FACTORS INFLUENCING SOFTWARE PIRACY IN THAILAND

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ABSTRACT

Software piracy is one of the major problems in IT industry. According to a study by Business Software Alliance, Thailand had a high piracy rate of 78% in 2007. In this study, a survey was conducted to identify the determinants that cause a high piracy rate in Thailand. The results from this study suggest that although people recognize buying, using, and sharing pirated software violate an intellectual property and are unacceptable behaviors, they still buy, share, and use without considering ethics. In addition, people tend to use pirated software by sharing more than buying themselves. Moreover, male has more tendencies to buy pirated software than female. Increasing of tendency is influenced by encouragements from professors, the number of experience in using PC, and the type of organization people work in. These discoveries have profound implications for defining polices to alleviate software piracy in the future.

Index Terms— software piracy, ethics, ethical decision making, Thailand

1. STATUS OF SOFTWARE PIRACY

Generally, software piracy or *softlifting* [20] in the sense of most people is copying and selling software without authorization. Copying software for the backup purpose, borrowing the original software and installing it on machines, or reselling the original software, whether these actions are software piracy or not, are questionable. Business Software Alliance (BSA) which is an organization that tries to persuade people to use legal digital software and hardware defines software piracy as the copying (by downloading, duplicating, installing) or distributing (by sharing, selling) of legal software onto any computers without the right authorization or licenses. The fifth annual study, conducted by BSA and IDC Global Software Piracy, covers piracy of all packaged software that runs on personal computers (PC), including desktops, laptops, and ultra-portables. The software includes operating systems, systems software such as databases and security packages, business applications, and consumer applications such as games, personal finance, and reference software. The study does not include software which runs on servers or mainframes or software sold as a service. In 2007, the study covered 108 countries and the result shows that the piracy rate dropped in 67 countries from 2006 to 2007 and increased in only eight countries. The worldwide PC software piracy rate increased to 38% from 2006 to 2007 and the median piracy rate in 2007 was 61%. Actually, half of the countries studied have a piracy rate of 61% or higher. IDC also categorizes regions into seven regions as shown in Figure 1. The PC software piracy rate dropped in North America, Latin America, and Western Europe in 2007. The regional piracy rates remained stable with the previous year in Central and Eastern Europe and the Middle East and Africa. The PC software piracy rate increased in Asia-Pacific only. The increase in the total worldwide rate mirrors the situation in Asia-Pacific, with the PC market shifting rapidly to emerging economies. Some of the market-related factors for the difference of piracy rates in each region are the strength of enforcement of copyright legislation, the amount of consumers and small businesses, the amount of PCs purchased from non-brand name vendors, and the service from IT. IDC believes that the piracy rate measuring from large businesses, multinational companies, and the central government is lower than the piracy rate measuring from small businesses and the consumer sector. Moreover, the piracy rates also vary by product segment – lower and falling for operating systems and higher for consumer software such as PC game.

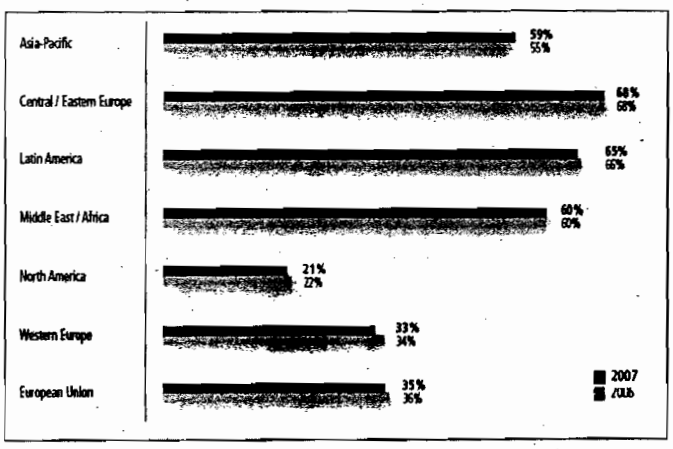

Figure 1 Piracy rate by region (BSA, 2008)

IDC also finds that the worldwide losses a large amount of money from 2006 to 2007, increased by 20%, or more than $8 billion. From the study, USA is in the first ranked, losing 8,040 million dollars from PC software piracy. BSA suggests four ways to reduce software piracy and reap the economic benefits:

- Increase public education and awareness of the value of intellectual property and the risks of using unlicensed software
- Create strong enforcement mechanisms including tough anti-piracy laws
- Dedicate significant government resources to the problem, including national IP enforcement units, cross-border cooperation, and training for local officers and judiciary officials
- Implement software management policies and require the public sector to use only legitimate software

Regarding a piracy rate in Thailand, it decreased by 2% from 80% in 2006 to 78% in 2007. This shows that Thailand has taken a small step in the right direction but still Thailand has more work to do in the battle against software piracy. Reducing piracy further would deliver significant benefits for local consumers, local software and services firms, small businesses, and the society at large. The Department of Intellectual Property, a main leading agency responsible for the intellectual property system in Thailand, recently launches a major educational campaign targeted at the business sector. Thai police authorities also commit to strictly enforce the law and the senior government officials cooperate to be more vocal in support of intellectual property rights. The IDC's study in 2007 indicates that if the piracy rate in Thailand decreases by 10% in the next four years, the IT industry will grow to 91%, over 2004 and additional 2,100 jobs will be created. In addition, a reduction in piracy rate will drive Thailand economy to the value of $1.9 billion, increasing local revenue by $1 billion, and tax revenues by $55 million (see Figure 2).

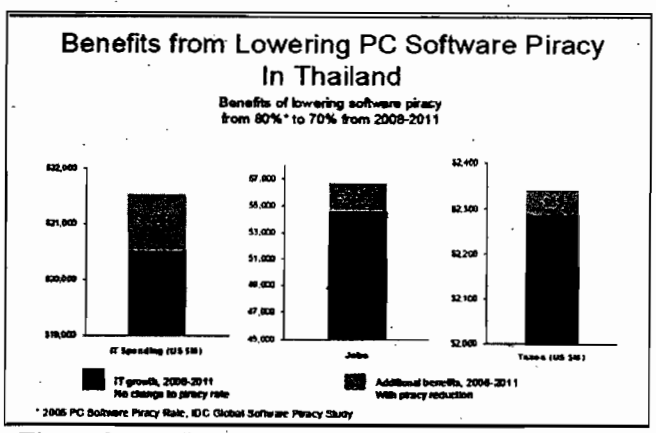

Figure 2 Benefits from lowering PC software piracy in Thailand (from BSA, 2007)

2. METHODOLOGY

Typically, research on software piracy can be categorized into two levels: an individual (or micro) level and a national (or macro) level. The objective of the individual level is to identify factors that have an effect on individual's decision in making pirated activity. The factors used for analyzing usually involve with individual's intention, attitudes such as gender, age, their ethical decision making and so on. Whereas, the objective of the national level is to identify factors that have an effect on software piracy in country level, i.e. economic, culture, legal factors and so on as such these factors are in a higher level than an individual level. Most of researches are at a macro level but this study is focused mainly on a micro level. The conceptual framework in this study is shown in Figure 3.

The main purpose of this study is to determine relationships among four components (i.e. recognition, judgment, intention, and behavior – using, buying, and sharing behavior) of individual ethical decision making model created by Rest (1986). Another purpose is to identify whether demographics and social norms have an effect on ethical decision-making process.

A survey form is developed based on the conceptual framework and it is divided into four parts. The first part focuses on recognition and judgment in software piracy in the context of five scenarios (High Cost, Freely Available, Overpriced, No Punishment, and Cannot Afford) adapted from Al-Jabri and Abdul-Gader (1997) [1]. The second part called "Personal Beliefs" is concerned with the intention in buying or using pirated software for each scenario. The 7-point Likert scale is used in the first two parts with the ranges from 1 = Strongly Agree to 7 = Strongly Disagree. The third part surveys the frequency and breadth in buying, using, and sharing pirated software. The last part is to collect the respondents' personal and background information.

