



UNIVERSITI PUTRA MALAYSIA

**SOFTWARE PIRACY SCENARIO AMONG
DIPLOMA STUDENTS MAJORING
IN INFORMATION SYSTEMS
ENGINEERING**

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ABSTRACT

Software piracy is a worldwide problem for the software industry. Malaysia too does not have the immunization for this disease. In trying to curb this problem it is best to understand the factors that influences individuals to pirate software or to purchase original software. As students will be the future leaders, this study main objective is to get the snapshot of the software piracy scenario of students. The target group for this study is on diploma students, majoring in Information Systems Engineering. The respondents are divided into two groups, the group that involve in software piracy activities and the group that does not indulge in software piracy activities. Findings of this study centers on the reasons for students to pirate software or to purchase original software. Comparisons on the reasons for purchasing original software between the two groups are presented too.

Keywords: software piracy, computer software, copyright, pirated software, student attitude

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CHAPTER 1

INTRODUCTION

Software Piracy is a worldwide problem for the software industry. Malaysia too does not have the immunization for this disease. At present, pirating software is a lucrative business. This is apparent, as Imbi Plaza in Kuala Lumpur is a heaven for being the central for pirated software. Furthermore, software and video pirates are relocating their business in Malaysia after being chased out from China and Hong Kong (Tsang 2000). Not only that, pirated software from Malaysia are in the local market of Latin America (Tsang 2000). Thus, it is not surprising that the Business Software Alliance puts Malaysia under the watch list for software piracy. This can be attributed to fluctuating rate for software piracy in Malaysia, which is also notably high. Table 1 illustrates the software piracy scenario in Malaysia (BSA 2000):

Table 1: Software Piracy Scenario in Malaysia

	Piracy Rate	Retail Software Revenue Lost to Piracy
1994	82%	\$66.7
1995	77%	\$121.5
1996	80%	\$80.6
1997	70%	\$82.6 (RM319.9 million)
1998	73%	\$79.3 (RM301.3 million)
1999	71%	\$84.2 (RM313.9 million)

According to Hamdan Adnan, who is the President of the Federation of Malaysia Consumer Association, the crux of the piracy is due to the pricing (CNET 2000). He believes that software publishers should and must reduce the prices in order to gain market share. If people cannot afford to buy the expensive original software, they will opt for pirated ones. This phenomenon is desirable for individuals in acquiring competitive skills in Information Technology.

The viewpoint is contradicted with Butt Wai Choon, who is the Managing Director of Microsoft (Malaysia) Sdn Bhd. Quoting his word, “To some extent, yes, lowering the price of software would increase the demand of it. However, the rate of increase in demand will drop as price is lowered even further. Hence, piracy would not be curbed entirely just by lowering software prices” (Lee 2000).

The contradictory remarks illustrate that there is no consensus on what factors determine software piracy. Instead, the best method perceived to combat software piracy is by enforcing law regulation and by deploying technological solutions. However, it is applicable to prevent software piracy in organizations. For the individual level, it bests to know the factors that determine individuals to pirate software and to purchase original software. Oz (1990) believes that the problem of software piracy begins “before the young person become a practicing manager.” Then only it can be a reality to wipe out software piracy by 2001, as desired by the Domestic Trade and Consumer Affairs Ministry (See 2000).

1.1 Objectives of This Study

The big goal of this study is to get a snapshot of the software piracy scenario among students. In this study, the criteria stated below are taken into consideration in determining software piracy factors in Malaysia.

- a) To identify the factors that impels individuals to pirate software and to rank the factors by the order of most importance to less importance.
- b) To identify the factors that impels individuals to purchase software and to rank the factors by the order of most importance to less importance.

1.2 Scope of this Study

The scope of this study will be on diploma students majoring in Information Systems Engineering. The students will be categorized into the group that commits piracy act and the group that does not commit piracy act.

CHAPTER 2

LITERATURE REVIEW

2.1 Demographics Factors

2.1.1 Gender

The model for software piracy determinant factors by Simpson et al (1994) indicates that gender is indeed a significant variable. The research done by Ang et al (1998), Sims et al (1996), Shim et al (1990) and Rahim et al (1999) find that male pirate software more than females. This is consistent with Betz et al (Sims et al 1996) findings that males are more prone to engage in unethical behavior than women. Furthermore, male are more dominant in the utilization of technology, particularly computer technology (Siann et al 1990). On the other hand, studies conducted by Oz (1990) reports that gender is not a significant factor for pirating software.

