The Greek scale of attitudes towards unethical behaviors on the Internet

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Abstract

The purpose of the present study was to develop an attitudes scale towards unethical behavior over the web for the Greek population. 124 items were constructed and the initial questionnaire was administered to 375 computer users who were asked to use a 5-point Likert response scale to indicate their level of agreement or disagreement with each of these items. 24 items were retained and the final version of the scale that was developed had three subscales: distribution of intellectual property, Internet safety and hacking.

Keywords: Internet ethics; Attitudes; Measurement scale

Introduction

During the last 25 years the Internet has become an important part of our lives, changing the way that computer users handle information (Cooper, 2004; Copeland, 2004). The most important change concerns the access to an infinite amount of information. In addition, Internet offers an alternative way of human interaction. There are three distinct characteristics of the Internet: the potential

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of global communication among many users at the same time, the potential of anonymity and the potential of infinite reproducibility of information (Johnson, 2000, 2005; Stamatellos, 2007).

The major developments caused by the Internet are related to a number of different aspects of daily life and also affect users' ethical behaviour when interacting with a computer (Ess, 2008; Floridi, 2008; Kizza, 2003). For example, the 'cookies' that can track the preferences of Internet users or monitor the computer of an employee is only one of the emerging ethical issues related to computer and Internet use (Kierkegaard, 2005). The related literature refers to many issues such as: intellectual property rights, hacking, privacy of personal information, perversion, anonymity, cybercrime, ethical responsibility for computer professionals (Cooper, 2004; Ellerman, 1998; King & King, 2000; Mason, 1986; Raymond, 1996; Spafford, 1992; Tavani, 1999). Computers have created new species of problems in areas such as: speed/reflex, storage/privacy, identity theft, internationality, copying/stealing, pornography, gambling, stalking, gender, race and social class, selling private data, and opt-in versus opt-out for solicitation. However, the list does not exhaust the possibilities for new species of problems (Barger, 2008). Given these concerns, it is of crucial importance to understand what might affect an individual user's ethical behavior and intentions.

The first issue raised has to do with the different way that technology, and specifically computers, affects ethics, so that they should be studied as a separate part of ethical behavior. According to Johnson (2004, 2005), there are at least two arguments pointing the need for a separate study of computer ethics and both derive from the philosophy of 'action theories' (Hornsby, 1980; Searle, 1983). It should be noted here that in 'action theories' responsibility of moral agents has an enriched meaning that is going further from the simple responsibility which derives from the voluntary intended behaviors of a person. In 'action theories' the causes of an action are defined by the intentionality of internal mental states such as 'intendings', desires and beliefs (Johnson & Powers, 2005). The first argument refers to the fact that technology offers to people the possibility to do things that were impossible to do in the past (Gotterbarn, 1992; Johnson, 2004; Moor, 1985). This is also called by Moore (2008) the "informationalization" of a task. For example, the control of traffic lights from computers helps people regulate the street traffic, or the advances in medical technology, like an fMRI, offer the capability to monitor the organs of a patient. As for the computer technology and in extend the Internet, someone can also easily track the new ways they have offered us to perform our daily actions (Johnson, 2004). For example, computers and the Internet have facilitated an increasingly speedy form of communication.

Another significant difference in the area of computer ethics is the fact that it is very easy to any computer user to harm other people by simply releasing a virus from his computer (Johnson, 2004; Mitcham, 2004). This situation provides to the human moral agent a new perspective, a new tool to cause many problems just by clicking few buttons without being necessary to have any special knowledge regarding computers. So, from the moment that human action changes, it is of big importance to see how technology defines ethics or ethics defines and, in extend, shapes the steps of progress of technology.

However, there is not a universal agreement that computer technology generates wholly new ethical problems. Johnson (2000), for example, argued that computing technology could alter old ethical problems in interesting and important ways and thereby "give them a new twist."

Moor (1985) defined computer ethics as '...a field concerned with 'policy vacuums' and 'conceptual muddles' ...'. Moor (1985) also refers to two significant stages. The first stage concerns the 'technological introduction', that has already occurred after the Second World War, and the stage of 'technological permeation' of every aspect of our daily life. As a result of this, Moor (1985) suggests that fundamental concepts, such as 'money', will eventually alter. According to Bynum's (2001) definition, computer ethics '... identifies and analyzes the impacts of information technology on such human values health, wealth, work...'

