SOFTWARE PIRACY AMONG UNIVERSITY STUDENTS: RECOMMENDED SOLUTIONS AND A CASE STUDY ON STUDENTS OF MSc OF INFORMATION TECHNOLOGY, UiTM, SHAH ALAM

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Abstract: Copyright piracy or software piracy has been persisting problems since the dawn of Information Age. Over the past few years the public focus on copyright piracy among young technology savvy users, particularly university students. This paper will review the important highlights of software piracy among the university students, solutions being recommended by previous research as well as the issues on copyright "Fair Use" for educational and business purposes. University's initiatives on software piracy, combination of education and technology and computer ethics as part of curriculum have been identified as possible solutions to software piracy. The recommended solution, university's initiatives in preventing software piracy among students, was further being analysed for its effects. The analysis was based on responses from questionnaires, which were administered to 46 students of Master of Information Technology, Universiti Teknologi MARA, Shah Alam. Findings show that higher institutions play a huge role in solving the copyright issues as well a it proves that UiTM's initiatives in the fighting the software piracy issues have positive impact on its Master of Information Technology's students.

Keywords: Software Piracy, Computer Ethics, University Policy

INTRODUCTION

Software is one of the most valuable technologies of the Information Age, running everything from computers to the Internet. The information age is referring to the Information Technology usage that can be defined as the science and activity of storing and sending out the information by using computers (Cambridge University Dictionary). As the number of computers and Internet usage grow, the incidence of software piracy is growing too. Software piracy is considered as one of the ethical issues on cyberspace. It was identified as a crime because it enables people to illegal copying, distribute and use of software without permission from the owners. In recent years software piracy was used in various forms and areas; by individuals or professional at homes, businesses or government and particularly by students at higher institutions. And, the piracy issue is being the widespread problem over the world, particularly in Malaysia.

" *Malaysia Identified As home For Software Piracy"*

The statement was last reported in 2000 by Biz Asia news. Software piracy in Malaysia had increased for about 4% from 66% to 70% in 2001. In 2003, still illegal copies of Microsoft Windows 98 editions is reported have been distributed and selling briskly at less than $8 in Sungai Wang Plaza, Kuala Lumpur. With the cheaper price, faster and easier to get, it was reported that software piracy is more prevalent in academia than business world. The Chronic of Higher education also reports that software piracy is a growing problem on college and university campuses (James J O Donnell, 1998). Additionally, computing students are found to be significantly likely to use pirated software compared to other major studies in previous researches. As students of these higher institutions are going to be tomorrow leaders, it is viewed that computer ethics, particularly software piracy be part of professionalism that need to be developed within them. Therefore, it is the objectives of this study to:

- to determine basic understanding of software piracy and copyright law in Malaysia
- to determine the recommended policies and initiatives from prior studies in educating and preventing software piracy usage among university students
- to determine the ethical issues of fair use of software piracy in certain circumstances for educational purpose

Terms and Definitions

Software Piracy means the use of reproduction of a software product without the express consent of its author. It is also refers to the practice of "pirating" or "unauthorized copying of a computer program that neither licensed nor in the public domain (Taylor & Shim, 1993). Software piracy also is defined as the act of copying propriety software without payment of any licensing fees (Computer in Society, 1998).

Authorized and unauthorized copying software cover a software license agreement that states the terms of usage, as permitted by the copyright owner, for the specific software product to which it applies. The price of software covers the legal acquisition of the software license and binds the purchaser to use the software only according to the terms and agreements stated in the license. Any other copy of the original software is considered to be an unauthorized copy, and is an infringement of the license agreement and the copyright law, which protects software and governs its use.

According to the Software & Information Industry Association (SIIA) [5] and Software Published Association (SPA), software piracy can be committed in a wide variety of forms including: *Soft Lifting, Internet Piracy and Software Counterfeiting.* Soft lifting involves purchasing a single licensed copy of software and loading the same copy onto several computers, contrary to the license terms. Usually this is cheaper than buying single copies for every machine; for examples, the sharing of software with friends, co-workers and others. Internet Piracy is making unauthorized copies of copyright software available through pirate websites, Internet auction sites that offer counterfeit, out of channel, infringing copyright software or peer-to-peer networks that enables unauthorized transfer of copyrighted programs. Software counterfeiting refers to illegal duplication and distribution of copyrighted software in a form designed to make it appear to be legitimate. Some counterfeit copies are in form of floppy disk and CD and sold through retail sale store.