2.1.2 Age

There is mixed results in age as the determinant factor for software piracy. Sims et al (1996) research found that older students have the tendency to pirate software more than younger students. On the other hand, Oz (1990) found that no relationship exists between age and attitude to software piracy. Ang et al (1998) findings is in agreement with Oz (1990). Highland (Sims et al 1996) states that younger individuals are more likely to commit unethical act than older individuals.

2.1.3 PC Experience

Sims et al (1996), Rahim et al (1999) and Eining et al (1991) research implies that individuals who uses personal computer more often have higher tendency to pirate software.

2.2 Software Price

Prices for software are, Adobe Photoshop 5.0 is RM3, 780.00, CorelDraw 8 is RM2600.00, MS Frontpage around RM609.00, Macromedia Dreamweaver about RM1, 250.00, games is RM99.00-18, Windows 98 OEM version is RM350.00, Windows 98 full version is RM750.00, MS Office 2000 OEM version is RM735, MS

Office 2000 standard version is RM1750.00, MS Office 2000 Professional version is RM2150.00. The expensive software makes them not affordable for consumers, especially students. This is consistent with the statement by Hamdan Adnan, President of the Federation of Malaysia Consumer Association (CNET 2000). Further illustration is the decline of 6.7% from \$4.0 billion lost in 1995 for software piracy in Asia can be attributed to the fall of application prices. It is not due to the increased policing or on a change in attitudes (Traphagan and Griffith 1998).

The research done by Cheng, Sim and Teegen (1997) made a discovery that by pricing software according to potential buyer's household income can reduce consumer's piracy. Harrington (1989) and Parker (Glass et al 1996) too find that higher cost will lead to higher levels of copying.

The study conducted by Glass et al (1996) implies that by increasing the cost of software to curb software piracy is not adequate to control software piracy. Instead, this gives an opposite effect. This is confirmed by the study conducted by Glass and Wood (1996). On the other hand, the research conducted by Oz (1990) found 82% of a sample of 159 graduate and undergraduate management students would copy software regardless of the software price.

2.3 Rank the Software Piracy Determinant Factors

Cheng, Sim and Teegen (1997) did a survey on the reasons for individuals to pirate software and to purchase software. Reasons for pirating software, by the order of importance are software too expensive, want to try out the software, cannot afford the software, only use it for a short time, it is easy to copy software, new version is coming up, little chance of being caught, most people I know copy software and software license too restrictive. Reasons that impels individuals to purchase software, by the order of significant are the software is required for schoolwork or workplace, use the software all the time, availability of manuals, it is the law, can use technical support in case of problem and it is school/company policy.

2.4 Attitude of Individuals towards Software Piracy

Cohen and Cornwell (Glass et al 1996) found that individuals view software piracy as acceptable and normative behavior. In the research done by Solomon and

O'Brien (Glass et al 1996), it reveals that seventy-two percent of a sample of 266 students make the confession of allowing another person to make copies of protected software. The students believe that it is a socially and ethically acceptable behavior. Simpson et al (1994) research indicates that students have the tendency to pirate software regardless of their ethical perception of the act. In fact, Taylor's study (Glass et al 1996) on 218 faculty members' reveals that one third of them have the belief that it is ethical to duplicate software for teaching purposes.

As for the study conducted by Forcht (1991) found that more than half of the students polled admitted to using computer unethically. This includes software piracy and hacking into private systems. Im et al (1992) study confirms this.

Leventhal et al (Wong 1995) conducted a study on students' attitudes on software piracy. This study reveals that despite it is not too unethical if the copy is solely for private uses and not for profit –making. This is due to the software to be expensive for poor students.

Wong (1995) study reports that undergraduate or graduate students do not feel that the act of duplicating software for private uses is wrong and unethical. The students have the notion that they are definitely not stealing, as the used pirated software is not for monetary gains. Also, since everybody does it, then it is not wrong.

