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# EFFECTS OF TWO INFORMATION PRIVACY CONCERNS ON STUDENTS' FEELING OF ALIENATION

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## Abstract

*Information-based organizations such as universities engage in the collection and use of personal information about customers such as students. Do students feel concerned about their university's practices related to students' personal data collection and use? What effects do these two concerns have on students' feeling of alienation? Using data collected from a survey of 187 students at a large U.S. university, we investigate the effects of these two privacy concerns on students' alienation. Implications of the results are discussed in light of ethics, strategy, design, control and administration of personal information management systems.*

**Keywords:** Privacy, alienation, data collection, data use, information management, universities, students

## Introduction

As computerized information management systems continue to shape modern organizations, ethical tensions between organizations and individuals affected by organizational practices of personal data collection and use gain heightened importance. These two concerns, data collection and data use, are two of the many concerns individuals have about personal information privacy (Smith et al., 1996). As organizations become more information-based (Drucker, 1988), information related ethical concerns (Mason, 1986) such as privacy become more relevant, creating an urgency to study the antecedents and consequences of privacy issues. A significant amount of literature exists about the antecedents of individuals' privacy concerns, and about legal, social, organizational responses to these privacy concerns. On the basis of Culnan (1993) and Smith et al (1996), individuals' information privacy concern has been defined in this paper as an individuals' level of discomfort, fear of harm, and feeling of loss of control associated with the collection and use of personal information. To understand the effects of privacy concerns in this study, it is necessary to briefly review prior studies on the effects of privacy concerns.

## Prior Studies on Effects of Privacy Concerns

Information privacy concerns have been studied in different technological, organizational and other contexts. Technological contexts include 'yellow journalism' in newspapers (Warren & Brandeis, 1890) and the mass media, databases (Date, 1986; Garfinkel, 2000; Cespedes & Smith, 1993), computer networks (Rotenberg, 1993), the Internet and related technologies such as e-mail (Kent, 1993), software cookies (Berghel, 2001), e-commerce systems and Internet marketing (Wang et al, 1998). Organizational contexts include the U.S. government and its different agencies that create the impression that the U.S. is a database nation (Garfinkel, 2000); different industries in the private sector such as health care (Rindfleisch, 1997) and insurance (Studdert, 1999; Borna & Avila, 1999); data flows in law enforcement and criminal justice systems (Laudon, 1986), as well as educational institutions such as schools (Hancock, 2001) and universities (Sethna & Barnes, 1999).

However, few studies have attempted to build theories and test hypothesized relationships among different dimensions of privacy concern and their effects on specific outcome variables. Examples of outcome variables or consequences of privacy concern that have been theorized and empirically tested indicate that organizational information management practices, individuals' ethical perceptions of these practices, and societal responses are inextricably linked (Culnan, 1993; Milberg et al, 1995; Smith, 1994, and Stone et al., 1983). It has been found that privacy concerns affect an individual's willingness to give personal data to traditional organizations (Culnan et al., 1999) as well as to web-based vendors (Panichpathom, 2000;). Culnan (1993) found that

privacy concern—especially regarding secondary use of data-- was a viable cause of negative public attitude toward organizations engaged in privacy-invasive marketing practices. Milberg et al (1995 & 2000) found that privacy concern led people to support governmental intervention over industry self-regulation. David Vance (2000) found that privacy concern led employment seekers to evaluate some organizations as more attractive than others as a work environment. Alan Westin (1979) studied individual’s attitude toward information privacy in the U. S. and found evidence of individual’s feeling of alienation from society and government in general that could be attributed to privacy-invasive data collection and related practices. The constructs used in this study, their definitions and sources are summarized in Table 1.

**Table 1. Summary of Constructs and Their Sources**

Construct	Definition	References
(X1)Collection	“Concern that extensive amounts of personally identifiable data are being collected and stored in databases”(Smith et al., 1996)	HEW, 1973 Laudon, 1986 Linowes, 1989 Miller, 1982 PPSC, 1977 Stone, et al., 1983 Stone and Stone, 1990 Westin and Baker, 1972
*(X2)Unauthorized Secondary Use (internal)	“Concern that information is collected from individuals for one purpose but is used for another, secondary purpose (internally within a single organization) without authorization from the individuals.” (Smith et al., 1996)	HEW, 1973 Linowes, 1989 PPSC, 1977 Stone, et al., 1983
*(X2)Unauthorized Secondary Use (external)	“Concern that information is collected for one purpose but is used for another, secondary purpose after disclosure to an external party (not the collecting organization)”(Smith et al., 1996).	Culnan, 1993 Linowes, 1989 Stone et al., 1983 Tolchinsky et al., 1981 Westin and Baker, 1972
(Y)Alienation	The degree to which a consumer has negative beliefs and is alienated from universities in general with respect to personal information management practices.	Allison, 1978. Singh, 1988,1990, 1996