Fair Use *is the term to indicate the use of copyrighted material without the owner's consent with limited doctrine providing for certain exceptions (SIIA Copyright Glossary, 2003).*

MATERIALS AND METHODS

Literature Review

Business Software Alliance (BSA) and the Software and Information Industry Association (SIIA) have claimed that university students and employees are becoming increasingly involved in software piracy. Surprisingly, computing students were found to use pirated software to greater extent compared to others majors of studies. What contribute to the tendency of students using the pirated software?

In a study done by Chiang and Assane (2002), who used a sample survey of students from four universities, the likelihood of using software piracy was based on students' characteristics such as students' majors of study, class standing and personal risk perceptions where each influences the propensity of software piracy. Although it is not specific to computing students, based on this study, the leading cause of software piracy among computing students can be reconciled. Firstly, students who have above average technical skills compared to general population would facilitate the reproduction methods. Secondly, many university courses require students to obtain and use software, particularly those in computing major. Thirdly, high cost of a university education itself drains the budgets of many self-financing students, leading them to look for less expensive means of obtaining the required software.

In a study done by Ang Yang Ang and Bruce WN Lo (1999) [1], which emphasized the relationship between students' attitude and demographic factors which include gender, age, computer ownership, major of study and history of software copying. The study was done on 134 students of business and IT majors in Australian regional universities. The findings clearly showed that computing students who were having above technical skills in this case, computing skills might influence the tendency of using pirated software. To determine the effect of attitudes, the study adapted the Wood and Glass (1995-1996) to include the perceived negative consequences as the outcome for an act of copying; the results proved that perception of piracy issue would lead an act of copying.

Other study done by Md Mahbubur Rahim et al [6], in their study on software piracy among tertiary students in Brunei Darussalam, supported the above-mentioned study by concluding that students who have more PC experiences have greater tendency using pirated software. The results also showed that nearly 64% of participating computing students use pirated software However, during the study the software copyright law was not yet introduced in Brunei due to its status as developing country and entitled to delay the date of application for intellectual property right laws.

A survey done by National university of Singapore (NUS) and Nanyang Technological University (NTU) on their undergraduate and graduate computing students, concluded that although the students knew that it is "wrong" to download or distribute pirated software, they still did it, because everyone I the campus did that. They can easily download and find any pirated software programs within the universities atmosphere. With high demand for free software by computing students for educational purposes, they found that there is no action taken by the university authority against the students.

Recommended Solutions

Gathering the findings of the above studies, the following are the recommended solutions to decrease the tendency of using the pirated software.

1. *University policies on software piracy* - According to Tech Watch, piracy is particularly prevalent at universities because the institutions are extremely wired, with most students enjoying unlimited Internet access and because the widespread ignorance of copyright law. As price is the most important reason for the increasing intensity of suing software piracy among students, software makers must respond by allowing students to purchase at affordable prices. Some of them have responded by providing free software on the Internet, offering students discounts or students versions of software as well as providing a licensing software copies to students through universities (Chiang and Assane, 2000).

    a. *Licensing via agreement with software vendor*
    By licensing software, universities can equip offices and students lab with the latest software at reduced group prices, and they can offer a secondary license for students and faculty members to use the software at home (usually for temporary access). Some license software is available to be accessed on campus mainframe or network. Thus it reduces the tendency to obtain the software illegally. This method has been proved to be successful in University of Florida, USA. The piracy declined from 53% in 1996-97 to 40% in 2000-01 among the university and college students in two public universities. However, this can only be implemented given that there is a proper licensing of software via purchase agreement by the school.

