminant validity can be checked for using SEM. Both ways employs the change in Chi square between models. In one method, one model has a correlation between the latent factors set to a specific number (e.g. 1) and in the other model the correlation is free to vary (Segars, 1997).

Table 6.8: Discriminant validity tests

Model	χ^2_{df}
Model in figure 6.1	$\chi^2_{278} = 625$
Combining Intention and Subjective Norm	$\chi^2_{284} = 2968$
Combining Intention and Disclosure Apprehension	$\chi^2_{284} = 1421$
Combining Intention and Perceived Behavioral Control	$\chi^2_{284} = 1223$
Combining Intention and Persistence	$\chi^2_{284} = 3086$
Combining Intention and Interactivity	$\chi^2_{284} = 1000$
Combining Subjective Norm and Disclosure Apprehension	$\chi^2_{284} = 1045$
Combining Subjective Norm and Perceived Behavioral Control	$\chi^2_{284} = 1343$
Combining Subjective Norm and Persistence	$\chi^2_{284} = 1876$
Combining Subjective Norm and Interactivity	$\chi^2_{284} = 986$
Combining Disclosure Apprehension and Perceived Behavioral Control	$\chi^2_{284} = 1223$
Combining Disclosure Apprehension and Persistence	Non convergent[1]
Combining Disclosure Apprehension and Interactivity	$\chi^2_{284} = 961$
Combining Perceived Behavioral Control and Persistence	$\chi^2_{284} = 1389$
Combining Perceived Behavioral Control and Interactivity	$\chi^2_{284} = 926$
Combining Persistence and Interactivity	$\chi^2_{284} = 902$

[1] Model for this combination did not converge after 10,000 iterations, therefore was stopped.

In the other method there are two models however, one model has a pair of latent constructs that have a correlation between them that can vary, and the other model has only one latent on which all the items load (Segars, 1997). If the difference between the two models (using Chi square) is significant then discriminant validity is said to exist. Significance is when the Chi square difference is greater than a critical value (critical value is 3.841 at $\alpha = 0.05$) (Rosenthal and Rosnow, 1991).

6.4.6. Structural Model

The structural model is usually referred to as the structural regression model. This model has the causal links between the latent factors and hence the reference to regression. This model is presented in figure 6.2. One of the key uses of the structural regression model is to provide for hypotheses testing of the causal links that were specified in the Chapter 4. First the model is checked to ensure that there is adequate fit to the data, next the causal links are checked for significance and direction.

Some of the constructs that are used have categorical data, such as, the type of unethical behavior construct and actual behavior construct. Since MPlus software is used, the modeling of such categorical variables will be possible without any issues. Other type of software such as EQS and AMOS do not have the capability to handle both categorical continuous variables simultaneously in one model (Muthén, 1993).

Table 6.9: Fit Indices of the structural regression model

Fit Indices	Value
CFI	0.924
RMSEA	0.07
SRMR	0.08

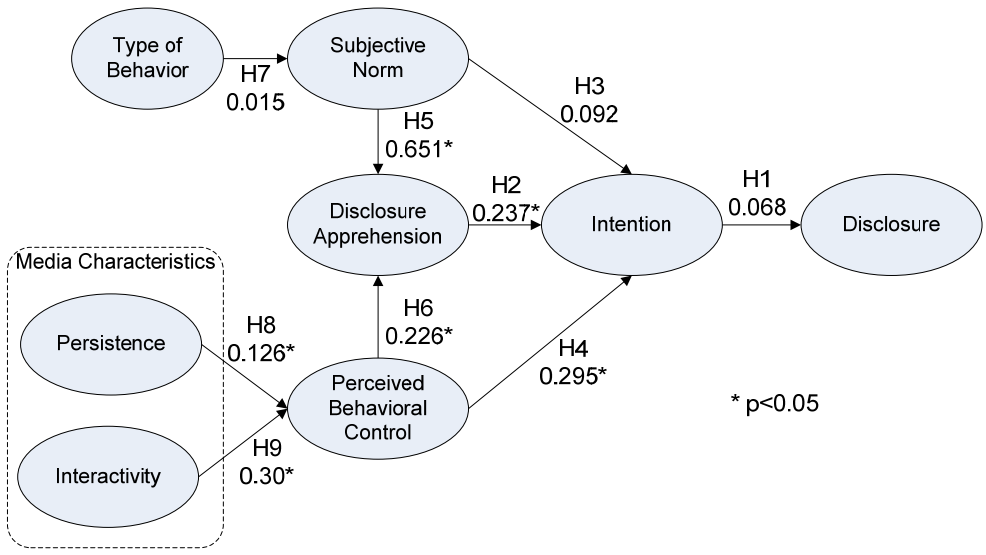
6.5. Hypothesis testing

The data was tested using structural regression modeling and the results are presented in table 6.10 and figure 6.3. The summary table is based on the table that is present in chapter 4 (Table 4.1)

Table 6.10: Summary of tested hypotheses

H1	Intention will positively correlate with actual disclosure behavior.	Not supported
H2	Disclosure apprehension positively correlates with intention.	Supported
H3	Subjective norm positively correlates with intention.	Not supported
H4	Perceived behavioral control positively correlates with intention.	Supported
H5	Subjective norm positively correlates with disclosure apprehension.	Supported
H6	Perceived behavioral positively correlates with disclosure apprehension.	Supported
H7	Type of unethical behavior positively correlates with subjective norm.	Not supported
H8	Persistence is positively correlated with perceived behavioral control.	Supported
H9	Interactivity is positively correlated with perceived behavioral control.	Supported

Figure 6.2: Structural regression model



Three of the posited hypotheses were not supported (H1, H3, H7). The complete results including all the individual observed variable loadings, error loadings and standardized loadings are available in Appendix F.

Table 6.11: Variance accounted for by latent constructs (R^2)

Latent Variable	Variance accounted for
Intention	0.202
Subjective Norm	0.000
Disclosure Apprehension	0.474
Perceived Behavioral Control	0.137
Disclosure Behavior	0.005

The results of the variance accounted were not surprising given that the hypotheses that related the latent variables with low variance accounted for, failed to be supported. The implications of this result shall be dealt with in the next chapter.

6.5.1. Individual differences

There were five individual difference dimensions (extroversion, neuroticism, agreeableness, conscientiousness, and openness to experience) that were applied to this research study (see chapter 4). These dimensions were hypothesized not to be involved directly in the structural model but to provide differences across data sets that are split using these dimensions. In other words, if the model is fitted to a data set that has only high values on one dimension, the model will yield different results as compared to the same model that is fitted to the data set that has only low values along that dimension.

Of the five dimensions, only 2 of them (neuroticism and openness to experience) had difference across high and low values. The causal link between intention and actual

disclosure behavior in all four data sets (low neuroticism, high neuroticism, low openness, high openness), were insignificant.

This was also true for the link between the type of unethical behavior and subjective norm, i.e. not significant across all four data sets.

The differences that were found between the low and high neuroticism data set are the link between persistence and perceived behavioral control is significant only for high neuroticism data set. For the low neurotic data set, there is a much stronger relationship between disclosure apprehension and intention. Also the variance accounted for by the intention construct is 0.32 for the low neurotic data set while for the high neurotic data set it is 0.1.

The differences found between the low and high openness data sets are the link between subjective norm and intention is insignificant for the low openness data set while it is significant for the high openness data set. This is the opposite for the link between disclosure apprehension and intention, i.e. the link is significant for low openness data set while it is insignificant for the high openness data set. The strength of the relationship between perceived behavioral control and intention is much strong in the high openness data set. Also the variance accounted for by the intention construct is 0.258 for the low openness data set while it is 0.178 for the high openness data set. The complete models with loadings are provided in Appendix H.

6.5.2. Actual Disclosure Behavior

There were two separate way in which the actual disclosure behavior was captured; nominal and unmatched count technique (UCT). The nominal technique comprised of direct questioning to the subject regarding his or her unethical behavior.

The UCT technique used a random selection procedure and only some subjects were asked their unethical behavior (see chapter 3 for complete details).

There were 6 unethical behavior questions that were asked, three belonged to digital piracy behavior and the other 3 belonged to academic cheating. Each subject only received 3 questions belonging to either digital piracy or academic cheating. Since UCT could only provide aggregate behavior per question, the results from this technique could not be inserted into the SEM. However, comparisons were made between the nominal technique and UCT. The table 6.12 shows the percentage of subjects that admitted to unethical behavior.

Table 6.12: Comparison between Nominal and UCT

	Q1	Q2	Q3	Q4	Q5	Q6
Nominal	9.33%	30.00%	33.33%	70.07%	51.02%	22.45%
UCT	-4.61%	-6.38%	48.70%	70.67%	38.05%	59.23%

6.6. Post hoc analysis

Given that the model does not explain the actual disclosure behavior, numerous post hoc analyses were conducted.

The first post hoc analysis that was done was to look at the difference in the model depending on data sets that was split based on the type of unethical behavior. The differences that were seen are the relationship between subjective norm and disclosure apprehension is much strong for the academic cheating sample. The relationship between disclosure apprehension and intention was also stronger for academic cheating sample. The variance accounted for by the intention construct was found to be higher (R^2=0.3) in

the academic sample as compared to the digital piracy sample (R^2=0.134). The complete models with path weights are provided in Appendix I.

An alternate model that was run with the entire sample showed a more obvious result for the research study. This model had a causal link between type of unethical behavior and disclosure (the link between type of unethical behavior and subjective norm was deleted). In this model all the parameters stayed almost the same except for the link between type of unethical behavior and disclosure. This link had a negative path weight of -0.672 and the variance accounted for by the disclosure behavior increased to 0.451. The full model with path weights is available in Appendix I.

The final post hoc analysis that was done compared latent variable means by individual differences and type of unethical behavior. Table 6.13 provides comparison and only significant or near significant variables are mentioned.

Subjects with low neuroticism showed significant differences between unethical behaviors and perceived behavioral control and intention. Subjects who were high on agreeableness, high on conscientiousness, and high on openness showed similar differences. No significant differences were found for people with high neuroticism, low agreeableness, and low conscientiousness.

Subjects low on extraversion showed only differences on perceived behavioral control while those who were high on extraversion showed differences on persistence (p=0.094) and intention. Subjects who were low on openness showed only differences on persistence.

Table 6.13: Latent variable compared by individual differences and behavior

	Digital	Academic	ANOVA - p values
Low Neuroticism			
PBC	5.83	5.113	0.00
Intention	5.199	4.351	0.02
High Neuroticism			
none			
Low Agreeableness			
none			
High Agreeableness			
PBC	5.775	5.289	0.002
Intent	5.429	4.8	0.073
Low Extraversion			
PBC	5.719	5.324	0.027
High Extraversion			
Persistence	5.597	6.032	0.094
Intention	5.42	4.699	0.053
Low Conscientiousness			
none			
High Conscientiousness			
PBC	5.886	5.433	0.025
Intention	5.491	4.807	0.046
Low Openness			
Persistence	5.352	5.852	0.017
High Openness			
PBC	5.858	5.473	0.053
Intention	5.653	4.951	0.034

6.7. Summary

This chapter provided the results of all the constructs that were presented along with the different methodologies that were used to test the posited hypotheses. A detailed description of the data analysis technique was also presented.