There are three important issues that have attracted most of the attention on computers ethics and on which the rest of this section will focus: intellectual property, privacy, and hacking (Mason, 1986).

Intellectual Property

Intellectual property is considered -in general terms- the nonphysical property (Kimppa, 2005b). Specifically, it is the product of cognitive processes whose value is based upon some idea or collection of ideas (Moore, 1997, 2008). In contrast with the ownership of a physical property, intellectual property can be considered as a public good (George, 2008; Kimppa, 2005b; Spinello & Tavani, 2005). There are two distinct characteristics for public goods: firstly, a material good cannot be possessed by two people, whereas a public good can be owned by many persons, e.g. everyone can possess a copy of the same book. Secondly, a public good can be used by everyone.

The problem with intellectual property is to define it precisely, and also define the legitimate rights of its owner (Akester, 2004; Carlisle, 1999; Kimppa, 2005a). It is somehow difficult to 'possess' an idea or a concept. The practical way to copyright intellectual property is to express it in a 'physical' form and of

course be the first doing it, e.g. to publish a book or produce a music cd (George, 2008; Himma, 2007).

In Locke's (1988) theory for property the main argument about -physical- property is that every person has natural rights over the products of his labour. This argument is based on two aspects. The first is that a person is the owner of his body and in extend owns the work produced from his labour. The second aspect is that the right to have his own property comes as a result of his hard labour (Kramer, 1997; Lampert, 1997; Moore, 1997; Simmons, 1992). Therefore, according to Lockean theory, the right to property is inviolable as the human right to freedom. The physical property as a natural right for humans must be protected. The limits of the personal property are regulated by the level of personal labour made by the person. If someone, for example, tills a piece of land he is the natural owner of the land and its products. So the logic that underlies here is that the possession of something has to do with the effectiveness and the purpose of the labour (Ashcraft, 1992; Kramer, 1997; Zack, 1992). Stealing is considered any act that has to do not only with the property of someone, but also with his products (Ashcraft, 1992; Scanlan, 2005). Another important point to Lockean theory is the moral view of the degree of natural goods that someone can possess, known as the 'Lockean Proviso' (Oksanen, 1997). The idea here is that people should not be insatiable with the exploitation of the earth and they should take as much goods as they need. The main argument against Lockean theory is that it only refers to physical property and not to intellectual property, and it is insufficient to cover the wide area and the problems that concern intellectual property (Kimmpa, 2005a; Spinello & Tavani, 2005). One of the problems related to intellectual property is that in physical property there can be only one owner of each good, something that does not apply to the case of intellectual property. The 'Lockean Proviso' for wise use of natural resources does not apply to intellectual property, because the production of intellectual goods can be infinite (Kimmpa, 2005b).

According to Hegel's theory, there are unbreakable bonds between property and the human personality (Becker, 1997). The underlying hypothesis here is that the development to self-actualization can be achieved by personal expression to external objects. Therefore, the person must control natural resources and possess goods, tangible and intangible (Moore, 2008). The action to external objects is essential to Hegel's theory because without property self-expression does not exist and without self-expression there is no personal freedom. In other words, property is considered to be a natural right that leads to freedom by leading the person to objectify and externalize his personality. As a result, the theory applies both to natural and intellectual property. A problem to this theory is the difficulty of finding an objective way to measure and quantify the self-expression that could be used as a base for the assignment of intellectual rights (Lampert, 1997; Spinello & Tavani, 2005).

The criterion used in utilitarian theories is the moral evaluation of any human action according to its social utility (Goodin, 1995; Howard-Snyder, 1994). As a result, the intellectual property is defined by the degree to which a social good can offer to the society. The general idea behind utilitarian theories is that people need to acquire and use goods in order to reach a level of happiness and fulfill their wishes. Because of the insecurity that derives from personal possession, it is essential to protect possession and its use, and control its products. So the security of the goods resides in a system that defines property rights.

A version of the utilitarian theories is the incentive theories (Adams, 1976; Moore, 2008). There are four basic elements in these theories: the first element is that society should create such constitutions that would, or expect to, lead to the maximization to of overall social utility. The second element is that giving rights to authors and inventors over their works is very useful and incentive to future production of intellectual works. The third element is the amelioration of social prosperity as result of motivating the creation and production of intellectual works. Therefore, as an overall result it is useful the adoption of a system of intellectual property.