    Case Western University, for example, was having a greater benefit when having Microsoft Campus Agreement Subscription to deliver a uniform set of Microsoft Office to its students and faculty members. The university was using the existing network infrastructure to distribute software for students and faculty members. By using certain authentication, they ca install the software directly from home. Easy access to the legal software was included in the school policy to ensure that the students do not use pirated software This uniformity enables every faculty members and students to have access to the same tool easily, cheaply, quickly and it increased the productivity as well as eliminated software piracy. By implementing a reasonable IT fee, the cost would cover the licensed and the upgrade of hardware as a package. Unauthorized copying and distributing legal software without the authorization as stated in the licenses agreement is wrong and included in the school policy.

    b. *Department or Faculty Monitoring*
    To ensure that the students obey the school policy, unit administrators are responsible for ensuring that the policy is followed in their unit. The policy is likely to educate students, faculty members or staff towards computer ethics in using computer facilities such as software. The Eller College for instance, has established the policy on software use in BITS lab which then was distributed through the Internet via college web site, to inform, remind, warn as well as educate the students regarding the software piracy. Students who were caught

copying software in lab either physically or Internet distributions or downloading will lose the privilege of using the lab and to leave the lab immediately. Unauthorized or unsupported software installed will be removed immediately from the workstation. Columbia College has established lab policies that are more toward the ethical guideline using computing facilities. The ethical guidelines, together with examples, were covering general principle of intellectual property and the information to educate students, faculty members and staffs. Western New Mexico University also has general policies for use of its computer system and equipments for it graduate school, Gallup Graduate Study Center under the Acceptable Use Policy (AUP). The policies form was distributed via network and each student have to print, fill in the form and send it to the office as the agreement towards the policies. In ethical use of computer facilities, users need to respect the propriety of software owners by not making unauthorized copies of software either licenses or copyright material. This is in compliance with the United States Copyright Law and states of New Mexico Computer Crime Act. Disciplinary action would include tough penalties such as expulsion from university, dismissal from apposition or legal action if against the university policy.

2. *Combination of Education and Technology* - Copyright piracy can be argued as a consequence of technological innovation (Silva & Ramello, 2000). Although schools have policy on computing facilities, pirating software and its contents is still an increasing problem for the universities because of user friendly file transfer applications, broadband and easy access to the network via the wireless local area network and network points on campus. Thus the combination of education and technology is necessary (Business Software Alliance, 2003) [3]. In a study done in Nan Yang Technological University, Singapore, a packet prioritization system was implemented which set a limit to the amount of data that each student can send or receive by recognizing certain web sites and peer-to-peer traffic and send data at lowest priority. The universities will send out periodic reminders (warnings) about downloading and distributing copyright materials. The same technology was proposed by University of North Carolina, Drake University and the University of Michigan, which is called bandwidth management tools to reduce bandwidths demands from illegal and improper use of university networks. These tools can be used to take such steps as monitoring for in appropriate use, metering the bandwidth available to each student, setting caps on upload speeds and blocking access to infringing peer-to-peer network. University of Florida was using a "disk locking" programs for each major operating system. Network utilities for Novell and other microcomputer networks are available to control the number of users of each software package, as well as to protect packages from illegal copying. Password and file security protections also used routinely to control access. They proposed system managers for multiple use operating systems such as Unix should make full use of operating system features, which prevent unauthorized use or copying.

3. *Computer Ethics as Part of School's Curriculum* - In the article of InfoWorld (2000), the practitioners from various fields, had claimed that it is importance that computing technology and human values be integrated, in such a way that the technology advances will protect human values rather than damage it. Gotterbern in his article in InfoWorld (2000)clarified that students particularly those in the technical courses should not be taught only the technical terms because students did not get the immediate sense that computing affects people. In other words, can avoid humanity. Thus, it is necessary that computer ethics be taught as part of curriculum for students enrolled in computing and information sciences (Info World, 2000) This fact was supported by study done by Shariff (2002) [7] on computer ethics among IT Educators. Additionally, Mark Bunting, a producer of technology-related television and in-flight programming also claimed that students are essential to be schooled in the fundamental of ethics to ensure their skills are applied appropriately. This result was supported by further observations done by InfoWorld (2000) where most computing graduates had admitted that ethics coursework has some much into play in their professional life.