Preliminary data analysis consisting of descriptive statistics, followed by measurement validation was presented. The justification of why SEM was an appropriate methodology was presented. The details of the measurement and structural model were

presented to test the hypotheses. Six of the nine hypotheses were supported. The analysis of the actual disclosure behavior involving the UCT is presented. Finally, all the post hoc analysis based on individual difference and type of unethical behavior is mentioned.

The next chapter provides the discussions that are based on the results presented in this chapter along with limitation of the research study and future research directions.

Chapter 7

Discussion and Conclusion

This final chapter of the study presents the discussion on the results from the previous chapter and concludes with what this study has achieved. The future work and limitations for this study are also presented.

7.1 Discussion

Disclosure of sensitive behavior is a tough choice for any individual. On one hand there is a possibility that disclosure may be better for the overall society (Davenport, 2002) but on the other hand individual interests may be at stake. Though there have been numerous studies that have looked at disclosure of sensitive information, all of them have been focused from the psychological perspective of social deviance. Drug abuse, sexual deviance and many forms of addiction have been used as contexts for disclosure of sensitive information. There have also been disclosure studies from the field of education regarding student behavior (Keenan and Sullivan, 2007) and from the field of business regarding pilferage and theft of money (Dalton and Metzger, 1992; Hulin and Judge, 1991). However, there were hardly any studies that explored the impact of media on disclosure of sensitive information.

With the advent of new media such as the internet, email, and other communication devices, the disclosure activity by people has not been explored. Previous research that is based on disclosure of sensitive information was all paper – based (Richman, et al., 1999). The main issues that are faced with paper – based methodology are cost and time. The cost of paper, duplication (printing) and dissemination of paper

questionnaires were significantly higher than that of the newer media based questionnaires. Also another important aspect is the time taken to disseminate, collect and aggregate the data with paper – based methodology. Transferring data from each paper questionnaire to a database for analysis takes considerable amount of time depending on the volume of questionnaires and responses per questionnaire. Based on these facts new media such as web based questionnaires provide a much faster way to disseminate, collect and aggregate data. With this in mind, the first research question for this study is presented:

RQ1: Are the existing methods of obtaining disclosure of sensitive behavior robust to the changes in media used or changes in media characteristics?

Therefore, to answer the first research question, this study modeled media characteristics to influence the disclosure of sensitive information. Disclosure of sensitive information is usually preceded with a level of fear. This aspect is modeled as disclosure apprehension that the subject faces before disclosing. Therefore the second research question:

RQ2: Will the apprehension of a subject to disclose information be able to predict actual disclosure behavior?

The disclosure apprehension is the central tenet of this study and is modeled similar to the attitude construct from the TPB model. The theoretical underpinnings of the conceptual model (Chapter 3) and the research model (Chapter 4) present what this study is based on.

This research study is focused on understanding the impact of various factors that influence disclosure and the associated disclosure apprehension. To be able to produce

this phenomena of disclosure, an appropriate context must be used. The context of unethical behavior was selected because unethical behavior would maximize the sensitivity of the information that would need to be disclosed.

Unethical behavior is a very common phenomena in every walk of life. People always tend to "cut corners" and exhibit behaviors that are not conducive to the society at large. Therefore, to study such behaviors becomes important and risky at the same time (Fox and Tracy, 1986). Documenting unethical behavior is important because there could be measures that can be implemented to prevent an unethical behavior from manifesting or maybe assistance can be provided to a particular person who shows signs of unethical behavior. Studying unethical behaviors is risky because of the legal implications that are associated with exposing people that have done unethical acts (Weisband and Reinig, 1995).

Another aspect when studying unethical behavior is that large samples are required to provide stable estimates. Therefore paper – based methods are quite insufficient to handle large number of subjects and using technology – based methods, such as web based questionnaires, would prove to be much faster. Using questionnaires with multiple media has been previously studied and found to be successful, i.e. equally effective as paper based methods (Chuah, et al., 2006; Thompson, et al., 2003) and in some rating scales it was found to be better using computer based technique (Borman, et al., 2001).

Since the repercussions of these behaviors may cause legal action, researchers studying these behaviors have to assure the subjects that they are protected. One of the techniques of providing protection is by keeping the subjects anonymous. Anonymity, as

mentioned in the literature review, has properties that help subjects disclose their unethical behavior in confidence.

Given a restriction on the type of sample that was used (i.e. student subjects), the unethical behavior of digital piracy and academic cheating from the pre – test was found to have significant effect on the sample.

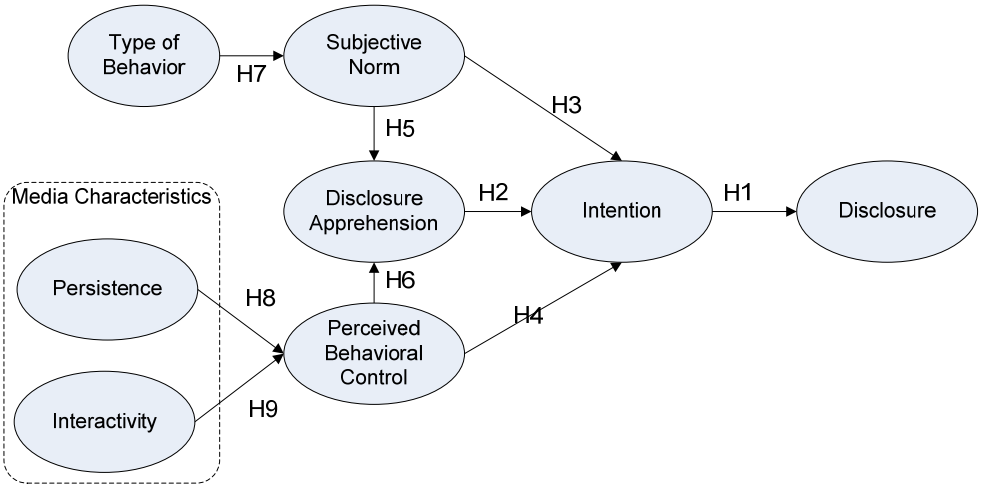
This research proposed a model of sensitive information disclosure and tested it using a context of unethical behavior. This model presents intention to disclose will predict actual disclosure. The type of unethical behavior and media characteristics will influence disclosure apprehension, subjective norm and perceived behavioral control. These factors will in turn influence the intention to disclose. Media characteristics of persistence and interactivity were proposed to influence perceived behavioral control.

Both persistence and interactivity are observed variables in this study, consisting of scales that were created (for persistence) or modified (for interactivity). These media characteristics were used to characterize the overall influence of the media on disclosure.

The type of unethical behavior was also posited to have an influence on the subjective norm. Since level of unethical behavior is derived from social consensus, the relation to subjective norm was hypothesized.

The other factors that were of interest were the different individual traits that made up the Big Five (John and Srivastava, 1999). The reason for using these traits was based on the one specific trait referred to as neuroticism that has showed in previous literature to have significant impact on subjects revealing information (Broach, 1991).

Figure 7.1: Research model



Next, each of the findings based on the overall research model is presented and discussed

7.1.1 Intention and actual disclosure behavior (H1)

The relationship between intention to disclose and the actual behavior of disclosure was not supported. There have been previous literature that have mentioned that this relationship may not hold (Armitage and Conner, 1999; Hessing, et al., 1988). Some of the reasons previous literature has mentioned are the differences between self – reported behavior and observed behavior. Self – reported behavior is usually highly correlated with intention while actual behavior does not.

The data that is collected for actual behavior, in this study is based on multiple dichotomous responses (i.e. either true or false). When behavior is collected using dichotomous variable it may not be considered as self – reported because there is no room for a subjective response to the behavior. Also most behaviors that are captured in previous TPB studies use either a single dichotomous variable or a scale to measure the

actual behavior (Armitage and Conner, 2001; Sutton, 1998). An example of questionnaire item in these studies that have single dichotomous questionnaire item that state "I will perform behavior x" or those that have scale measurement, "How likely is it you will perform behavior x" (Armitage and Conner, 2001, p. 480). Based on these differences, the current research study has attempted to measure the actual behavior and hence was found that the relationship between intention and actual behavior was insignificant.

7.1.2. Disclosure apprehension positively correlates with intention (H2)

The relationship between disclosure apprehension and intention was significant for the overall data set. There was one individual trait (openness to experience) data set that showed this relationship to be insignificant. It was found that subjects that had high levels of openness to experience did not show their intention to disclose sensitive behavior related to their level of disclosure apprehension. However, their intention to disclose was more closely associated with subjective norm and perceived behavioral control. This means that significant others and the subject's perceived control over the media is a strong influence for subjects that have high levels of openness to experience. There are no obvious reasons as to why this relationship would exist other than a speculation based on the characteristics of this individual trait. Subjects who are high on openness tend to be more risk taking and therefore their disclosure apprehension levels do not predict their disclosure intention. Another speculation would be based on the curious nature of subjects high on openness (McCrae and Costa, 1995); causing them to try to disclose sensitive information to experience the outcome. This would also be a

plausible reason as to why disclosure apprehension levels do not affect intention directly but maybe mediated through subjective norms and perceived behavioral control.

For all other data sets the relationship between disclosure apprehension and intention was significant, though the variance accounted for by intention changed significantly for different data sets. The difference is found between high and low data sets of neuroticism and openness. Subjects with high neurotic feelings will tend to be more apprehensive about disclosure and therefore will not intend to disclose and this is the opposite for subjects with low neuroticism. The neuroticism findings are congruent with previous literature (Goldenberg, et al., 2006).

Subjects with high openness to experience may tend to display less intent to disclose because of their risk taking nature or curiosity. This finding does not contradict the finding when openness is viewed with respect to the disclosure apprehension factor. However, this finding of less intent to disclose for subjects with high openness needs to be explored further in future research because of differences in the variance accounted for by intention.

7.1.3. Subjective norm positively correlates with intention (H3)

The relationship between subjective norm and intention was not supported for the overall data set. This is a caveat that is presented by Azjen (1991), who mentioned that the TPB framework factors will be context dependent and therefore the factors may not all have significant influence as predicted. These findings are similar to those found in unethical behavior context such as intent to do piracy (Cronan and Al-Rafee, 2008). Also, Bagozzi (1992) mentions that subjective norms are not sufficient to predict intentions.

Given the disclosure of unethical behavior as the context for which the TPB framework is applied, the influence of salient others and the motivation to comply with the social pressure that the salient others generate, may not be pertinent for disclosure intention. It is also possible that the repercussions of the unethical behaviors solicited overwhelmed the subject so as to consider the normative influence of others too trivial to expose the intention to disclose.