According to Ronald Chua, who is the legal affairs manager of Autodesk Asia Pte. Ltd, the rampant software piracy can be attributed to the fact that there is a lack of education on the importance of respecting other people's intellectual property rights and the lax attitude of the business people in managing the acquisition and use of their software programs within the organizations (Sani 2000b)

2.5 Equity Theory

The studies conducted by Glass and Wood (1996) revelation are as the following:(i) By increasing the cost of the software will result in individuals to less likely give the software to another individuals for making an illegal copying, (ii) the

likelihood of individuals to give the software for another person to make illegal copies increase due to deriving a favorable outcome in order to pay an existing debt, receiving favors in return, performing an altruistic act and gaining desirable social returns and (iii) individuals will lessen the likelihood to give the software for another person to make illegal copies if the individuals feel that they will receive negative consequences as the result of such act.

2.7 Motivating Factors

The model for software piracy determinant factor by Simpson et al (1994) reveals that (i) situational events such as inadequate time to acquire software legitimately and not knowing where to obtain the software and (ii) personal gains factor such as the challenged set forth in pirating software and selling the pirates software for monetary gain are the determinant factor for software piracy.

2.7 Knowledge of Software Piracy Law and Regulation

According to Mason (1990), many software organization believe that people who know the law will be less likely to pirate software. However, this contradicts with Swinyard et. al (1990) study that indicates knowledge of the law is correlated with software piracy. The study by Christensen et al (1991) finds that student's knowledge of the laws seems to have little impact on piracy behavior.

Under the Copyright Act 1987, those who are found guilty of copyright infringement can be fined up to RM10,000 for each infringing copy and/or jailed up to five years (Act 332). This is for the copyright offences for the Copyright Act 1987 Sec 41, which are (i) making infringing copy for sale or hire, (ii) to sell, let's hire or by way of trade exposes or offers for sale or hire of infringing copy, (iii) distributes infringing copies, (iv) possess, otherwise than for his private and domestic, any infringing copy, (v) by way of trade, exhibits in public any infringing copy and (vi) imports into Malaysia otherwise than for his private and domestic use, an infringing copy were made in Malaysia would be an infringing copy.

As for the offence of making or has in his or her possession any contrivance used or intended to be used for the purpose of making infringing copies, the

punishment would be, can be fined RM20,000 for each offences and/or jailed for up to 10 years (Act 332).

According to Roland Chan, who is the regional general manger of Business Software Alliance, *“...in terms of the legal framework, current legislation are quite adequate to curb copyright infringements of software. However, the law needs to be continuously revised as to follow the trends in Information Technology (IT), taking into considerations the fact that copyright infringement of software is fairly new.”* (Sani 2000a).

CHAPTER 3

METHODOLOGY

3.1 Sample Group

There are 114 diploma students majoring in Information Systems Engineering. Based on their response on whether they indulge in piracy act or not, the respondents are categorized into two groups. The groups of respondents that indulge in piracy act, which is in Group 1 and the group of respondents that do not indulge in piracy act, which is in Group 2. Respondents in Group 1 gives their response on the reasons for pirating and purchasing software, whereas respondents in Group 2 gives their response only for reasons in purchasing original software.

3.2 Question Development

The questionnaires are divided into three parts. The first part consists of survey questions of the respondents' demographics data such as gender, age, own monthly income, PC experience and computer ownership.

The second part is on the reasons for making/purchasing illegal software. The third part consists of the reasons for purchasing original software. The underlying reasons for individuals to purchase or to pirate software are adopted from Cheng et al (1997) study and from the variables gathered from literature review. Respondents need to rank the important factors for pirating or purchasing software, in the order of from the most important to least important. Respondents too are given the chance to add any other reasons, which are not in the original list in the space provided.

Prior to conduct the study on students, a preliminary questionnaire is distributed among students from other than the sample group.

3.3 Data Analysis

A one-way ANOVA is conducted to determine whether there exist differences between gender in committing software piracy.

Based on the value of mean computed for each reason, I rank the reasons in the order of most important to least important. The lower the mean value, the more

important the factor will be. One-way ANOVA technique is utilized to determine whether each reason is more significant than the next-ranked reason. If the p value is less than 0.05, then that reason is more significant than the next-ranked reason. Tukey's Honest Difference Test is performed to further validate the result of one-way ANOVA (Sandy 1990).