In general, the basic disadvantage with utilitarian theories is the luck of empirical data which will correlate the need of constitutions for intellectual works with social prosperity (Hooker, Mason & Miller, 2000; Scheffler, 1982; Spinello & Tavani, 2005). Also, it is quite difficult to foresee the limits of protection of intellectual property, so that it could provide incentive for the production of other social goods, or which would the effects of creating such a system to the creators and to the public.

Privacy

The world of computer technology that permits the creation of enormous databases with personal information, poses a new dimension to the big issue of privacy. In the past the collection of personal information was a government affair. Nowadays, computer technology and the Internet can provide access to personal information, legally or illegally, virtually to anyone.

One of the most important issues in computer ethics is that of privacy. The two basic problems with privacy are related to its conceptual framework and its value (Gritzalis & Lambrinoudakis, 2008; Tavani, 1999; Van den Hoven, 2008). In the effort to define the notion 'privacy' there are two main views concerning whether we have to do with an independent notion or a notion that is part to other concepts like 'freedom' or 'property'. There are three distinct characteristics of privacy: personal identity, autonomy and social relationships (Kierkegaard, 2005; Kizza, 2003; Nissenbaum, 1998). The above three elements have to do with the way that a person develops his personality according to his independent personal

characteristics, how he shares that information in the social web he lives and how he interacts with other society members. As a result, Internet privacy deals with the degree that a person can give his personal information with safety, e.g. buy something online or simply communicate with someone (Kizza, 2003).

There are four distinct kinds of privacy proposed by Floridi (Tavani, 2008). The first, psychical-accessibility privacy, refers to the degree that someone can be, by choice, bodily intact from the others. The second, decisional privacy, refers to the freedom a person has to make his own choices on important matters, for example on education and work, excluding others from his decisions. The third, psychological/mental privacy, refers to the person's capability to remain intact from psychological interference from others. The fourth, informational privacy, refers to the control of access in personal information, for example information about the personal lifestyle of someone or his medical history. In general, informational privacy affects four broad categories: consumer privacy, medical privacy, employee privacy and location privacy (Tavani, 2008).

Cyber-crime and hacking

The Internet has brought many and quite important changes on our lives affecting us not only in a positive way, but also in a harmful way, which is called cybercrime. Hacking (as it is widely used) or cracking is called -grosso modo- the illegal internet activity (Crowell, Narvaez & Gomberg, 2005; King & King, 2000; Raymond, 1996). It usually refers to the intrusion and unauthorized access via Internet to other users' computers. Cybercrime activities focus mainly to economic crimes (e.g. stealing credit card numbers). Another common form of cybercrime is the release of a virus that can crash or destroy the data of every computer that has infected (Johnson, 2004; King & King, 2000). In conceptual level a question to be answered is whether there is correlation between common crimes, as theft or sexual harassment, and illegal activities with Internet activities (Johnson, 2004). For example, the illegal download of a music cd should be considered as the same crime with the theft of things from a house? There are two basic points to these kinds of question (Johnson, 2000, 2004; Kimppa, 2005a, b). The first is that in cases like the above the hacker does not deprive from the owner the right of use of his possession. The second is the difficulty of finding the hacker because of the online anonymity.

Except from the mentioned forms of cyber attacks, some other kinds of cyber attacks pose new ethical issues, and in final analysis new dilemmas whether they are illegal or not. Three main areas of cyber attacks are to be mentioned here (Denning, 2008; Freeman & Peace, 2005; Kimppa, 2005a; Spafford, 1992). The first area covers the cyber attacks in the interests of national security. The second area covers the cyber attacks with political or social motivation, and is referred with the term 'hacktivism' and sometimes as 'cyberterrorism' if the result of the

attack is harmful for civilians. The third area covers cyber attacks for security reasons or cyber defence in order to find the flaws of a system.

Aims of the present study

A review of the roots and current direction of computer ethics suggests that its critical potential is yet to be realized. Ethics, as a philosophical subject, attends to theories of morality and, hence, it is normative rather than descriptive. The position taken here is that ethics, particularly an applied ethics, such as computer ethics can be a potentially potent political force as ethical debate feeds into policy and, ultimately, into legislation. This signals a need to find explanations for such behaviour, otherwise policy and legislation designed to regulate human conduct are unlikely to prove effective. Central to this paper is the concern that researchers have overlooked the area of users' attitudes towards unethical behavior over the Web. Relatively little empirical research has been conducted during recent years in order to increase our understanding over this topic.