The interesting aspect of the subjective norm – intention link is that it is barely significant for the low neuroticism data set and significant for the high openness data set. Both these data sets show that the link predicts intention to disclose unethical behavior for certain individual differences. Subjects that are low in neuroticism seem to heed the social pressure of salient others to show intention. This may be owed to the fact that these subjects do worry about the repercussions of the unethical behavior and would like to show their intention to 'come clean'.

As compared to the neurotic data set (high and low) the openness data set has a large difference between the low and high data sets for the subjective norm – intention link. A statistical reason why the high openness data set has larger value may be due to the failure of the disclosure apprehension – intention link (see H2 above). The effect of the disclosure apprehension is not present in intention and therefore strengthens the relationship between subjective norm and intention (see Appendix H). Subjects high on openness could be considered more willing to expose their intent to disclose sensitive unethical behavior because of their risk – taking nature or because of their curiosity.

7.1.4. Perceived behavioral control positively correlates with intention (H4)

The relationship between perceived behavioral control and intention is supported in the overall data set. The link between perceived behavioral control and intention is supported in all investigated data sets making this relationship one of the most stable ones in the model. The consistent impact of perceived behavioral control shows that the media influence is also consistent for disclosure of sensitive behavior. The media characteristics shall be explored later (see H8 and H9). The impact of perceived behavioral control on intention is as posited by the TPB framework (Ajzen, 1991).

7.1.5. Subjective norm positively correlates with disclosure apprehension (H5)

The relationship between subjective norm and disclosure apprehension was supported in all the data sets. This relationship is not usually found in TPB studies, however, some of the recent studies have shown this link to be present (Chang, 1998). When social pressure on a subject affects the disclosure apprehension, the importance of significant others are clearly brought to the forefront of any disclosure scenario. From this finding, this study is able to state that the social impact on a subject, who is solicited to disclose sensitive information, is of utmost importance.

7.1.6. Perceived behavioral control positively correlates with disclosure apprehension (H6)

As posited, perceived behavioral control has significant positive effect on disclosure apprehension. Similar to the influence of subjective norm on disclosure apprehension, perceived behavioral control is not usually predictive of attitude in the

TPB framework. However, this study shows that the link is strong and present for all the data sets that were tested. The impact of perceived behavioral control shows the importance of how a subject's volitional control over the environment of disclosure (media) plays a critical role in affecting the disclosure apprehension and in turn the disclosure intention.

7.1.7. Type of unethical behavior positively correlates with subjective norm (H7)

The relationship between the type of unethical behavior and subjective norm is not supported. Since the type of unethical behavior was assumed to be social consensus (Jones, 1991), the failure of this link seriously undermines this concept.

The impact of the type of unethical behavior was not found to be significantly correlated with any other construct in the model expect for the actual disclosure behavior (see Appendix I). The relationship between type of unethical behavior and actual disclosure behavior maybe spurious because both constructs have dichotomous observed variables (i.e. type of unethical behavior is coded as 0 or 1 and actual disclosure behavior has 3 dichotomous items). One aspect to note about this relationship is the negative relation between these two constructs, showing that one type of unethical behavior maybe considered more unethical than the other and will lead to less disclosure (0 was coded as digital piracy and 1 is coded as academic cheating).

Next, the media characteristics of persistence and interactivity are presented. Each of these characteristics defines an aspect of the media that can cause changes in the disclosure apprehension for a subject.

7.1.8. Persistence is positively correlated with perceived behavioral control (H8)

The relationship between persistence and perceived behavioral control was supported for most of the data sets. Persistence is the capability of the media to retain the information that passes through it. Persistence also provides the media to retrieve the retained information at a later date and therefore makes this media characteristic important for disclosure.

Persistence was found not be significant for low neurotic data set, however it was significant for the high neurotic data set. This confirms the importance of persistence as a media characteristic within the context of disclosure. Also the impact of neuroticism is obvious since highly neurotic people will fear the capability of a media to retrieve information, more than the people with low neuroticism.

7.1.9. Interactivity is positively correlated with perceived behavioral control (H9)

Interactivity presents the level of control a subject has over the media 'on-the-fly'. If small changes made by the subject are felt immediately, then the level of interactivity is said to be high. Therefore interactivity enhances a sense of control for the subject and therefore is more willing to disclose sensitive information.

Interactivity was found to be significant for all data sets and therefore shows strong support as an important media characteristic in the context of disclosure.

7.1.10. Comparison between the nominal questioning technique and UCT

There were two types of questioning techniques that were used. The nominal technique involved direct questioning of the subject about the unethical behavior while

unmatched count technique (UCT) involved a shielding process to help the subject feel more anonymous (see chapter 3 and 4). UCT does not provide individual level results in order to protect that anonymity of a subject, therefore only sample level aggregates are available. Based on table 6.12, questions 1 and 2 have negative results for UCT. This is not an acceptable result because these values represent the percentage of subjects that have committed the unethical behavior. Questions 4 and 5 have results that are not consistent with previous literature, i.e. UCT values are supposed to be higher than nominal values (Dalton, et al., 1994). Questions 3 and 6 provide results that are stable and consistent. By reviewing the text that was used in questions 1,2,4 and 5 it became clear that there could be misinterpretation on what these questions could mean (see Appendix J). Since the exact same question wording was not used in the pre – test and pilot test, the speculation on the question meaning cannot be confirmed. Another plausible reason could be that the sample size for UCT maybe too small (each subset used for UCT calculations had between 148 and 151 subjects) as compared to previous studies (Dalton and Wimbush, 1997).

7.1.11. Comparison by individual differences and type of unethical behavior

There were some interesting findings that are separated by individual difference and the type of unethical behavior (see table 6.13). In the low neurotic data set, perceived behavioral control and intention was found to be significantly different across unethical behaviors. This was similar to the findings in the data sets of high agreeableness, high conscientiousness and high openness. The difference between the unethical behaviors for perceived behavioral control was also found in the low extraversion data set. The

difference between the unethical behaviors for intention was also found in the high extraversion data set.

The pattern that developed between the types of unethical behaviors for perceived behavioral control was that the unethical behavior of digital piracy was found to be always higher than the unethical behavior of academic cheating. This indicates that subjects who were asked to disclose their unethical digital piracy activities found they had more control over the media than those who were asked academic cheating activities. Of course this is only for the subjects who had low neuroticism, high agreeableness, high conscientiousness and high openness. Since the subject sample consists of only students, they may perceive that their digital piracy activities can be concealed much better than academic cheating.

This pattern was similar to intention to disclose. The difference in intention levels maybe owed to the probability of punishment. Since the subject sample consists of only students, they may perceive that digital piracy disclosure is of less consequence as compared to academic cheating.

Persistence of the media also showed differences between the types of unethical behaviors for the low openness data set. This characteristic of the media seemed to affect the subjects who were asked about academic cheating more than those who were asked about digital piracy. The low openness of subjects may cause them to be more cautious about the nature of the media and hence the student sample may perceive that academic cheating is more of a consequence with higher media persistence.

7.2. Overall interpretation of results

When a subject is faced with a request to disclose his or her unethical behavior there will be suspicion about how the disclosed information will be used. From the different techniques that were used to question subjects about sensitive behavior, UCT showed better results and was influenced by media characteristics such as persistence.

The results show that the apprehension that is generated will be associated to the intention to disclose the sensitive behavior. The results also show that social pressure to disclose unethical behavior and the control over the media used for disclosure have a common intermediate step that is disclosure apprehension. The impact of individual differences were explored but did not find any evidence that would be contrary to earlier research such as, highly neurotic people will be more apprehensive about disclosing sensitive information (John, 1989; Robinson and Tamir, 2005).

The consistent influence of perceived behavioral control could show the unwavering impact of media on the disclosure context. As mentioned earlier, persistence and interactivity perception influenced the subject's control over the media, however persistence seemed to influence only certain types of people (high neurotics). Therefore, there seems to be minimum level of neuroticism that needs to be present in a subject for media characteristics have an influence on the overall disclosure situation. This is not in line with the findings of intention, between the levels of neuroticism, which showed that high levels of neuroticism proved to decrease the intention to disclose sensitive behavior. It is plausible that the relationship between individual traits such as neuroticism and disclosure behavior may exhibit a curvilinear function, i.e. low levels of neuroticism will not have any effect of media type and high levels of neuroticism will not lead to

disclosure intention, therefore a medium level of neuroticism may prove to show maximum disclosure and have a media effect.

7.2.1. Impact on the theory of planned behavior

One of unintended outcomes of this research was to find that theory of planned behavior holds quite well for most constructs but not for others. For constructs such as the normative beliefs, there seems to be quite similar to the subjective norm construct. This causes two plausible explanations: one explanation is that the belief constructs are not formed correctly and therefore could be a limitation or an instrumentation error that went unnoticed. The second explanation could be that in a disclosure context, the beliefs of a subject are highly correlated with the related attitude because unethical behavior tends to overwhelm the information processing.

Though this study does not recommend any changes to the theory of planned behavior, it is clear that there needs to be further investigation using this theory for other disclosure studies.

The actual behavior measures were quite different in this study. This study promotes the use of multiple dichotomous items to capture the actual behavior of interest. Rather than asking whether a subject will do a particular behavior (which to a certain extent measures intent and not behavior) or to what extent the subject will do a behavior. Direct questioning about whether the particular behavior was done, is a better approach (Armitage and Conner, 2001).

7.3. Limitations

As with any other study, there are limitations that affect the results and conclusions of this study. The limitations for this study are primarily based on the sample that was used. The student sample is said to be not generalizable and not a realistic sample. Though the context of unethical behavior was selected and designed to be pertinent to the student subject, the homogeneity of the sample and the inherent difference from a business environment makes it difficult to generalize outside a college setting. Since the study intends to understand the effects of a disclosure scenario, only the salience of the disclosure behavior to the sample should be of interest.

The other shortcomings of this study is the experimental nature of the study (McGrath, 1982). Experimental studies do not have the generalizability as compared to field studies, however, the controlled environment provides a solid test of precision of results. Dennis and Valacich (2001) have mentioned that experiments are not intended to show generalizable results, but an accumulation of experimental studies with a range of manipulations can be generalizable.

Another limitation based on the experimental setting is the manipulation of the sensitive behavior that was solicited. The degree of difference between digital piracy and academic cheating was not expected, however, the difference may have caused some unexpected factors to come to prominence.

7.4. Future research

The current study showed that disclosure apprehension is a central thought to the disclosure scenario. When disclosure is explored from the vantage of a legal system,

there is a process that is followed to understand unethical behavior. The process of interrogation is a lengthy process that has not been considered for this study because of the time constraints it places on data collection. If more disclosure would be obtained by an adaptive questionnaire (similar to those on standardized aptitude tests) then a whole new array of possibilities will open up.

As mentioned above, understanding disclosure as a process of communication events, will enable a brand new perspective on this research. In other words if you consider a situation that has a person who has committed an unethical act and a researcher who is interested in that act, for which the series of negotiations that will ensue maybe assisted by technology.