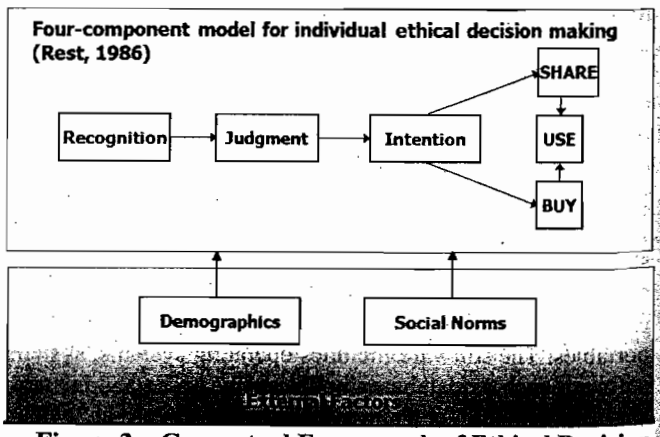

Figure 3 – Conceptual Framework of Ethical Decision Making

3. DATA COLLECTION AND RESULTS

The survey sample is Thai graduate students at one international graduate school in Thailand as many studies conclude that software piracy is widely perpetrated by students and academics who can exert considerable influence on the ethical behavior of students [31]. Survey forms were distributed to three hundred students and 213 completed forms were returned. The response rate was 71%.

Data acquired from survey are analyzed by using partial correlation coefficient and multiple linear regression analysis. The descriptive statistic information summary is presented in Table 1. From all 213 respondents, 119 respondents (55.87%) are male and 94 respondents (44.13%) are female. Almost all of respondents (200 respondents or 93.9%) buy pirated software while 211 respondents (99%) use illegal software. Similar to buying and using pirated software, the majority of respondents (209 respondents or 98.12%) also share illegal software. The result also shows that 198 respondents (92.98%) do all of these behaviors – buying, using, and sharing pirated software. The average age of respondents is approximately 27.4 years old. Most of them are in a young group with the age of 22-27 years old (120 respondents or 56.34%). Half of the respondents have working experience between 1-3 years before studying in this graduate school. The number of respondents working in private organization is a bit higher than the number of respondents working in public organization. In addition, almost all respondents have their own personal computer (94.37%) and have more than 8 years experience in using PC while the average is 10.59 years. Furthermore, almost half of respondents (41.31%) spend their time over 3 hours a day to use pirated software while a little amount of money spent with an average of 431.7 Baht per year for buying this pirated software each year. Generally, people share illegal software among each others with an average of 6.4 copies per year. Lastly the popular pirated software to use is developed from other countries (international software) rather than developed in Thailand (local software).

Table 1 - Descriptive statistic information

Items	Amount	Percentage	Mean
Gender			
• Male	119	55.87	
• Female	94	44.13	
Age (Range between 22-40 Years)			**27.43**
• Between 22-27	120	56.34	
• Between 28-33	77	36.15	
• Between 34-40	16	7.51	
PC Owner			
• Yes	201	94.37	
• No	12	5.63	
Experienced in using PC (Range between 1-25 Years)			**10.59**
• Between 1-3	12	5.63	
• Between 4-8	52	24.41	
• Greater than 8	149	69.96	
Work experience (Range between 0-19 Years)			**3.73**
• No experience	24	11.27	
• Between 1-3	105	49.29	
• Between 4-8	57	26.76	
• Greater than 8	27	12.68	
Type of organization work for			
• Private organization	98	46.01	
• Public organization	91	42.72	
• No working experience	24	11.27	
Owner of pirated software development			
• Thailand	48	22.54	
• Other countries	92	43.19	
• Both Thailand and other countries	67	31.46	
• No answer	6	2.82	
Number of respondents buying, using, and sharing pirated software			
• Buying	200	93.9	
• Using	211	99.06	
• Sharing	209	98.12	
• Buying, Using, and Sharing	198	92.98	
Average amount spend on buying pirated software each year			**431.7**
• 0 Baht	13	6.10	
• Less than 300 Baht	91	42.72	
• Between 300-750 Baht	82	38.50	
• Between 751-1,500 Baht	24	11.27	
• Between 1,501-3,000 Baht	1	0.47	
• More than 3,000 Baht	2	0.94	

Items	Amount	Percentage	Mean
Average time spend on using pirated software each day			
• Never use	2	0.94	
• Less than ½ hour	27	12.68	
• Between ½ and 1 hour	35	16.43	
• Between 1 and 2 hours	36	16.90	
• Between 2 and 3 hours	25	11.74	
• More than 3 hours	88	41.31	
Average copies of pirated software which borrow or share each year with other people			**6.4**
• None	8	3.76	
• 1 or 2 copies	61	28.64	
• Between 3-5 copies	65	30.52	
• Between 6-10 copies	42	19.72	
• Between 11-20 copies	14	6.57	
• More than 20 copies	23	10.80	

Regarding to the judgment, recognition, and intention, Table 2 shows the number of people who agree and disagree with these three components separated by five different scenarios.