CHAPTER 4

RESULT/FINDING

From the 124 questionnaires distributed, 10 were incomplete and were excluded from this survey analysis. The analysis on the 114 usable questionnaires is in the following sequence: first the background profiles for respondents. This is then followed by analysis on the reasons for pirating software for the group that commits software piracy. The third analysis conducted is on the reason to purchase original software for both groups. The last analysis is on comparisons for the reasons to purchase original software for both groups.

4.1 Respondents Profile

The summary for the background profiles for the 114 respondents are as in Table 2.

Table 2 : Background Profile of Respondents

Independent Variable		Number	Commit Piracy Act	Overall Piracy %
Gender	Male	46	29	25.44
	Female	68	33	28.95
Age	Below 20	68	36	31.58
	Between 20 to 22	41	24	21.05
	Between 23 to 26	5	2	1.75
Monthly Income (in RM)	Less 500	105	55	48.25
	Between 500 to 1000	9	7	6.14
PC Experience	Less than 1 year	63	25	21.93
	Between 1 to 3 years	34	22	19.30
	3 to 5 years	10	8	7.02
	Over 5 years	7	7	6.14
PC Ownership	Own One	40	40	35.09
	Does not own one	74	22	19.30

Out of the 114 respondents, 46 were males and 68 were females. From the 46 males, 29 reported that they committed software piracy. The overall piracy percentage for males from the 114 respondents is 25.44%. As for females only 33 admitted of indulging in software piracy, which is 28.95% for the overall piracy percentage for the 114 respondents. Conducting one-way ANOVA reveals that there is no significant difference between the gender in committing the software piracy act. The p value is only 0.129 for $\alpha = 0.05$. Illustration of this is as in Table 3. My finding is in agreement with the findings of Oz (1990) and Davis et al (1991).

Table 3 : Significant Differences Between Gender

ANOVA					
PIRACY					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.578	1	.578	2.337	.129
Within Groups	27.703	112	.247		
Total	28.281	113			

More than half of the respondents (68 respondents) is below 20 years old, 41 were between 20 to 22 years old and 5 respondents were between 23 to 26 years old. Out of the 68 respondents whose age is below 20, 36 committed software piracy, which is accounted for 31.58% for overall piracy percentage. As for those between 20 to 22, 24 illegally copy or make pirated software. This is 21.05% for the overall piracy percentage. Out of 5 respondents between 23 to 26 years old, 2 participate in software piracy activities, accounted for 1.75% of overall piracy percentage.

Majority of the respondents, 105 people has income less than RM500.00 per month. Out of this, 55 admitted of making or copying illegal software, accounted of 48.25 for overall piracy percentage. Only 9 respondents have monthly income between RM500.00 to RM1000.00. Out of 9 respondents, 7 indulge in software piracy activities, which is 6.14% of the overall piracy percentage.

Out of the 114 respondents, more than half (63 respondents) has PC experience less than 1 year, 34 has between 1 to 3 years, 10 has 3 to 5 years and 7 has over 5 years. The number of respondents in relation to PC experience who reported of indulging in piracy activities were 25 (21.93%) for less than 1 year, 22 (19.30%) for between 1 to 3 years, 8 (7.02%) for 3 to 5 years and 7 (6.14%) for over 5 years. The percentage stated is for the percentage of overall piracy for the 114 respondents.

The figure breakdown for the 114 respondents in relation to PC ownership is 40 respondents own a personal computer and the remaining 74 do not own one. All the 40 respondents who own a personal computer admitted of making or copying illegal software, while only 22 from the 74 respondents do so. For the overall piracy percentage, 35.09% is from those owning personal computer, while 19.30% from those that do not own one.

4.2 Reasons For Pirating Software

The 62 respondents' that commit piracy act rank the reasons for pirating software as illustrated in Table 4, along with mean for each reason. The order of the sequence for the reasons indicates the importance of the reason in relation to pirating software. My findings on the reasons for pirating software are similar to those of Cheng et al (1997).