Future research should also try to use this study to understand the impact of other unethical behaviors and their responses to disclosure apprehension and actual disclosure behavior. The range of behaviors should be measured using alternate theoretical reference to decide what is unethical behavior and how to rate unethical behavior.

7.5. Conclusion

The focus of this study is to understand the effect of different media characteristics when the information of interest is disclosure of sensitive behavior. The narrow research field of disclosure has been introduced to information systems research with a convenient handle called disclosure apprehension. Using the impact of media and the range of sensitive behaviors, this study has put together a coherent research model and tested it to show that media impact is present, however with a caveat. Media

influences can be overwhelmed depending on the type of sensitive behavior that is solicited and certain individual traits can also affect the disclosure behavior.

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Appendix A

Definitions of Sensitive Information

Definitions of Sensitive Information

Information maintained by [University] agencies that requires special precautions to protect it from unauthorized modification or deletion. Sensitive information may be either public or confidential. It is information that requires a higher than normal assurance of accuracy and completeness. The controlling factor for sensitive information is that of integrity. http://ist.uwaterloo.ca/security/position/bcp/gloss.html accessed on March 13, 2008.

Information that, as determined by a competent authority, must be protected because its unauthorized disclosure, alteration, loss, or destruction will at least cause perceivable damage to someone or something. http://www.kernel.org/pub/linux/libs/security/Orange-Linux/refs/Orange/Orange0-5.html accessed on March 13, 2008.

Privileged or proprietary information which, if compromised through alteration, corruption, loss, misuse, or unauthorized disclosure, could cause serious harm to the organization owning it. http://www.businessdictionary.com/definition/sensitive-information.html accessed on March 13, 2008.

Sensitive information is information or knowledge that might result in loss of an advantage or level of security if revealed (disclosed) to others who might have low or unknown trustability and/or indeterminable or hostile intentions. http://en.wikipedia.org/wiki/Information_sensitivity accessed on March 13, 2008.

Appendix B

Pre – test Questionnaire

Pre – test Questionnaire

Researcher: John Mathew (Information Systems department)

Cover letter / consent script:
Thank you for your participation in this research. This survey is designed to collect information about your perceptions of a given communication medium. Communication media (i.e. e-mail, instant messenger, telephone, face to face, video conference, written letters, etc.) possess certain characteristics that may make one medium preferable to another depending on the message that needs to be conveyed, or the intentions of the communicators. The specific message of interest for this research study is disclosure of unethical behavior. I intend to explore the impact of information systems on how people disclosure their sensitive behaviors.

This survey should take between 15 and 25 minutes. Please set aside an appropriate time to complete the survey. You may get up during the survey for a short break to stretch your legs, get a drink, etc.

This data collection has been approved by the WSU Institutional Review Board. Your responses will remain anonymous. In order to ensure complete anonymity I will ask you to answer a few of the sensitive questions based on coin that you will flip. Therefore, for the first section there will be two parts:

1. You will flip the coin twice for Part 1. If you get head's on either of the toss then you'll answer the Q1 and if you get tails on both tosses then you will answer Q2. NO ONE other than you should know what the results of the coin flip were. Then on the SEPARATE paper or website provided enter Yes or No for the question. As you will notice, there is no way that anyone can trace any of your answers to you because the question you answered depends on the coin flip!
2. For part 2 you enter on the questionnaire provided the number of questions that are true for you.

Since you are receiving class credit for participating, you will need to provide your attendance to your instructor. However, this information will be kept separate from your responses to the survey items. Furthermore, if you do not need the credit for a class, you do not need to do anything. You may also choose not to participate.

Section 1

Part 1 (only answer one of the questions with a 'Yes' or 'No')

Question (heads on either flip)	Did you cheat on exams?	Enter Yes or No here
OR		
Question (tails on both flips)	Would you like to travel abroad?	

Part 2

Question: how many of these statements are true? (enter only the number of statements on the separate sheet provided)	I would like to travel abroad. I like chocolate very much. I like to see movies on a big screen. I have illegally copied software at least once over the last year. I like to play online games. I have a cell phone.	Enter a number here

Section 2

As with many surveys, the statements that you will respond to will seem repetitive, even identical. While this may seem to be the case, it is important that you respond to each item individually, not based on how you responded to a previous statement. Please answer each item as honestly as you can. Again, thank you for your participation.

Part 1

This part consists of questions that are about you

1. I often wonder what hidden reason another person may have in doing something for you							
Strongly disagree	☐	☐	☐	☐	☐	☐	☐ Strongly Agree
2. I am sure I get a raw deal from life							
Strongly disagree	☐	☐	☐	☐	☐	☐	☐ Strongly Agree
3. People often disappoint me							
Strongly disagree	☐	☐	☐	☐	☐	☐	☐ Strongly Agree
4. I am sure I have been talked about behind my back							
Strongly disagree	☐	☐	☐	☐	☐	☐	☐ Strongly Agree
5. People have said insulting and unkind things about me							
Strongly disagree	☐	☐	☐	☐	☐	☐	☐ Strongly Agree
6. Most people make friends because friends are likely to be useful to them							
Strongly disagree	☐	☐	☐	☐	☐	☐	☐ Strongly Agree
7. I have often felt that strangers were looking at me critically.							
Strongly disagree	☐	☐	☐	☐	☐	☐	☐ Strongly Agree

8. I have often found people jealous of my good ideas just because they had not thought of them first.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

9. Most people will use somewhat unfair means to gain profit or an advantage, rather then lose it.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

10. I tend to be on my guard with people who are somewhat more friendly than I expected.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

11. I often feel as if people aren't being completely truthful with me.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

12. Most people only tell you what they think you want to hear.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

13. When I am in a conversation with someone, I frequently wonder whether they are really telling me the truth.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

14. People rarely tell you what they're really thinking.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

15. When I first meet someone, I assume that they are probably lying to me about some things.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

16. Most people are basically honest

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

17. Anyone who completely trusts someone else is asking for trouble

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

18. When I ask a stranger for directions, I frequently wonder whether they are being truthful.

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

19. People seldom lie to me

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

20. Most people follow the saying "honesty is the best policy"

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

I see Myself as Someone Who...
21. … Is talkative Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
22. ... Tends to find fault with others Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
23. ... Does a thorough job Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
24. ... Is depressed, blue Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
25. ... Is original, comes up with new ideas Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
26. ... Is reserved Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
27. ... Is helpful and unselfish with others Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
28. ... Can be somewhat careless Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
29. ... Is relaxed, handles stress well Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
30. ... Is curious about many different things Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
31. ... Is full of energy Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
32. ... Starts quarrels with others Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
33. ... Is a reliable worker Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
34. ... Can be tense Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
35. ... Is ingenious, a deep thinker Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
36. ... Generates a lot of enthusiasm Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
37. ... Makes plans and follows through with them

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
38. ... Has a forgiving nature Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
39. …Gets nervous easily Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
40. ... Tends to be disorganized Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
41. … Likes to reflect, play with ideas Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
42. ... Worries a lot Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
43. …Has few artistic interests Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
44. ... Has an active imagination Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
45. …Likes to cooperate with others Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
46. ... Tends to be quiet Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
47. …Is easily distracted Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
48. ... Is generally trusting Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
49. … Is sophisticated in art, music, or literature Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
50. ... Tends to be lazy Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
51. ... Is emotionally stable, not easily upset Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
52. ... Is inventive Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
53. ... Has an assertive personality Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
54. ... Can be cold and aloof

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
55. ... Perseveres until the task is finished Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
56. ... Can be moody Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
57. ... Values artistic, aesthetic experiences Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
58. ... Is sometimes shy, inhibited Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
59. ... Is considerate and kind to almost everyone Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
60. ... Does things efficiently Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
61. ... Remains calm in tense situations Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
62. ... Prefers work that is routine Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
63. ... Is outgoing, sociable Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
64. ... Is sometimes rude to others Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
65. Computers do NOT scare me at all Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
66. Working with a computer makes me nervous Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
67. I do NOT feel threatened when others talk about computers Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
68. It would NOT bother me to take computer courses Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
69. Computers make me feel uncomfortable Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
70. I feel at ease in a computer class Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
71. I get a sinking feeling when I think of trying to use a computer

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree	
72. I feel comfortable working with a computer Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree	
73. Computers make me feel uneasy Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree	

Part 2
Please answer these questions about unethical behavior:

74. I think that pirating software (or other digital content) is unethical Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
75. I think that cheating on exam is an unethical behavior Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Part 3
In this section, evaluate the communication medium (paper questionnaire is your current medium of communication) on its ability to enable the sender to rehearse or 'fine tune' the message before sending it. For example, in a face to face communication context, it is likely to be impossible to rehearse or edit your message while you're sending it. On the other hand, in a written letter, editing the letter to ensure its intended meaning is expressed exactly is possible and preferable. With this in mind please answer the following:

76. I can edit my message before sending it using [the medium]. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
77. Before sending a message using [the medium] I can edit it to make sure my intended meaning is conveyed. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
78. [The medium] allows me to rehearse my message before sending it. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
79. [The medium] allows message editing to occur before sending the message. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
80. Before sending a message using [the medium] I cannot edit it to make sure my intended meaning is conveyed. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Part 3
This part has questions that evaluate the communication medium (paper questionnaire is your current medium of communication) on its ability to enable the receiver to reexamine or process it a later time. For example, during a face to face conversation, the message itself is fleeting and cannot be directly

reexamined. On the other hand, with a written letter, the message can be read and reread over and over again before responding to it. With this in mind please answer the following:

81. [The medium] allows me to process a message several times while reading. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
82. While reading, [the medium] allows me to process a message multiple times. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
83. It is possible to process a message over and over while reading using [the medium]. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
84. During a communication event, I can process a message multiple times when using [the medium]. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
85. I can process a message many times during a communication event when using [the medium]. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Part 4

This part has questions that evaluate the communication medium (paper questionnaire is your current medium of communication) on its ability to respond and cooperate with your needs to communicate. For example, during a face to face conversation, the person you are talking to will respond and cooperate with you. On the other hand, with a written letter, there is hardly any responsiveness or cooperation. With this in mind please answer the following:

86. The medium helped me choose freely what question I wanted to see and answer Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
87. While using the medium, I had absolutely no control over what I can do with it. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
88. The medium is effective in gathering feedback. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
89. The medium makes me feel it wants to listen to its users/students. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
90. Getting information from the medium is very fast. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
91. I was able to obtain the information I want without any delay. Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Part 5

This part has questions that evaluate how you felt about answering the sensitive questions at the very beginning (Section 1) about exam cheating.

92. I believe that it is not my responsibility to maintain a code of conduct Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
93. I believe that it is impossible to make me responsible for what other did Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
94. I believe it is impossible to monitor what others are doing Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
95. I believe it is impossible to see what others are doing Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
96. I believe that people don't know each other so well Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
97. I believe that the group/class is large enough that what I say or do can not be traced back to me Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
98. I believe that it is possible to identify me using this system Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
99. I believe that the system could malfunction and identify my responses Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
100. I was usually worried about making a good impression Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree
101. I'm usually concerned about what others thought of me Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly Agree

Thank you very much. Have a great summer!