Table 2 – Judgment, recognition, and intention responses separated by scenarios

	1-High cost	2-Freely available	3-Overpriced	4-No punishment	5-Cannot afford
Judgment					
• Agree[1]	100	137	129	84	129
• Disagree[2]	100	35	68	98	62
• Neither	13	41	16	31	22
Recognition					
• Agree[1]	145	155	148	140	137
• Disagree[2]	47	31	43	49	46
• Neither	21	27	22	24	30
Intention					
• Agree[1]	196	168	191	159	178
• Disagree[2]	10	22	7	23	15
• Neither	7	23	15	31	20

Notes : 1 = The total number of all agreement levels (i.e. strongly agree, agree, and moderately agree)
2 = The total number of all disagreement levels (i.e. strongly disagree, disagree, and moderately disagree)

Based on the results in Table 2, Figure 4 – Figure 6 show the comparison in each scenario between agreeing, disagreeing, and neither for judgment, recognition, and intention respectively.

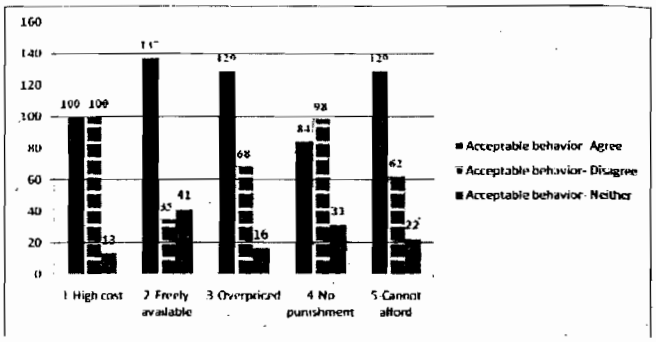

Figure 4 Comparison of judgment responses in each scenario

For "Judgment", it measures the extent to which people agree or disagree that buying pirated software is an acceptable behavior. From Figure 4, a majority of all respondents agree with judgment statement when 1) it is freely available; 2) legal software is overpriced; and 3) they cannot afford legal software. The number of agreement is equal to the number of disagreement in case of high cost of legal software. While in a case of no punishment, people consider that buying pirated software is an unacceptable behavior rather than acceptable behavior.

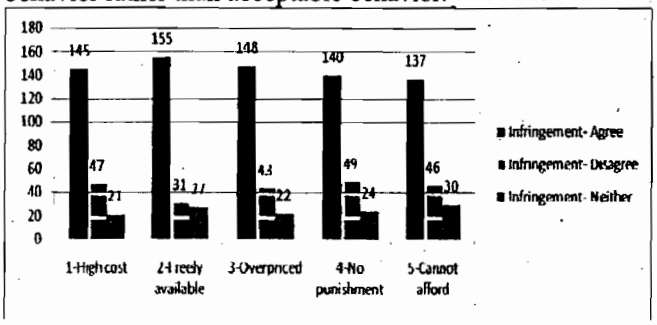

Figure 5 Comparison of recognition responses in each scenario

For "Recognition", it measures the extent to which people agree or disagree that buying pirated software is an infringement of intellectual property. From Figure 5, most of all respondents agree that buying pirated software is an infringement of intellectual property right in all scenarios.