In order to encourage high quality research, enable integration and consistency across research studies, and increase understanding of users' perceptions and attitudes towards unethical behaviors on the Internet, there is a need for valid and reliable multiple-item measures for this construct. A fast, effective measure of Internet users' attitudes is crucial to the study of the extent and the manner in which we use the Internet. Ideally, this instrument should also be short, efficient and easy to administer to a wide range of people. The purpose of this paper was to develop a Greek measure of Internet users' attitudes and beliefs; one that will be useful with members of the general population.

Method

Participants

The scale was administered to a large convenience sample of 375 participants who were selected from a number of cities in many different parts of Greece. The majority (67.7%) was females and all were computer users (191 of them had over five years of Internet experience and only 35 had an experience shorter than a year). Most of them were undergraduate and postgraduate university students (83.7%) and the age range was between 18 to 63 years (mean = 31.3, SD = 9.3 years).

Instrument development

The first step was to draw the main outlines from the current literature of computer ethics and especially the issues concerning internet usage (Bynum, 2001; Johnson, 2004; Johnson & Powers, 2005). Four main issues derived: illegal distribution of copyrighted material, unethical behaviors concerning e-mail usage, hacking and unethical behaviors through chat-rooms. The second step was to create a pool of positive and negative statements (items) related to these issues. The items were then reviewed, revised, edited and 124 of them were finally put in the questionnaire in random order. A 5-point Likert response scale that ranged from 'strongly disagree' to 'strongly agree' was used to indicate the level of agreement or disagreement with each of the items. Items were screened for their tendency to elicit extreme responses, items being excluded if they produced mean responses of more than four or less than two on the 5-point Likert-type scale employed. Twelve questions were excluded on these grounds. A principal components factor analysis was used on the data for item analysis (Jackson, 1991; Jolliffe, 2002). The factor load was set to be over 0.30.

Results

Principal component factor analysis was carried out for the 124 items covered in the scale. Kaiser-Meyer-Olkin (KMO) value was 0.87 and the Bartlett's test of sphericity was $x2(6216)=21316.84$, $p<.001$, showing that the principal component analysis was appropriate for the analysis. Communalities were all above 0.560 and intercorrelations were in normal levels varying between 0.30 and 0.80. As for the internal reliability, Cronbach's α was 0.88. Three factors were extracted explaining 27.05% of the total variance. Twenty four items (8 for each of the three factors) were retained. The retained items, the corresponding factors, factor loadings and descriptive statistics for the three extracted factors are displayed in Table 1.

The first factor was 'Distribution of intellectual property' (Mean = 29.25, s.d. = 5.8), the second factor was 'Internet safety' (Mean = 27.94, s.d. = 4.5), and the third factor was 'Hacking' (Mean = 21.63, s.d. = 4.9).

The first factor explained 17.8% of the total variance and its Cronbach's α was 0.88. The second factor explained 5.4% of the total variance (α=0.70) and the third explained 3.8% of the total variance (α=0.72).

Table 1.

Retained items and factor loadings of the Greek scale of attitudes towards unethical behaviors on the Internet

Items		Factor 1	Factor 2	Factor 3
Factor 1: Distribution of intellectual property ($a = 0.88$, Mean = 29.25, s.d. = 5.8)				
60	I believe that the free distribution of software over the web is not a serious offense	0. 764		
52	The free distribution of movies, TV shows e.tc. over the web does not annoy me	0.730		
100	The free distribution of music files over the web is justified when it is for personal use only	0.723		
104	The free distribution of e-books or journals over the web is justified when it is for personal use only	0.714		
55	I believe that the free distribution of e-books or journals over the web should be allowed	0.691		
88	The free distribution of software over the web is justified by the high market prices	0.644		
62	I do not consider myself a concealer when I download and use intellectual property (for example, music, movies, software)	0.622		
40	The fact that music stars gain high financial rewards along with the high prices of music CDs make me mad, so I prefer to download music for free	0.591		
Factor 2: Internet safety ($a = 0.70$, Mean = 27.94, s.d. = 4.5)				
106	I would never provide my credit card information over the web in case it was stolen		0.526	