Appendix C

Exploratory Factor Analysis (Pilot test)

Exploratory Factor Analysis (Pilot test)

Rotated Component Matrix (a)

	Component						
	1	2	3	4	5	6	7
Persist1	**.772**	.025	.035	-.004	.091	.040	-.024
Persist2	**.878**	-.029	.083	.126	.059	-.051	-.037
Persist3	**.901**	.023	.051	.142	.024	-.032	-.019
Persist4	**.729**	-.027	.103	.180	.011	-.172	-.048
Persist5	**.898**	.059	.016	.129	.048	.027	.000
Persist6	**.735**	.077	.036	-.002	.010	.150	.003
Persist7	**.698**	-.055	.048	.174	.091	-.033	-.069
Persist8	-.032	-.042	-.013	-.027	-.081	**.830**	.250
Persist9	.019	-.009	-.070	-.042	-.076	**.862**	.164
Interact1	.022	.033	-.045	**.665**	.259	.065	-.111
Interact2	.010	.089	-.039	-.041	-.289	**.587**	-.047
Interact3	.181	.045	.002	**.706**	.084	-.043	-.022
Interact4	.042	.099	.012	**.730**	.067	.174	-.004
Interact5	.197	-.080	.021	**.717**	-.002	-.180	.080
Interact6	.216	-.083	.164	**.702**	.053	-.226	-.073
SubNorm1	.074	**.847**	.028	.025	-.014	-.139	.116
SubNorm2	.017	**.870**	.077	.033	.061	-.135	.075
SubNorm3	-.022	**.786**	.110	.015	-.080	.102	.061
PBControl1	.079	.011	.129	.136	**.816**	-.056	.007
PBControl2	.111	.065	.130	.167	**.812**	-.188	.001
PBControl3	.087	.098	.113	.121	**.794**	-.189	-.069
DisApp1	.006	**.693**	.209	.020	.248	.134	-.322
DisApp2	-.021	**.677**	.123	-.061	.149	.238	-.361
DisApp3	.087	.294	.191	-.036	.350	.077	**-.591**
DisApp4	-.039	-.015	-.052	-.055	.091	.175	**.760**
DisApp5	-.062	.108	-.070	-.071	.000	.229	**.782**
intent1	.104	.158	**.953**	.042	.128	-.034	-.088
intent2	.113	.135	**.951**	.045	.151	-.048	-.088
intent3	.104	.149	**.958**	.030	.133	-.060	-.096

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 7 iterations.

Appendix D

Experimental Script

Experimental Script

Greeting and Introductions:

•Subjects will enter the behavioral laboratory and sign their name to a sign-up sheet.

Script:

Hi my name is John Mathew and I'm a doctoral student in the IS dept school and I will be assisting you today with this experiment. If you have any question please don't hesitate to ask me.

Today we are going to engage in finding some behaviors that people exhibit using different kinds of technology. You will be asked questions about some of your behaviors and then later you'll be asked to do a brief survey regarding your perceptions. This data collection has been approved by the WSU Institutional Review Board. Your responses will remain anonymous.

I would like to stress a key point that is you are not being tracked or monitored for this particular research study. Just to ensure this I will provide a single, general login and password common to everyone in class. Please login using these credentials now.

[Present the common login and password. Wait till everyone has logged in]

What this common login and password means is that I will not know who provided what response. Also all monitoring services on your machines and at the instructor's podium are switched off. Just to make sure that you know I shall leave the projector connected to the instructor machine on. This will ensure that you can see what is running on this machine. The cameras in this room are also switched off right now.

I will now present the web link for the study. When you are done, you are free to leave, otherwise please sit quietly and do some other work.

[Present the experiment link.]

Thank you very much for opting to do this study!

[After 30 minutes, please ensure that everyone logs off using the common account and logs back in using their own account.]

Appendix E

Means and Standard Deviations of the five personality factors (Big Five)

Means and Standard Deviations of the Individual Differences with ANOVA across type of unethical behavior

Individual difference	Digital piracy		Academic cheating		F-test	p - value
	Mean	Std Dev	Mean	Std Dev		
Neuroticism	4.191	0.517	4.233	0.549	0.476	0.491
Agreeableness	4.297	0.567	4.302	0.499	0.007	0.934
Extraversion	4.653	0.513	4.619	0.514	0.322	0.571
Conscientiousness	5.040	0.507	4.994	0.542	0.566	0.453
Openness	4.772	0.502	4.726	0.518	0.620	0.432

Means and Standard Deviations of the model factors with ANOVA across type of unethical behavior

Variable	Type of unethical behavior solicited				F-test	p - value
	Digital (N=147)		Academic (N=151)			
	Mean	SD	Mean	SD		
Persistence	5.68	1.44	5.85	1.25	1.47	0.26
Interactivity	5.06	1.33	5.12	1.31	0.22	0.63
Subjective Norm	3.40	1.48	3.44	1.51	0.04	0.83
Disclosure Apprehension	4.11	1.35	3.94	1.58	1.00	0.32
PBC	5.73	1.11	5.36	1.30	6.78	0.01
Intention	5.27	1.84	5.12	1.31	1.24	0.29

Significant model constructs that differed across individual differences and across type of unethical behavior.

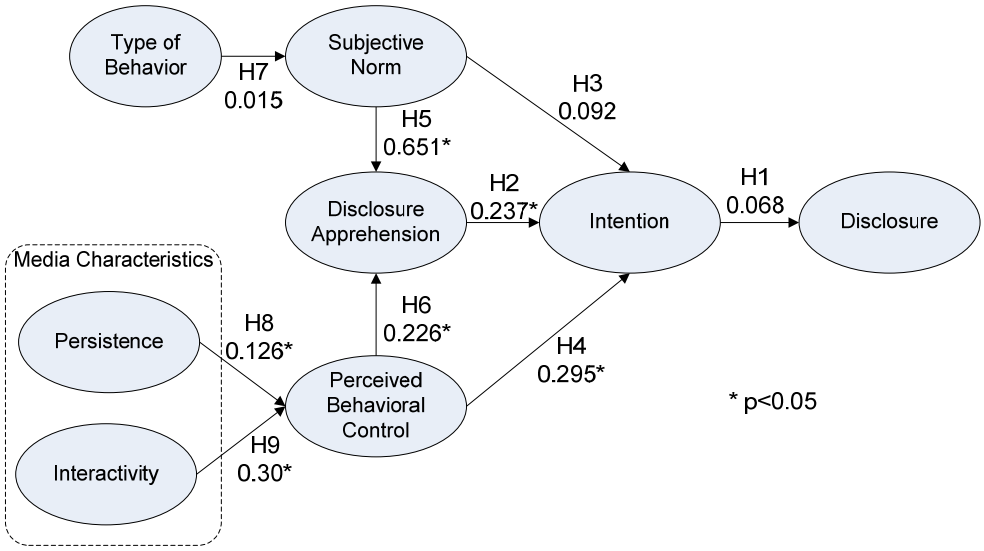
	Digital	Academic	ANOVA - p values
Low Neuroticism			
PBC	5.83	5.113	0.00
Intention	5.199	4.351	0.02
High Neuroticism			
none			
Low Agreeableness			
none			
High Agreeableness			
PBC	5.775	5.289	0.002
Intent	5.429	4.8	0.073
Low Extraversion			
PBC	5.719	5.324	0.027
High Extraversion			
Persistence	5.597	6.032	0.094
Intention	5.42	4.699	0.053
Low Conscientiousness			
none			
High Conscientiousness			
PBC	5.886	5.433	0.025
Intention	5.491	4.807	0.046
Low Openness			
Persistence	5.352	5.852	0.017
High Openness			
PBC	5.858	5.473	0.053
Intention	5.653	4.951	0.034

Appendix F

Structural Equation Model Results

Structural Equation Model Results

Factor		Estimates	Std. Error	Std. Loadings
Latent	Observed			
Intention	INTENT1	1	0	0.978
	INTENT2	1.016	0.013	0.998
	INTENT3	1.019	0.014	0.993
Subjective Norm	SN1	1	0	0.809
	SN2	1.138	0.065	0.817
	SN3	1.169	0.057	0.914
Disclosure Apprehension	DISAPP1	1	0	0.671
	DISAPP2	1.067	0.091	0.713
	DISAPP3	1.386	0.098	0.894
	DISAPP4	1.393	0.098	0.899
Perceived Behavioral Control	PBC1	1	0	0.705
	PBC2	1.042	0.086	0.718
	PBC3	1.31	0.093	0.865
	PBC4	1.273	0.091	0.845
Persistence	PERSIST1	1	0	0.783
	PERSIST2	1.167	0.06	0.911
	PERSIST3	1.172	0.056	0.973
	PERSIST4	1.102	0.063	0.84
Interactivity	INTERAC1	1	0	0.621
	INTERAC2	1.202	0.117	0.753
	INTERAC3	1.282	0.124	0.847
Disclosure Behavior	NOMINAL1	1	0	0.358
	NOMINAL2	2.195	1.203	0.784
	NOMINAL3	0.666	0.21	0.262
Variances				
Persistence with Interactivity		0.499	0.091	0.408


Type of Behavior
H7
0.015
Subjective Norm
H3
0.092
H5
0.651*
Disclosure Apprehension
H2
0.237*
Intention
H1
0.068
Disclosure
Media Characteristics
Persistence
H8
0.126*
H6
0.226*
H4
0.295*
Perceived Behavioral Control
* p<0.05
Interactivity
H9
0.30*

Appendix G

MPlus Code

MPlus code for Measurement Model

```
TITLE:  this is the measurement model for the disclosure model (Spring 08)

DATA:
FILE IS "C:\Documents and Settings\10634127\My Documents\dissertation\data\
MPlus\Spring\Spring08-nominal1.csv";

VARIABLE:
  NAMES ARE ISACADEM intent1-intent3 Extra1 Agree1 Cons1 Neuro1 Open1 Extra2
  Agree2 Cons2 Neuro2 Open2 Extra3 Agree3 Cons3 Neuro3 Open3 Extra4 Agree4
  Cons4 Neuro4 Open4 Extra5 Agree5 Cons5 Neuro5 Open5 Extra6 Agree6 Cons6
  Neuro6 Open6 Extra7 Agree7 Cons7 Neuro7 Open7 Extra8 Agree8 Cons8 Neuro8
  Open8 Open9 Agree9 Cons9 Open10 PERSIST1-PERSIST4 INTERAC1-INTERAC3
  ANON1-ANON4 DISAPP1 DISAPP2 PBC1-PBC3 SN1-SN4 PBC4 PBC5 DISAPP3-DISAPP5
  nominal1-nominal3;

  USEVARIABLES ARE intent1-intent3 PERSIST1-PERSIST4
  INTERAC1-INTERAC3 DISAPP1 DISAPP2 PBC1-PBC3 SN1-SN4 PBC4 PBC5
  DISAPP3 DISAPP4 nominal1-nominal3;

MODEL:
      f1 BY intent1-intent3;
      f2 BY SN1-SN4;
      f3 BY DISAPP1 DISAPP2 DISAPP3 DISAPP4;
      f4 BY PBC1-PBC3 PBC4 PBC5;
      f5 BY PERSIST1-PERSIST4;
      f6 BY INTERAC1-INTERAC3;
      f7 BY nominal1-nominal3;

ANALYSIS: TYPE = GENERAL;
      ESTIMATOR IS WLSMV;
      ITERATIONS = 10000;
      CONVERGENCE = 0.00005;

OUTPUT: MODINDICES(4) STANDARDIZED;
```