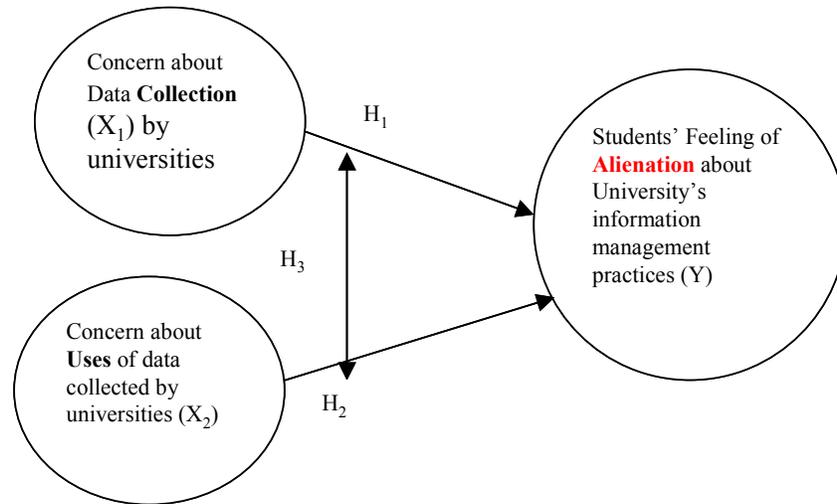
\*In the current study both internal and external secondary, unauthorized use of data have been put together in one construct, X<sub>2</sub>, which measures one’s concern about inappropriate use of data.

## Research Model

In the current study, a large U.S. university represents what Peter Drucker (1988) would call an ‘information-based’ organization and students would represent individual customers of that information-based organization. As presented in the research model in Figure 1, we attempt to theorize and empirically test the effects of two independent variables—students’ concern about data collection (X<sub>1</sub>), and concern about data use (X<sub>2</sub>)—on students’ feeling of being alienated by their university’s practices related to personal data collection and use (Y).

### Organization Theory and Alienation (Y)

Students’ feeling of alienation about their university can be viewed as a prototypical example of the relationship between an organization and customers who have been internalized (Thompson, 1967) by their organization. A customer who has been internalized by an organization is characterized by a sense of belonging and membership to an organization and a sense of dependence on the organization in contrast with a customer who maintains the freedom to leave an organization more quickly and easily. In the context of an existing relationship between an organization and its internalized customers, members have a sense of belonging (Barnard, 1938) and membership (Simon, 1976), and mutual dependency (Donaldson, 1975). Internalized customers who carry out their transactions with their organization in the context of a reciprocal relationship operate on the basis of an expect-



**Figure 1. The Research Model**

tation of good faith that their organization will be ethical, trustworthy, procedurally fair and just in how it treats them and manages their personal information. *Alienation* can be viewed as a feeling that arises when students' positive sense of belonging and membership turns sour or bitter and they perceive that their positive expectations are unfulfilled, ignored, neglected, violated or abused by their organization. Prior research indicates that individuals are more likely to perceive information collection procedures as privacy-invasive when the information is collected from someone who is not in the context of an existing relationship with the collecting organization (Stone & Stone, 1990) As such it is expected that students, when their university asks them for personal information, will not have high privacy concerns as non-students or strangers might have. For this reason, a relationship between students' privacy concerns and their feeling of alienation about their university's information management practices is expected to be mild. This is why the effect of students' privacy-concerns,  $X_1$  and  $X_2$ , on their perception of alienation ( $Y$ ) from the university is expected to be significant but mild unless there are exceptionally privacy-invasive practices at a university.