4. *Fair Use of Copyright for Educational Purposes - Generally, the fundamental mission of higher* institutions is to advance and disseminate knowledge. This mission is realized through the use of various information formats, learning environments and modes of delivery without unreasonable copyright restrictions. Copyright law is use to provide comprehensive protection for any work from being infringed. It embodies the concept "Fair Use" of copyright material and permits copying to some extent purposes such as criticisms, comment, news reporting, teaching (including

multiple copies for classroom use), scholarship or research which is no infringement of copyrights. Therefore the following are said to be determinants of whether the usage is fair or not.

a. the purpose and character of copying including whether its use of commercial nature or is for non profit educational purposes
b. the nature of being copied
c. the amount and substantially of portion that is copied in relation to the copyrighted work as a whole
d. the effect of the copying upon the potential market for or value of the copyrighted work

RESULTS AND DISCUSSIONS

This paper has further studied on adaptation of the above-recommended solutions at Faculty of Technology and Quantitative Science, UiTM, Shah Alam and the effect on Masters students' views towards software piracy.

In UiTM, there is no formal policy being setup on software piracy. However, UiTM currently applied the standard policy on software use among students under the computer facilities rules and regulations, monitored by Computer Intellectual Information System (CIIS) [2]. Basically, the policies are guidelines and rules not specifically for students because it is related towards the internal securities of UiTM. There is a part of the guideline that protect the intellectual property rights and purchase of licensing software. Based on the result of an interview with the IT officer at FTMSK, the faculty has a unit that monitors students' activities in the computer labs. However, the lab rules and regulations are more towards the physical securities. Even though, the lab rules stated that unauthorized software downloading is not allowed, no penalty being imposed if any of students did that. By the end of the semester, the unit in-charge will just do the cleaning. Despite the lack of enforcement on the policy, the faculty has introduced a course entitled "Professional Ethics for IT Managers" . This course successfully covered the important aspects of computer ethics particularly Intellectual property and software piracy.

The effects on the students were studied through a survey questions focusing on the following: factors that might influence, the correlations of recommended solutions to the students and students attitudes based on the outcomes of the copying act. The questionnaires were distributed to students of Masters of Science of Information Technology, FTMSK, UiTM, Shah Alam.

The following are tables summarizing the distribution of data regarding the tendencies of using pirated software.

Table 1: Income vs Software Acquisition

	copied from family or friend	downloaded from internet free	loaded on computer when purchased	provided by lecturer for a class	provided by lab tmsk
less than 1000	4	2	2	3	
1000 - 1999	4	5	6	5	1
2000 - 2999	10	13	13	9	1
3000 - 3999	5	8	7	4	1
more than 4000	2	2	3	1	
Total	25	30	31	22	3
Percentage	54%	65%	67%	48%	7%

Table 2 : Field of Occupation vs Software Acquisition

	copied from family or friend	downloaded from internet free	loaded on computer when purchased	provided by lecturer for a class	provided by lab tmsk
IT Field	9	12	13	10	1
business field	9	12	9	8	
educational field	3	4	5	4	1
Others	4	2	4		1

Table 3: Income * Frequency Access

	frequency access			Total
	less than 2 hours	less than 7 hours	more than 7 hours	
less than 1000	1	0	3	4
1000 - 1999	2	2	5	9
2000 - 2999	1	6	13	20
3000 - 3999	0	2	6	8
more than 4000	1	1	2	4
Total	5	11	29	45

Table 4: Occupation field * frequency access

	frequency access			Total
	less than 2 hours	less than 7 hours	more than 7 hours	
IT Field	1	6	14	21
business field	2	2	10	14
educational field	2	1	3	6
others	0	2	2	4
Total	5	11	29	45

Findings, as shown from the tables can be summarized as follows:

- There are higher tendencies to acquire software illegally (copying from friends or loaded from the internet)
- Income do not affect the tendency of using pirated software
- Field of Occupation also do not affect the tendency to use pirated softeware
- 64% of the students spent more than 7 hours on the internet with those in the IT field contributed to 67% of the proportion.
- Even though only 26% of students have taken the Professional Ethics course, 52% claimed that they are familiar with copyright law from their earlier stage of study.
- Reviewing the effectiveness of Lab monitoring, it shows that the technology and securities used have successfully prevented any copyright act in the lab.

- Students also viewed that pricing of software plays significant impact on the copyright act, therefore decreased price of software might be the most effective way in preventing the software piracy.

As a conclusion, software piracy among the university students can be influenced by the university policies as well as those, in computing fields like Microsoft, which managed the distribution of software, in forms of pricing, licensing agreement and negotiation. Further studies need to be done in finding the best solutions to this issue.

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