MPlus Code for Structural Regression Model

```
TITLE:  this is the structural Eq model for the disclosure model (Spring 08)

DATA:
FILE IS "C:\Documents and Settings\10634127\My Documents\dissertation\data\
MPlus\Spring\Spring08-nominal1.csv";

VARIABLE:
  NAMES ARE ISACADEM intent1-intent3 Extra1 Agree1 Cons1 Neuro1 Open1 Extra2
  Agree2 Cons2 Neuro2 Open2 Extra3 Agree3 Cons3 Neuro3 Open3 Extra4 Agree4
  Cons4 Neuro4 Open4 Extra5 Agree5 Cons5 Neuro5 Open5 Extra6 Agree6 Cons6
  Neuro6 Open6 Extra7 Agree7 Cons7 Neuro7 Open7 Extra8 Agree8 Cons8 Neuro8
  Open8 Open9 Agree9 Cons9 Open10 PERSIST1-PERSIST4 INTERAC1-INTERAC3
  ANON1-ANON4 DISAPP1 DISAPP2 PBC1-PBC3 SN1-SN4 PBC4 PBC5 DISAPP3-DISAPP5
  nominal1-nominal3;

  USEVARIABLES ARE ISACADEM intent1-intent3 PERSIST1-PERSIST4
```

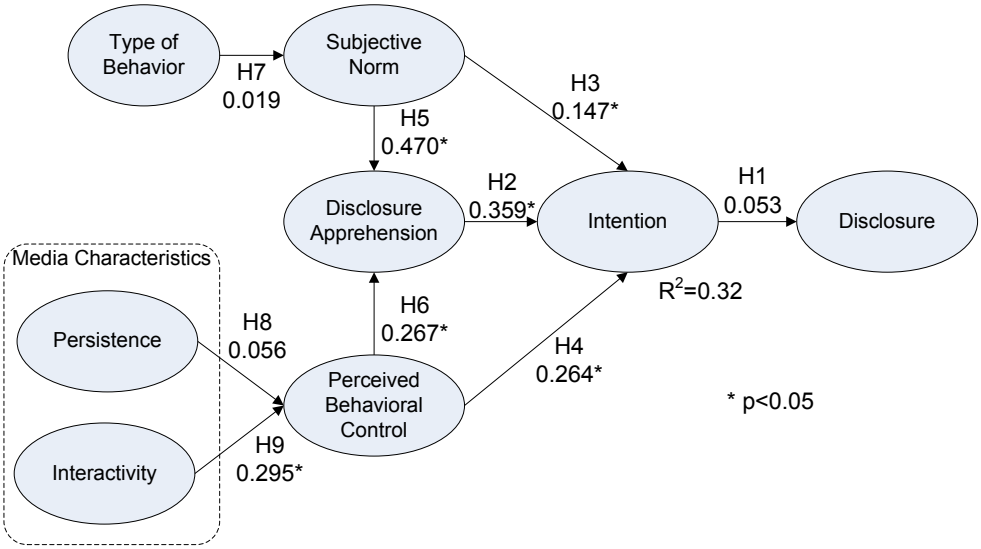
```
 INTERAC1-INTERAC3 DISAPP1 DISAPP2 PBC1-PBC3 SN1-SN4 PBC4 PBC5
 DISAPP3 DISAPP4 nominal1-nominal3;

MODEL:
      f1 BY intent1-intent3;
      f2 BY SN1-SN4;
      f3 BY DISAPP1 DISAPP2 DISAPP3 DISAPP4;
      f4 BY PBC1-PBC3 PBC4 PBC5;
      f5 BY PERSIST1-PERSIST4;
      f6 BY INTERAC1-INTERAC3;
      f7 BY nominal1-nominal3;

      f1 ON f2 f3 f4;
      f3 ON f2 f4;
      f2 ON ISACADEM;
      f4 ON f5 f6;
      f7 on f1;

ANALYSIS: TYPE = GENERAL;
      ESTIMATOR IS WLSMV;
      ITERATIONS = 10000;
      CONVERGENCE = 0.00005;

OUTPUT: MODINDICES(4) STANDARDIZED;
```