### Information-Based Organizations

We have chosen to study the effects of privacy concerns in the context of a relationship between students and their university because of the information-intensive nature of these organizations. Peter Drucker (1988) predicted that organizations of the future would become increasingly information-based such as hospitals and universities. Organizations such as universities are expected to be conscience-carriers (Mason et al 1995, p.196), moral agents (Mason et al., 1995; p.198-200) in how they use information-power (Mason et al., 1995; p.996) over different stakeholders (Freeman, 1984; Smith, 1994). Sources of power include information-based organizations' ability to collect, access, store, possess, legally own, control, share, communicate and buy or sell information about different stakeholders such as students. Organizations are networks among individuals within and around an invisible legal entity. As such, different parties to the social network can be subjected to indignity, injustice and harm because of what information-based organizations do or fail to do with regard to customers' personal information management practices. The attitude that an affected party develops, such as a feeling of alienation, is not so much toward an individual employee of the organization, as toward the organization as a whole because students might not know the exact point within the organizational hierarchy or processes where responsibility should be placed and where their feeling of alienation should be directed to.

### Constructs and Hypotheses

#### Organizational Ethics, Records Management and Alienation

Customers evaluate organizational practices according to their ethical and moral concepts and form judgments as to whether a particular practice should be viewed as good for their well being or should be viewed as an expression of lack of professional care and ethical responsibility on the part of the organization. Ethical tensions in the domain of organizational information management systems develop from conflicts between the differing and, often, conflicting interests of an organization's owners, employees, customers, suppliers, partners, and governmental agencies. For example, using social security numbers as student ID can be a

source of efficiency and convenience for a university system's information system designers, administrators, and managers of student records. However, this same practice can compromise students' privacy and security and be a cause of a sense of discomfort, anguish, and insecurity that can lead to their sense of alienation. Data that are collected and their potential uses are both causes of concern for students. For example, collection of race and ethnicity related data (Landon et al., 1973) or life-style related data such as sexual orientation (Abbot & Liddell, 1996) can be a source of alienation for some students. In this study we did not specify collection of any particular piece of data or specific uses of data that may be a source of concern for students. Our study focused on students' general concern about practices related to data collection and uses by universities in general and by their university in particular.

Smith et al (1996), through an extensive literature review and empirical testing and validation, identified four dimensions of individuals' privacy concern: concern about data *collection*, concern about data *use*, concern about *access to data* and concern about data *error*. Smith's study about information privacy concerns was related to organizations in general—not specifically about universities. The current study extends existing knowledge about individuals' information privacy concerns in that it theorizes and tests how two dimensions of privacy concerns—concern about data collection ( $X_1$ ) and concern about data use ( $X_2$ )--contribute to students' feeling of alienation ( $Y$ ) about their university's information management systems.

### **The Dependent Variable**

Social thinkers such as Plato, Hegel, Marx, Weber and others have expressed concerns about man's relationship to the society in which he lives and to which he belongs. One of the concerns is that of alienation of an individual or group by an organization, an industry or by a larger society. Today's society is dominated by organizations and organizations are dominated by computerized information systems. It is in this organizational-societal information privacy context that customers' feeling of alienation is defined, measured and analyzed. It is important to study and understand customers' alienation because customers can respond to alienation in the form of poor performance and dropping out from school (Alvarez, 1990), legal or political activism, rebellion (Brookes, 2002), non-cooperation, or even violence (Friedland, 1999) against the organizational or social entity they hold responsible for their alienation.

Most prior studies focused on customer's alienation—its sources and consequences but not in the context of customers' privacy concerns. One exception is Alan Westin's (1979) study that investigated customers' alienation resulting from privacy concern. It has been documented that customers whose complaints are ignored feel alienated (Lipton, 2000). In the context of privacy, an extended, generalized argument can be made that students whose privacy complaints and concerns are ignored will feel alienated. Organizational strategy of growth by merger and acquisition can be a source of alienation for customers (Hafner, 1988; Hemphill, 2000) because customers' privacy is lost and their risks of exposure and harm are increased. In the context of this study, an analogy can be made that information sharing among different branches or among different units of a large university or university system will be a cause of privacy concern which may cause students to feel alienated. Caller ID technology, viewed as dehumanizing, has been documented as a source of alienation for telecom customers (Tanner, 1998). If organizational activities in the domain of data collection and use are perceived by students as unsatisfactory, unfriendly, risky, privacy-invasive and unsafe, the result can be that students will feel alienated. It has also been documented that as one's environment becomes more technical and complex, experiences of alienation have become more common (Allison, 1978). Excessive collection and unauthorized or uncontrolled use of personal information can contribute to a student's environment being perceived by students as being too complex and technical—and thus they can be sources of alienation for students.