82	I avoid using electronic services (e.g., e-tax, e-banking, e-shopping) because I am afraid that hackers may steal my personal info		0.485	
114	Many people use chat rooms to behave in an indecent way		0.466	
90	E-shopping is dangerous		0.434	
93	The Internet enables an international organization of criminal transactions		0.398	
15	Email messages from usually contain viruses		0.373	
28	Many people use chat rooms to do punish-able acts		0.362	
25	It is easy for someone to access my compu-ter files over the web		0.349	

Factor 3: Hacking (α = 0.72, Mean = 21.63, s.d. = 4.9)

13	Hackers help in improving the Internet (for example, they discover vulnerable spots)			0.530
42	Hacking may also have honorable inten-tions			0.515
115	Hackers help in improving computer soft-ware (for example, they expose security problems in antivirus software)			0.458
3	I would approve hacking a webpage in case the intervention was not malicious			0.451
51	Hacking is right when is directed against large companies			0.383
39	Hackers are the Internet 'rebels'			0.373
30	I would approve hacking a webpage in case I had a financial interest			0.311
97	I would approve hacking a webpage in case this was done for national security reasons			0.302

Discussion

The Greek scale of attitudes towards unethical behaviors on the Internet is a Likert scale devised to measure computer users' beliefs and attitudes. The present paper focused on the construction and reliability analysis of the instrument, but it is clear that further studies are necessary in order to test its validity and the effects of various independent variables on the construction of these beliefs.

Three dimensions were determined as a result of the factor analysis carried out. The first factor (distribution of intellectual property) is related to one of the most complex issues faced in the modern society. Information is very hard to safeguard and hard to keep to one's self (Mason, 1986). Just a few years ago it was Napster that started a revolution by enabling the distribution of almost every type of file, mostly of mp3 music files (Mortensen, 2005). Nowadays, the number of those users who illegally download music, software, movies, e-books, e.tc. without any reservation has grown significantly (Cooper, 2004; Craig, Burnett & Honick, 2005; Im & Van Epps, 1992; Kimppa, 2005b). The fact that most of the participants in the present study did not seem to consider this behaviour as unethical needs further study.

The second factor was named as 'Internet safety' since it included items related directly with the safety of a number of activities over the web. A number of important issues related to websites used for social networks (e.g., Facebook, Hi5, Myspace) have recently attracted the users' interest. For example, over the last months a long discussion has taken place over Facebook's decision to sell the personal data of its members to a number of companies for commercial reasons (Tavani, 2008). Nowadays a huge amount of personal information – such as passwords, social security numbers, driver's license numbers, credit card numbers, e.tc. are available on the Web. These can be bought and used by thieves to provide authentication for criminal transactions. Sometimes personal information is obtained by 'phishing' and sometimes, of course, the information is simply discovered off-line.

Finally, the third dimension, hacking, included items related to the most frequent hacker arguments that maintain that computer break-ins are ethical. Specifically, the reasons hackers use as excuses for computer break-ins are to expose security problems, to check others' computers to protect them against misuse of their data by the governments or big corporations, and so on. Interestingly, the participants of the present study seemed to disagree with these statements.

As with any empirical study, limitations do exist and further questions remain. The luck of similar studies and psychometric tools in the literature poses a problem when testing the validity of the scale. One further limitation of such a scale

is the fact that due to the constant changes and advances on the Internet it is time constrained. Therefore, a scale that today measures users' attitudes towards a number of behaviors on the Internet, in few years or even months it might be insufficient.

The next step of this study should work on providing more strong evidence about the validity of the scale. Researchers are strongly encouraged to use this scale to further examine its reliability and validity. Future research should continue to test the possible relationships between users' beliefs and attitudes towards unethical behaviors on the Internet and variables such as users' personality characteristics, computer experience and self-efficacy, sex and age. In addition, further research should seek to investigate the stability of users' attitudes toward these behaviors over time, and develop normative data for different occupational, educational, and socioeconomic groups. Also, the relationship between attitudes and behavior in a true work environment would be of interest. Finally, a comparative study of these questions on an international basis under the light of factors such as society and culture would further aid in the understanding of computer ethics in today's electronic society.

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