Appendix H

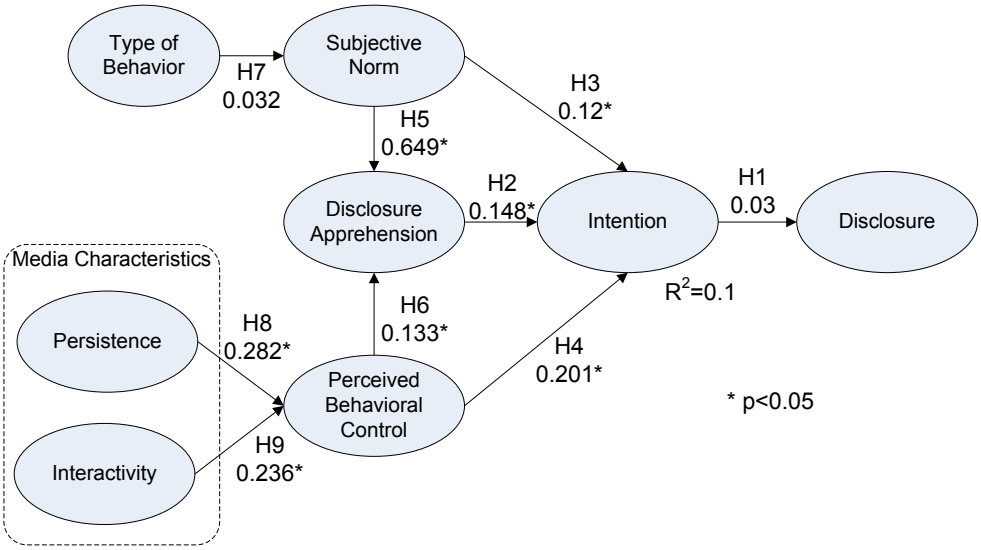
Models using Individual Differences

Models using Individual Differences

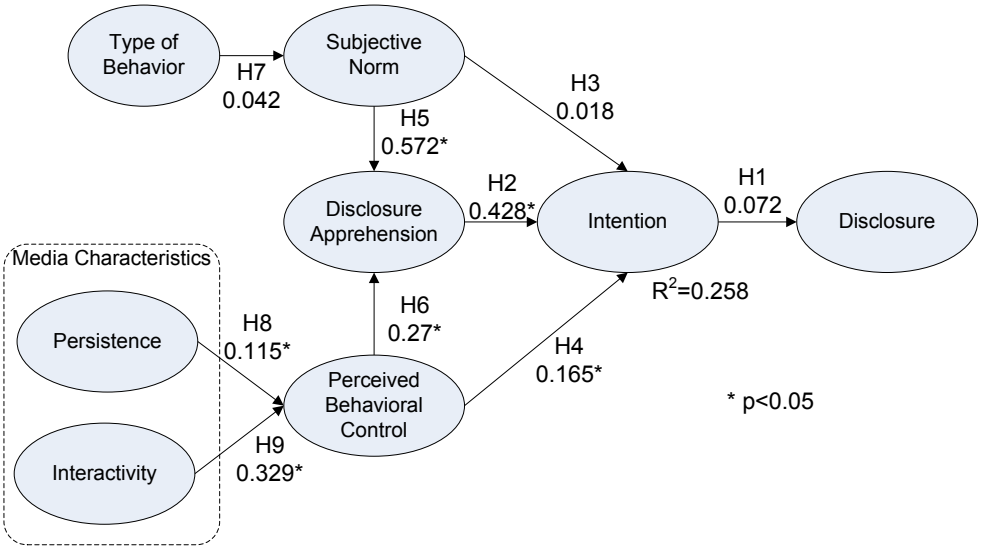
Low Neuroticism data set



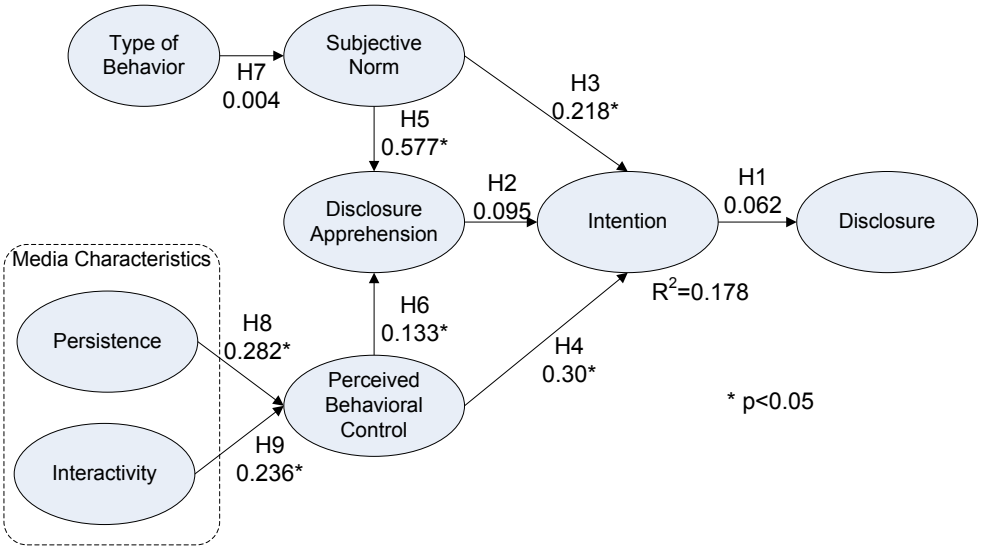
High Neuroticism data set



Low Openness to Experience data set



High Openness to Experience data set

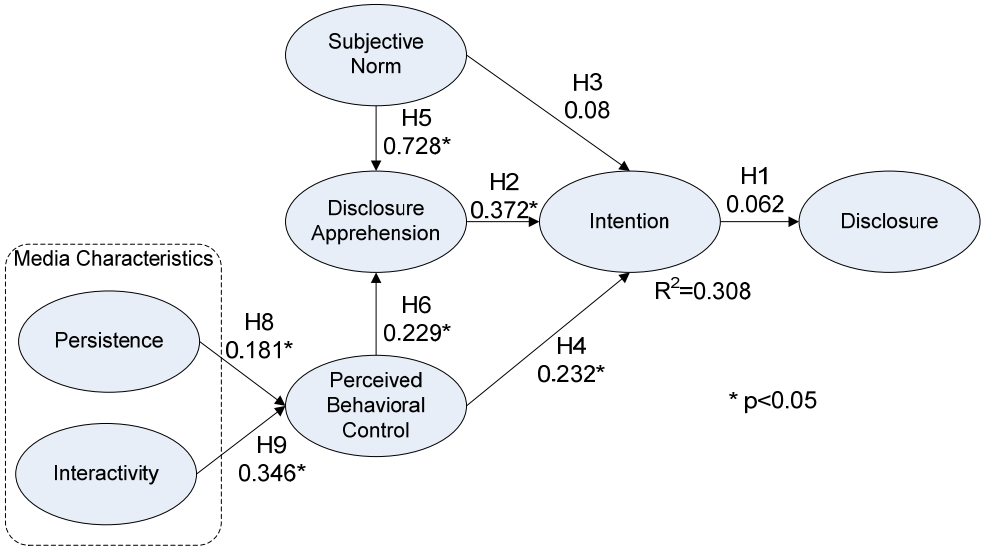


Appendix I

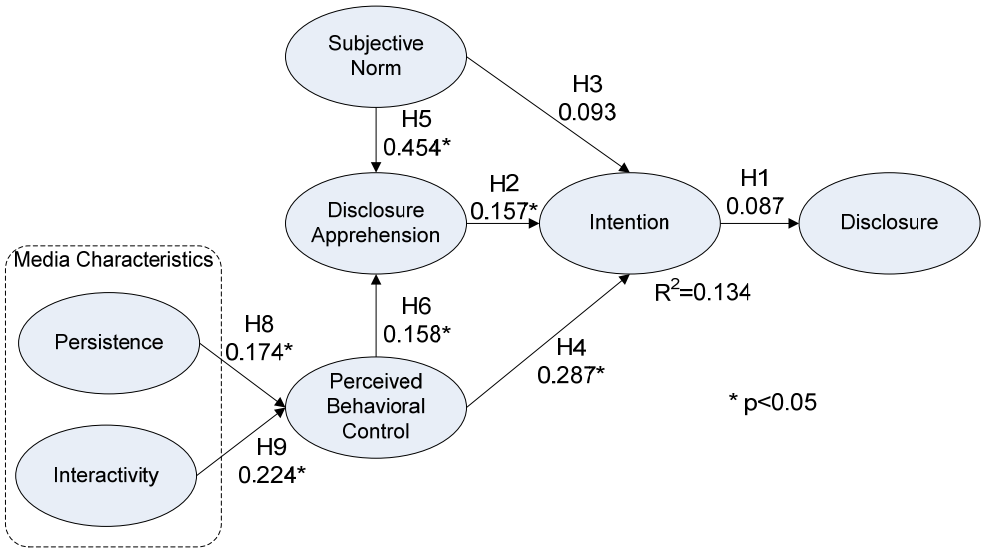
Models separated by type of unethical behavior

Models separated by type of unethical behavior

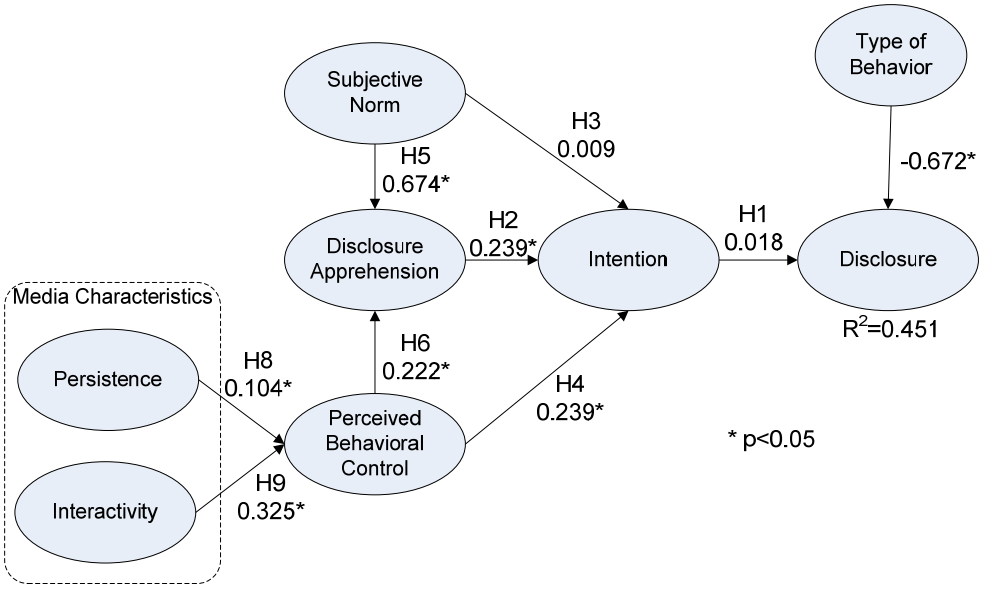
Academic cheating sample



Digital Piracy sample



Alternate Model



Appendix J

Pilot and Experiment Questionnaire Items

Individual differences items (John and Srivastava, 1999) – Big Five

I see Myself as Someone Who...

1. … Is talkative
2. ... Tends to find fault with others
3. ... Does a thorough job
4. ... Is depressed, blue
5. ... Is original, comes up with new ideas
6. ... Is reserved
7. ... Is helpful and unselfish with others
8. ... Can be somewhat careless
9. ... Is relaxed, handles stress well
10. ... Is curious about many different things
11. ... Is full of energy
12. ... Starts quarrels with others
13. ... Is a reliable worker
14. ... Can be tense
15. ... Is ingenious, a deep thinker
16. ... Generates a lot of enthusiasm
17. ... Makes plans and follows through with them
18. ... Has a forgiving nature
19. …Gets nervous easily
20. ... Tends to be disorganized
21. …Likes to reflect, play with ideas
22. ... Worries a lot
23. …Has few artistic interests
24. ... Has an active imagination
25. …Likes to cooperate with others
26. ... Tends to be quiet
27. …Is easily distracted
28. ... Is generally trusting
29. …Is sophisticated in art, music, or literature
30. ... Tends to be lazy
31. ... Is emotionally stable, not easily upset
32. ... Is inventive
33. ... Has an assertive personality
34. ... Can be cold and aloof
35. ... Perseveres until the task is finished
36. ... Can be moody
37. ... Values artistic, aesthetic experiences
38. ... Is sometimes shy, inhibited
39. ... Is considerate and kind to almost everyone
40. ... Does things efficiently
41. ... Remains calm in tense situations
42. ... Prefers work that is routine
43. ... Is outgoing, sociable

44. ... Is sometimes rude to others

Scale scoring ("R" denotes reverse-scored items):
Extraversion: 1, 6R, 11, 16, 21R, 26, 31R, 36
Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42
Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R
Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39
Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

Descriptors for the subject on each unethical behavior and the Intention items

Academic cheating

Cheating activities using technology is when a student using any form of technology obtains information that is not created by the student, and does not acknowledge this fact. For example, if you use Ipod or other MP3 players to store answers and playback during an exam. If you use the internet for obtain information and do not site the reference, if you share homework using email or web services. All these are forms of cheating activities using technology

1. I intend to disclose my cheating activity using technology in this lab session
2. I will disclose my cheating activity using technology in this lab session
3. I plan to disclose my cheating activity using technology in this lab session

Digital piracy

Digital piracy is when you duplicate digital content for other people without paying for the new copy that you made. For example, if you take a copy of your music CD that you bought and give to someone else to keep forever, then you have engaged in digital piracy.

1. I intend to disclose my digital piracy activity in this lab session
2. I will disclose my digital piracy activity in this lab session
3. I plan to disclose my digital piracy activity in this lab session

Actual disclosure behavior items using Unmatched Count Technique (UCT)

Innocuous question block:	Sensitive question block:
I would like to travel abroad I like chocolate very much I like to see movies on a big screen I like to play online games I have a cell phone [0]	I would like to travel abroad I have cheated on exams using technology (e.g., MP3 players, PDAs) I like chocolate very much I like to see movies on a big screen I like to play online games I have a cell phone [1]
I like music I have(like to) an ipod	I like music I have(like to) an ipod

I have MySpace / facebook account College makes me broke My car is important to me [2]	I have MySpace / facebook account College makes me broke My car is important to me I have knowingly helped others with exams or homework using email or by posting information on a website(s) [3]
I like to sleep I care about my appearance I prefer name brand clothing I don't put as much time into homework as I should I feel today's society is technology based [4]	I have cheated on homework or on assignments using the internet or other electronic media I care about my appearance I prefer name brand clothing I don't put as much time into homework as I should I feel today's society is technology based I like to sleep [5]
I would like to travel abroad I like to attend parties I like to use the gym (e.g., Student REC) I like chocolate very much I like to see movies on a big screen [6]	I would like to travel abroad I have illegally downloaded music or movies over the last year I like to use the gym (e.g., Student REC) I like chocolate very much I like to see movies on a big screen I like to attend parties [7]
I like to chat with my friends I would like to travel abroad I like music I like student groups/organizations I like to use the internet [8]	I like to chat with my friends I would like to travel abroad I like music I like student groups/organizations I like to use the internet I have distributed copies of my music CDs or ripped CDs for my friends [9]
I like to work part – time I only like some of my teachers/instructors I like animals I like my roommates I like to use the internet [10]	I like to work part – time I only like some of my teachers/instructors I like animals I like my roommates I have illegally copied software at least once over the last year I like to use the internet [11]

Theory of planned behavior items

Academic cheating

Subjective Norm

1. My friends think I should disclose my use of technology for cheating purposes
2. My parents think I should disclose my use of technology for cheating purposes
3. People who influence my behavior would think I should disclose my use of technology for cheating purposes

Perceived Behavioral Control

4. I feel in control in disclosing my use of technology for cheating purposes during this lab session.
5. I know that I do not have to disclose my use of technology for cheating purposes if I do not want to
6. I am in control over what information about my disclosure is collected about me during this lab session

Disclosure Apprehension

7. The advantages of disclosing my use of technology for cheating purposes outweighs the disadvantages
8. Disclosing my use of technology for cheating purposes is to my liking
9. Disclosing my use of technology for cheating purposes is a good idea
10. I like the idea of disclosing my use of technology for cheating purposes
11. I am not afraid to disclose my use of technology for cheating purposes

Digital piracy

Subjective Norm

1. My friends think I should disclose my digital piracy activity
2. My parents think I should disclose my digital piracy activity
3. People who influence my behavior would think I should disclose my digital piracy activity

Perceived Behavioral Control

4. I feel in control about disclosing my digital piracy activity during this lab session
5. I know that I do not have to disclose my digital piracy activity if I do not want to
6. I am in control over what information about my digital piracy activity is collected about me during this lab session

Disclosure Apprehension

7. The advantages of disclosing my digital piracy activity outweighs the disadvantages
8. Disclosing my digital piracy activity is to my liking
9. Disclosing my digital piracy activity is a good idea
10. I like the idea of disclosing my digital piracy activity
11. I am not afraid to disclose my digital piracy activity