### **Independent Variables**

ACM code of ethics dictates that ACM members shall 'always consider the principle of the individual's privacy and seek...to minimize the data collected [Smith et al., 1996; ACM, 1980]. The concern about excessive or unnecessary data collection represents the sentiment that 'there's too much damn data collection going on in this society' (Miller, 1982). This feeling of dislike or concern about data collection, especially in the context of increased computerization of organizations, was noted by Linowes (1989). It was also mentioned in two information privacy reports from the 1970s (HEW, 1973; PPSC, 1977). Kenneth Laudon (1986) focused on concern about excessive data collection when he wrote about a "dossier society". Stone and Stone (1990) also wrote about individual's concern about collection of personal data. Customers' concern about personal data collection by organizations ( $X_1$ ) is defined by the extent to which customers feel bothered, disturbed, annoyed or threatened by organizational data collection practices.

Customers' concern about uses of customers' personal information by organizations ( $X_2$ ) is defined by the extent to which customers feel an organization has violated a social contract (JJ Rousseau, 1762) between them and the organization they trusted their information with. Organizations can break this contract by using data for unauthorized reasons or in unauthorized ways that were not covered by the implied contract of data collection and usage. This psychological agreement often goes beyond any formal contract and is charged with sentiments such as trust and expectation of ethical and moral uprightness on the part of the organization beyond the minimum safeguards required of organizations under legal ethics. Such violations take place when personal information is used for unauthorized purposes and in ways that were not initially agreed upon when the contract was first formed between an organization and its customers. Smith et al (1996) identified two sub-scales of this construct: (1) unauthorized secondary use inside the organization that collected the data (HEW, 1973; Linowes, 1989; PPSC, 1977; Stone et al., 1983), and (2) unauthorized secondary used by parties external to the organization that initially collected the data (Culnan, 1993; Linowes, 1989; Stone et al., 1983; Tolchinsky et al., 1981; Westin and Baker, 1972). In this study, concern about data use refers to the composite scale that measures students' fear of unauthorized use of data both inside and outside their university.

In light of consumers' utility theory, it can be argued that if customers feel that they lose too much in terms of personal freedom, autonomy and control and get too little in terms of benefits when they are subjected to organizational practices of data collection and uses of the collected data, they will feel alienated. They perceive that the benefits they get are not adequate compared to the risks associated with the loss of control (Culnan, 1993; Smith et al., 1996) resulting from collection and use of personal information by others.

### Research Questions (RQ<sub>i</sub>) and Hypotheses (H<sub>i</sub>)

The discussions presented this far can be summarized in the form of three research questions and the related hypotheses.

RQ<sub>1</sub>: Do customers who report that they are concerned about an organization's practices of data collection feel alienated towards that organization as a result of organizational practices of personal data collection?

H<sub>1</sub>: The higher students' concern about data collection ( $X_1$ ), the higher their feeling of being alienated (Y) by their university. There is a *positive correlation* between  $X_1$  and Y. ( $B_1X_1 > 0$ ).

RQ<sub>2</sub>: Do customers who report that they are concerned about how organizations use data feel alienated by organizations as a result of organizational practices of personal data use?

H<sub>2</sub>: The higher the level of concern about data use ( $X_2$ ), the higher the level of alienation (Y). There is a *positive correlation* between  $X_2$  and Y. ( $B_2X_2 > 0$ ).

RQ<sub>3</sub>: Does the feeling of alienation (Y) resulting from concern about data use ( $X_2$ ) by organizations vary according to customers' level of concern about data collection ( $X_1$ )?

H<sub>3</sub>: Given the same level of concern about data use ( $X_2$ ), individuals with higher score on concern about data collection ( $X_1$ ) will feel *more* alienated (Y) than individuals with lower score on concern about data collection. Concern about data collection ( $X_1$ ) positively influences (reinforces) the effect of concern about data use ( $X_2$ ) on customers' feeling of alienation (Y). ( $B_3X_1 * X_2 > 0$ ).

### Sample, Data Collection and Research Methods

The sample consisted of 187 students from a large university in the U.S. There was no problem of missing data because the survey was set up online in a way that did not allow students to submit the survey without answering all the questions. Students got extra credit points for participating in the survey. Out of 220 students whom we solicited, 187 completed the survey. Because of this high response rate, non-response bias, if any existed, would not be high. Of the 187 students, 47 were graduate business students and the rest were undergraduate business students. The percentage of male (52%) and female (48%) students were almost equal.