Table 4 : Reasons for Pirating Software

Order of Importance	Reason	Mean	p value
1	Software License is too expensive	3.00	n/a
2	Want to try out the latest software	6.080645	0.315
3	The software version is updated	6.225806	0.935
4	Use the software for a short time only	6.580645	0.561
5	Most people I know copy software	6.677419	0.451
6	It is easy to copy software	7.354839	0.827
7	Do not know the laws and regulations about software piracy	7.709677	0.666
8	Not knowing where to get the original software	7.822581	0.393
9	Not enough time to get the software legally	7.8709677	0.659
10	There is little chance being caught by the authorities	8.00	0.065

The most important reason, which is *'software license is too expensive'* is consistent with the findings of Harry (1989), Richard et al (1996), Glass and Wood (1996) and the statement by Hamdan Adnan (CNET 2000).

The second most important reason, which is *'want to try out the latest software'*, reflects the need of individuals to acquire knowledge on particular software. To do so, it is not economically possible for them, especially students. Having no other alternatives, individuals opt for pirated ones. The reason *'use the software for a short time only'* complements this. Indirectly, the reason that rank third as the most important reason to pirate software, *'the software version is updated'* is correlated with the reason *'want to try out the latest software'*.

The reason to pirate software that receives the fourth ranking, *'use the software for a short time only'* reveals that users are not willing to spend for software that they will be using for a short time only. This is further reflected in my findings for the reason to purchase original software *'can use the software all the time'* that is in fourth ranking.

The reason *'most people I know copy software'* rank fifth as the most important reason to pirate software. The high ranking for this reason is consistent with Wong et al (1995) findings, which is, it is not wrong to pirate software as everybody does it.

The reason that receives the sixth ranking, *'it is easy to copy software'*, it is in agreement with the findings of Cheng et al (1997). As the low ranking for the reason *'do not know the laws and regulations about software piracy'*, which is the seventh, it is consistent with the findings of Swinyard et al (1990) and Christensen et al (1991).

Individuals would make excuses to justify their particular behavior. However, in relation of software piracy, these reasons *'not knowing where to get the original software'* and *not enough time to get the software legally'* receive low ranking, which are the eighth and the ninth most important reason to pirate software.

The least important reason for pirating software is *'there is little chance of being caught by the authorities'* confirms the findings for the reason *'it is easy to copy software'*.

In determining the reason is more important than the next-ranked reason, one-way ANOVA is conducted. The p value for all the reasons is stated in Table 4. The p value reveals that each reason is not more important than the next-to-rank reason. This is due to the p value to be more than 0.05. An explanation of this is, it is due to the significant difference of the mean value between that reason with its next-to-rank reason.

4.3 Reasons For Purchasing Original Software

4.3.1 The Group That Commit Software Piracy

Respondents that commit piracy act rank the reasons for purchasing software, which is stated in Table 5, with the most important reason at the top of the table. There is slight variation for my findings compared to Cheng et al (1997). The main reason for purchasing software in my study is *'to avoid the chances of getting viruses'*, which is rank number eight for Cheng et al findings. However, in Cheng et al (1997), the main reason for purchasing original software is *'the software is required for school work or workplace'*, which rank second in my findings.

The contradictory ranking between my findings and Cheng et al (1997) is on the reason *'stay informed of upgrade'*. This reason ranks second as the least important reason, whereas for mine this reason ranks third as the most important reason.

Analyzing my findings in details, there exist a pattern that the respondents for the group that commit software piracy activities give high ranking for the perceived value of the software to them. The top six reasons reflect the importance of the software to the respondents. For the five least important reasons, it deals on the reasons on ethics, laws and regulations of software piracy. This suggests that the

perceived values for the software have greater influence on the reason to purchase original software than the reason on ethics or laws/regulation of software piracy.

Table 5: Reasons for Purchasing Original Software

Order of Importance	Reason	Mean	p value
1	To avoid the chances of getting viruses	4.451613	n/a
2	Need the software for schoolwork or workplace	5.032258	0.541
3	Stay informed of upgrade	5.16129	0.173
4	Can use the software all the time	5.33871	0.557
5	Can use technical support in case of problem	5.532258	0.248
6	Availability of manuals/instructions	5.790323	0.098
7	It is the law	6.435484	0.219
8	If not, I will be stealing or ripping someone else's profit when buying/making pirated software	6.903226	0.517
9	Prestige of having own copy	7.00	0.507
10	It is unethical to buy pirated software or to make illegal copies of software	7.048387	0.513
11	It is the school or company policy	7.274194	0.730

One-way ANOVA is conducted to determine whether the reason is more important than the next-to-rank reason. The p value for all the reasons is stated in Table 5. The p value is more than 0.05, this reveals that each reason is not more important than the next-to-rank reason. This can be due to the significant difference between the mean value of that reason with its next-to-rank.