Media characteristics items

Persistence

1. I think that the information that I provide during this lab session will be stored somewhere
2. I know that the information that I provide during this lab session will be kept, to be

reviewed later on

3. Whatever information I provide during this lab session will be maintained for later evaluation
4. I know that the information I provide during this lab session is persistent*
5. In this lab session, the information that I provide will be kept on record
6. In this lab session, the information that I provide will be maintained for a long time*
7. It is very easy to store the information that I provide in this lab session*
8. The information that I provide during this lab session can be used against me later on*
9. If the information that I provide during this lab session is incriminating, it will be used against me later on*

Interactivity

10. The survey helped me choose freely what I wanted to see*
11. While using the survey, I had absolutely no control over what I can do with it *
12. This survey is effective in gathering visitors' feedback
13. The survey makes me feel it wants to listen to its visitors*
14. Getting information from the survey is very fast
15. I was able to obtain the information I want without any delay

Nominal items

Academic cheating

1. I have cheated on exams using technology (e.g., MP3 players, PDAs)
2. I have knowingly helped others with exams or homework using email or by posting information on a website(s)
3. I have cheated on homework or on assignments using the internet or other electronic media

Digital piracy

4. I have illegally downloaded music or movies over the last year
5. I have distributed copies of my music CDs or ripped CDs for my friends
6. I have illegally copied software at least once over the last year

* Was not used in the experiment

Appendix K

Model Modification Indices

MODEL MODIFICATION INDICES

			M.I.	E.P.C.	Std E.P.C.	StdYX E.P.C.
BY Statements						
F1	BY	PERSIST1	5.205	-0.06	-0.122	-0.08
F1	BY	PERSIST2	5.689	0.044	0.091	0.06
F1	BY	DISAPP1	11.221	0.133	0.273	0.154
F1	BY	PBC1	83.624	0.467	0.957	0.501
F1	BY	PBC2	4.211	0.069	0.142	0.091
F1	BY	PBC3	4.857	0.075	0.154	0.097
F2	BY	PERSIST3	4.425	-0.049	-0.065	-0.045
F2	BY	INTERAC3	8.692	0.138	0.184	0.118
F2	BY	PBC1	52.046	0.582	0.775	0.406
F2	BY	DISAPP4	4.358	-0.143	-0.191	-0.103
F3	BY	PERSIST3	6.748	-0.069	-0.082	-0.057
F3	BY	INTERAC3	8.262	0.154	0.184	0.118
F3	BY	PBC1	89.348	0.865	1.032	0.54
F3	BY	PBC2	4.47	-0.123	-0.146	-0.094
F3	BY	SN1	6.138	0.172	0.205	0.124
F3	BY	SN3	4.196	-0.118	-0.141	-0.083
F3	BY	PBC5	8.096	0.149	0.178	0.108
F4	BY	INTENT2	5.165	-0.033	-0.036	-0.017
F4	BY	PERSIST2	5.841	0.093	0.102	0.067
F4	BY	PBC1	82.136	0.917	1.006	0.527
F5	BY	INTERAC1	4.271	0.155	0.184	0.111
F5	BY	PBC5	5.568	0.124	0.148	0.089
F6	BY	PERSIST3	5.734	-0.092	-0.095	-0.066
F6	BY	PBC1	21.167	0.514	0.529	0.277
F7	BY	INTENT1	5.28	0.408	0.071	0.034
F7	BY	PERSIST1	5.73	-0.909	-0.159	-0.104
F7	BY	INTERAC3	5.107	-0.976	-0.171	-0.11
F7	BY	DISAPP3	7.459	-1.077	-0.188	-0.102

ON/BY Statements

F2	ON	F1 /				
F1	BY	F2	12.023	0.425	0.655	0.655
F2	ON	F3 /				
F3	BY	F2	11.49	1.091	0.978	0.978
F2	ON	F4 /				
F4	BY	F2	11.437	0.246	0.203	0.203

F2	ON	F6 /				
F6	BY	F2	10.002	0.254	0.196	0.196
F3	ON	F5 /				
F5	BY	F3	4.043	-0.094	-0.094	-0.094
F4	ON	F1 /				
F1	BY	F4	5.892	0.171	0.32	0.32
F4	ON	F2 /				
F2	BY	F4	7.271	0.126	0.153	0.153
F4	ON	F3 /				
F3	BY	F4	5.126	0.167	0.182	0.182
F5	ON	F3 /				
F3	BY	F5	9.353	-0.171	-0.171	-0.171
F5	ON	F4 /				
F4	BY	F5	5.533	2.639	2.432	2.432
F6	ON	F2 /				
F2	BY	F6	13.313	0.163	0.211	0.211
F6	ON	F3 /				
F3	BY	F6	21.444	0.248	0.288	0.288
F6	ON	F4 /				
F4	BY	F6	5.533	9.569	10.207	10.207

ON Statements

F4	ON	ISACADEM	5.533	-0.285	-0.26	-0.13
F7	ON	ISACADEM	29.168	-0.129	-0.735	-0.368

WITH Statements

PERSIST2	WITH	INTENT3	4.343	0.022	0.022	0.007
PERSIST3	WITH	PERSIST1	4.008	-0.083	-0.083	-0.038
PERSIST3	WITH	PERSIST2	14.209	0.218	0.218	0.1
PERSIST4	WITH	PERSIST1	12.391	0.176	0.176	0.074
PERSIST4	WITH	PERSIST2	8.613	-0.133	-0.133	-0.056
INTERAC3	WITH	INTERAC1	5.671	-0.399	-0.399	-0.155
DISAPP1	WITH	PERSIST3	4.092	-0.083	-0.083	-0.033
DISAPP2	WITH	INTERAC1	4.266	-0.203	-0.203	-0.069
DISAPP2	WITH	DISAPP1	17.848	0.421	0.421	0.133
PBC1	WITH	PERSIST2	11.262	0.243	0.243	0.083
PBC1	WITH	PERSIST3	7.099	-0.153	-0.153	-0.056
PBC1	WITH	INTERAC3	4.91	0.257	0.257	0.086
PBC1	WITH	DISAPP1	10.304	0.456	0.456	0.135

PBC1	WITH	DISAPP2	12.987	0.492	0.492	0.144
PBC2	WITH	PERSIST4	5.419	0.132	0.132	0.054
PBC2	WITH	INTERAC1	4.592	-0.189	-0.189	-0.073
PBC2	WITH	INTERAC3	6.138	0.176	0.176	0.073
PBC2	WITH	DISAPP1	5.819	0.21	0.21	0.076
PBC3	WITH	PERSIST2	11.016	0.149	0.149	0.061
PBC3	WITH	PERSIST4	4.1	-0.116	-0.116	-0.047
PBC3	WITH	DISAPP1	4.5	-0.187	-0.187	-0.066
PBC3	WITH	PBC1	14.678	0.474	0.474	0.156
PBC3	WITH	PBC2	7.01	0.216	0.216	0.087
SN1	WITH	DISAPP1	7.888	0.213	0.213	0.073
SN1	WITH	DISAPP2	5.757	0.175	0.175	0.06
SN2	WITH	INTENT2	4.622	-0.034	-0.034	-0.009
SN2	WITH	INTENT3	4.526	0.037	0.037	0.009
SN2	WITH	PERSIST2	10.85	0.141	0.141	0.05
SN2	WITH	PBC1	13.128	0.428	0.428	0.121
SN2	WITH	PBC3	4.023	0.147	0.147	0.05
SN3	WITH	INTENT1	5.93	-0.049	-0.049	-0.014
SN3	WITH	INTERAC1	4.594	-0.13	-0.13	-0.046
SN3	WITH	DISAPP2	10.681	-0.189	-0.189	-0.062
SN4	WITH	INTENT1	8.015	0.055	0.055	0.015
SN4	WITH	INTERAC1	7.982	0.164	0.164	0.057
SN4	WITH	DISAPP1	4.482	-0.122	-0.122	-0.039
SN4	WITH	DISAPP2	7.243	0.149	0.149	0.048
SN4	WITH	SN3	6.329	0.176	0.176	0.059
PBC4	WITH	PERSIST2	4.241	0.08	0.08	0.032
PBC4	WITH	SN4	7.278	0.117	0.117	0.04
PBC5	WITH	PERSIST1	12.144	0.194	0.194	0.077
PBC5	WITH	PERSIST2	12.773	-0.141	-0.141	-0.056
PBC5	WITH	INTERAC1	4.316	0.163	0.163	0.06
PBC5	WITH	DISAPP2	4.585	-0.16	-0.16	-0.054
PBC5	WITH	SN3	5.578	0.109	0.109	0.039
PBC5	WITH	PBC4	5.646	0.268	0.268	0.098
DISAPP3	WITH	PERSIST2	4.533	-0.082	-0.082	-0.029
DISAPP3	WITH	PERSIST3	7.547	0.084	0.084	0.032
DISAPP3	WITH	PERSIST4	4.658	-0.106	-0.106	-0.037
DISAPP3	WITH	DISAPP2	17.589	-0.376	-0.376	-0.114
DISAPP4	WITH	PERSIST3	5.798	-0.073	-0.073	-0.027
DISAPP4	WITH	INTERAC2	4.522	0.143	0.143	0.047
DISAPP4	WITH	DISAPP1	12.729	-0.317	-0.317	-0.097
DISAPP4	WITH	PBC2	7.355	-0.174	-0.174	-0.061

DISAPP4	WITH	SN3	4.185	-0.092	-0.092	-0.029
DISAPP4	WITH	DISAPP3	26.518	0.615	0.615	0.18
NOMINAL1	WITH	PERSIST2	5.191	0.04	0.04	0.054
NOMINAL1	WITH	DISAPP2	6.864	0.088	0.088	0.101
NOMINAL2	WITH	INTENT1	4.037	0.023	0.023	0.022
NOMINAL2	WITH	PERSIST1	5.988	-0.06	-0.06	-0.081
NOMINAL2	WITH	DISAPP3	5.171	-0.058	-0.058	-0.064
NOMINAL2	WITH	DISAPP4	4.007	0.051	0.051	0.056
NOMINAL3	WITH	DISAPP1	4.554	0.069	0.069	0.088
NOMINAL3	WITH	DISAPP4	7.611	-0.066	-0.066	-0.08
F4	WITH	F2	7.468	0.226	0.155	0.155
F5	WITH	F3	8.37	-0.174	-0.122	-0.122
F5	WITH	F4	5.533	2.744	2.1	2.1
F6	WITH	F2	13.313	0.289	0.211	0.211
F6	WITH	F3	9.142	0.178	0.145	0.145
F6	WITH	F4	5.533	9.949	8.812	8.812
ISACADEM	WITH	F4	5.533	-0.071	-0.065	-0.129
ISACADEM	WITH	F7	29.222	-0.032	-0.184	-0.367