Seven-point Likert scales were used to measure the level of concern students had about data collection, data use and alienation. The question items for measuring concern about data collection and use were taken from Smith et al (1996) and the items to

measure alienation were collected from Allison (1978) and Singh (1990). The items in the questionnaire were adapted to the context of students’ perception of data collection and use by universities. These modified items are presented in Appendix A.

A method of factor analysis revealed that the items used to measure concern about data collection and those used to measure concern about data use loaded unambiguously to the constructs they were expected to measure.

**Table 2. Reliability Analysis - Scale (Alpha)**

Constructs/No. of Items	Cronbach’s Alpha	Standardized Item Alpha
Alienation (Y), 7 items	0.72	0.70
Collection (X1), 4 items	0.71	0.71
Use (X2), 4 items	0.60	0.61

To assess the internal consistency of the multi-item scales of measurement, Cronbach’s alpha values (Cronbach, 1955 & 1971) were computed for each of the three constructs Y, X<sub>1</sub> and X<sub>2</sub>. Table 2 shows that constructs Y and X<sub>1</sub> have Cronbach’s alpha values above .70 and the same for X<sub>2</sub> is .60. The generally agreed upon lower limit for Cronbach’s alpha is .70 (Robinson et al., 1991; Hair et al., 1999; p.118). However, the acceptable lower limit may decrease to .60 for exploratory research (Robinson, 1973). Thus, the values in Table 2 indicate that the reliability of all three constructs: concern about data collection (X<sub>1</sub>), concern about data use (X<sub>2</sub>) and feeling of alienation(Y) are acceptable even though the reliability of construct X<sub>2</sub> is acceptable on the ground that this research was exploratory rather than confirmatory.

**Results**

The mean score on students’ concern about data use (X<sub>2</sub>) is 6.30 compared against a mean score of 4.52 about data collection (X<sub>1</sub>). X<sub>1</sub>, X<sub>2</sub> and Y are average composite scores from multi-item scales used in the survey instrument presented in Appendix A. Students’ concern about data use was significantly higher than their concern about data collection by universities. However, the mean score on alienation was not an extreme value—it was 4.20 on a scale ranging from 1 to 7 where higher values indicated higher level of alienation [Table 3].

**Table 3. Means, Deviation, and Correlation**

	Mean	S.D.	X1	X2	X1X2	Y
Concern–Collection (X1)	4.52	1.12	1.00			
Concern–Use (X2)	6.30	0.75	0.21	1.00		
X1X2	28.62	8.57	0.92	0.57	1.00	
Alienation (Y)	4.20	0.86	0.49	0.12	0.47	1

Table 4 indicates that the multiple regression model in which X<sub>1</sub>, X<sub>2</sub> and the interaction of X<sub>1</sub> and X<sub>2</sub> have been used to predict and explain students’ feeling of alienation (Y) is almost certainly (p-value=0.0000) statistically significant. The individual coefficient terms in this model will not be interpreted because the two independent variables have exhibited multicollinearity. Multicollinearity makes determining the contribution of each independent variable in explaining Y difficult because the effects of the independent variables X<sub>1</sub> and X<sub>2</sub> are mixed or shared by each other (Hair et al 1998, p.188) However, the interaction term (B<sub>3</sub>X<sub>1</sub>X<sub>2</sub>) is statistically significant (p-value=0.022) and this indicates support for H<sub>3</sub>. The reason for testing H<sub>3</sub> is to find out if students’ alienation associated with their concern about data collection varies depending on the level of concern they have about the uses, misuses or abuses of the collected data.

Hypotheses H<sub>1</sub> and H<sub>2</sub> regarding the main effects of X<sub>1</sub> and X<sub>2</sub> on Y are separately tested in two separate regression models which we present in Table 5. Variables X<sub>1</sub> and X<sub>2</sub>, as indicated by the p-values in Table 5, are statistically significant predictors of students’ alienation (Y). However, as the p-values indicate, students’ concern about data collection (X<sub>1</sub>) is a stronger predictor than their concern about data use (X<sub>2</sub>). In fact, concern about data use (X<sub>2</sub>), which has a p-value of 0.09, is not statistically significant at alpha of .05; it is only significant at alpha of 0.10. One possible explanation is that students do not know much about

organizational uses of data but they do go through experiences of having to fill up forms, surveys, and other activities related to data collection.