4.3.2 The Group That Does Not Commit Software Piracy

The 52 respondents that do not indulge in piracy act, their reasons for purchasing software is stated as in Table 6, with the most important reason at the top of the table.

The reasons to purchase original software, by the order of importance is 'to avoid the chances of getting viruses', 'need the software for schoolwork or workplace', 'stay informed of upgrade', 'can use technical support in case of problem', 'it is unethical to buy pirated software or to make illegal copies of

software', 'it is the school or company policy', 'availability of manuals or instructions', 'prestige of having own copy', 'if not, I will be stealing or ripping someone else's profit when buying or making pirated software', 'it is the law' and 'can use the software all the time'.

Table 6 : Reasons for Purchasing Original Software

Order of Importance	Reason	Mean	p value
1	To avoid the chances of getting viruses	4.634615	n/a
2	Need the software for schoolwork or workplace	4.730769	0.144
3	Stay informed of upgrade	4.788462	0.041
4	Can use technical support in case of problem	5.057692	0.398
5	It is unethical to buy pirated software or to make illegal copies of software	5.692308	0.947
6	It is the school or company policy	5.942308	0.773
7	Availability of manuals/instructions	5.790323	0.526
8	Prestige of having own copy	6.519231	0.010
9	If not, I will be stealing or ripping someone else's profit when buying/making pirated software	6.788462	0.012
10	It is the law	7.615385	0.156
11	Use the software all the time	8.230769	0.733

Unlike the group that commits software piracy activities, pattern for rankings the reasons to purchase original software for this group has a mixture of the reasons on ethics, laws and regulations, and the value of that software to the user.

In determining the more important reason from the next-to-rank reason, one-way ANOVA is conducted. The p value for all the reasons is stated in Table 6. For all the p value that is more than 0.05, it reveals that each reason is not significantly different from the next-to-rank reason.. Only the reasons *'stay informed of upgrade', 'prestige of having own copy' and 'if not, I will be stealing or ripping someone else's profit when buying/making pirated software'* are more important than the next-to-rank reason. The reasons that are not more important than the next-to-rank reason can be due to having a significant difference of the mean value between that reason and the next-to-rank reason. Validation of for result of the one-way ANOVA for reason that

is more important than the next-to-rank reason, which is Tukey's Honest Difference Test cannot be performed as at least one group has fewer than two cases.

4.3.3 Comparison between Both Group for the Ranking of Reasons for Purchasing Original Software

Comparing this group with the group that commits piracy act, the three most important reasons for purchasing original software, which are *'to avoid the chances of getting viruses'*, *'need the software for schoolwork or workplace'* and *'stay informed of upgrade'* are the same. Other similarities in ranking for both groups are the reasons *'can use technical support in case of problems'*. This reason rank fifth as the most important reason for purchasing original software for the group that commits software piracy and this reason rank fourth as the most important reason for the group that does not involve in software piracy activities. The reason *'availability of manuals/instructions'* rank sixth for the group that commits software piracy act, while rank seventh for the group that does not involve in software piracy.

Another similarity in ranking is the reason *'prestige of having own copy'* which rank ninth as the most important reason for purchasing original software for the group that commits software piracy, while rank eight for ranking for the group that does not involve in software piracy activities. Other slight differences are the reasons *'prestige of having own copy'* and *'if not, I will be stealing or ripping someone else's profit when buying/making pirated software'*. The reasons rank ninth and tenth for the group that commits software piracy activities, while rank eighth and ninth for the group that does not involve in software piracy activities.

The reasons that *'it is unethical to buy pirated software or to make illegal copies of software'* and *'it is the school or company policy'* are the two least important reasons for purchasing original software for the group that commits software piracy. However, those reasons are the fifth and the sixth most important reasons for purchasing original software for the group that does not commit software piracy. Based on Table 2, out of the 74 respondents that do not own a personal computer, only 22 commits software piracy act. For those that do not own personal