**Table 4. Full Regression Model  $Y = B_0 + B_1 * X_1 + B_2 * X_2 + B_3(X_1 * X_2)$**

SUMMARY OUTPUT						
<i>Regression Statistics</i>						
Multiple R	0.508666469					
R Square	0.258741577					
Adjusted R Square	0.246589799					
Standard Error	0.747417804					
Observations	187					
ANOVA						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	3	35.68408348	11.89469449	21.29248814	<b>0.000000</b>	
Residual	183	102.2299075	0.558633374			
Total	186	137.913991				
Y= Bo+B1*X1+B2*X2+B3(X1*X2)						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	7.01498394	2.070749672	3.387654256	0.000863039	2.929369302	11.10059858
X1(ConcernCollection)	-0.674048402	0.455863396	-1.478619271	0.140961281	-1.573472502	0.225375699
X2(ConcernUse)	-0.704542675	0.325973006	-2.161352816	0.031967143	-1.347691436	-0.061393914
<b>X1X2</b>	0.163172484	0.070941484	2.300099675	<b>0.022570882</b>	0.023204061	0.303140906

**Table 5. Two Simple Regression Models**

Specified Model	Model estimate	Model P-value	n
Y=Bo+B1*X1	Y=2.52+ <b>0.37</b> *X1	<b>0.00000000</b>	187
Y=Bo+B2*X2	Y=3.31+ <b>0.14</b> *X2	<b>0.09</b>	187

In summary, we find that all three of the hypotheses have been supported by the data even though the support for hypothesis H<sub>2</sub> is weaker than the support for the other two hypotheses.

### Discussion, Implications and Future Research

The results indicate that students’ concerns about data collection and use of the collected data by their universities are likely to be associated with their feeling of being alienated by their university. For a university’s information policy makers, system designers and administrators, this finding can be a call for addressing students’ privacy concerns so as to minimize their level of alienation. Correlation between privacy concerns and alienation does not necessarily prove that privacy concerns cause alienation. However, sine alienation can be a factor responsible for students’ poor performance, their non-cooperation and withdrawal,

revolts, protests or violence, the findings of this study are important for all parties related to universities. We have found empirical support that privacy concerns are most likely among the factors responsible for students' feeling of alienation. If alienation related to privacy concerns can be reduced, students may be more interested to cooperate with their university and cherish their identity as a member of the university community. At a more practical level, alienation can be associated with students' level of charitable giving to the university in the future and whether or not they speak favorably to prospective students, donors or other patrons. Even though the study has been done in the context of a university, its findings might, with caution, be generalized to other information-based organizations where customers or subjects of data collection are internalized members of the organizational community.

Researchers can build on this study to examine other sources of students' or customers' alienation by organizational information management policies, practices and systems. Research can also be conducted to examine the effects of alienation on other constructs such as customers' willingness to give data, and their willingness to participate in different group activities sponsored by their organizations. Some qualitative interviews with students revealed that they were concerned because they were not adequately informed about what uses are made of data about them collected and stored by universities. A university's information collectors, users, managers, system designers, policy makers and administrators can conduct qualitative interviews to identify with greater detail what specific aspects of information management practices, policies and activities related to data collection and use raise students' privacy concerns so that they can take actions that can reduce their privacy concerns. This study can be a guide in that direction.

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## Appendix A

1. Strongly Disagree 2. Disagree 3. Slightly Disagree 4. Uncertain 5. Slightly agree 6. Agree 7. Strongly Agree

### Items on the Survey

In the way they design, implement and control students' personal information management systems, most universities care nothing at all about the student.
It is usually an unpleasant experience to have to give personal information to a university.
Students are unable to determine what uses will be made of the personal information collected about them by a university.
In general, universities are plain dishonest in their dealings with students' personal information.
Universities stand behind their promises and guarantees made about the ethical standards of students' personal information management.
In the way they manage information collected from or about student, the student is usually the least important consideration to most universities.
As soon as they collect students' personal information, most universities forget about students' rights, dignity and well being.
It usually bothers me when universities (e.g. SIUC) ask me for personal information.
When a university asks me for personal information, I sometimes think twice before providing it.
It bothers me to have to give personal information to so many companies, organizations, agencies, universities and other entities.
I'm concerned that universities are collecting too much personal information about students.
A university ( e.g. SIUC) should not use personal information for any purpose unless it has been authorized by the individuals who provided the information.
I think when people give personal information to a university for some reason, the university should never use the information for any other reason.
A university should never sell the personal information in its computer databases to other organizations.
A university should never share students' personal information with other organizations unless it has been authorized by the individuals who provided the information.