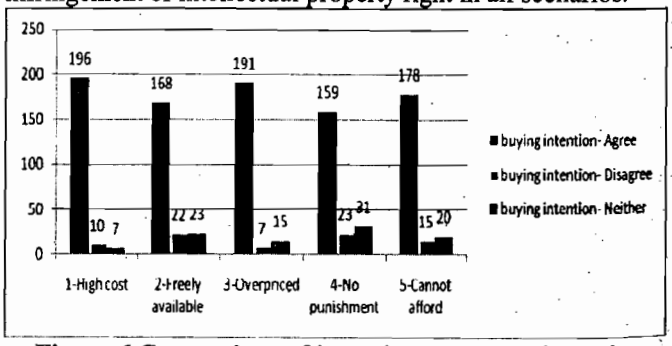

Figure 6 Comparison of intention responses in each scenario

For "Intention", it measures the extent to which people intend to buy pirated software. Figure 6 indicates that most of all respondents intend to buy pirated software in all scenarios even though they recognize that it is an intellectual property violation.

The partial correlation coefficient is used to measure the relationships between a pair of variables based on conceptual framework, i.e. recognition and judgment, judgment and intention, intention and share, intention and buy. The results reveal that recognition correlates with judgment in all scenarios. This indicates that if people consider buying pirated software is an infringement of intellectual property rights, they will judge that buying pirated software is an unacceptable behavior as well. In addition, judgment correlates with intention. This indicates that if people consider buying illegal software was an acceptable behavior because 1) it is freely available, 2) there is no punishment, and 3) they cannot afford a legal copy, they would buy that illegal software. Both sharing and buying behaviors correlate with using behavior but the correlation for sharing behavior is higher than buying behavior. This indicates that people use pirated software getting from sharing rather than buying.

Generally, a multiple linear regression method is used to determine that a dependent variable can be explained by a set of independent variables at a significant level (through multiple coefficient of determination: R^2), and used to identify the importance of the independent variables (by comparing beta coefficients: B). In this study, a multiple linear regression is used to find determinants which have an influence on frequencies (i.e. the number of times) of buying, using and sharing illegal software defined as a dependent variable. The results show that gender is the determinant influencing "Buy" behavior. This implies that male tends to buy pirated software than female. The significant variables which influence "Use" are "Share", "Buy", the influence of professors and classmates, the amount of experience in PC use, and type of organization people are in. From the analysis, it results that sharing pirated software do still have a greater effect on the use of pirated software than buying. Therefore, people tend to use pirated software by sharing more than buying themselves. In addition, the uses of pirated software by professors also encourage others to use pirated software. Lastly, people who have more experiences or work for the private organizations are apt to use pirated software.

By using the partial correlation coefficient and the multiple linear regression, the results suggest that although people recognize buying, using, and sharing pirated software are an intellectual property violation and unacceptable behaviors, they still would buy, share and use depending on their intention without considering ethics in their mind. Furthermore, male is more likely to buy pirated software than female but less amount of money spent (with an average of 432 Baht per year) to buy this software. It implies that nowadays people do not get pirated software from only buying because there are many ways to get this pirated software instead of buying them such as downloading, borrowing, sharing, and so on. The result also supports that sharing behavior influences using behavior more than buying behavior. Moreover, professors can lead people not to use pirated software more than family and friends. An experience in PC use also influences using behavior and software piracy rate tends to increase in the future because most people (more than 90%) have their own computers and have been using computer with the average of 10 years. Finally, people working for private organizations are apt to use pirated software more than people working for public organizations. This may be because the Thai Government requests the cooperation from all public agencies to use legal software, strongly support IP policies and act as a role model for private organizations and individuals.

4. CONCLUSION AND RECOMMENDATION

Due to a high software piracy rate in Thailand, this study was conducted to identify the determinants that cause software piracy. The relationships between a pair of variables based on conceptual framework, i.e. recognition and judgment, judgment and intention, intention and share, intention and buy. The results reveal that recognition correlates with judgment in all scenarios. This indicates that if people consider buying pirated software is an infringement of intellectual property rights, they will judge that buying pirated software is an unacceptable behavior as well. In addition, judgment correlates with intention. People consider buying illegal software was an acceptable behavior because 1) it is freely available, 2) there is no punishment, and 3) they cannot afford a legal copy, so they would buy that illegal software. Both sharing and buying behaviors correlate with using behavior but the correlation for sharing behavior is higher than buying behavior. This indicates that people use pirated software getting from sharing rather than buying. In addition, the results also reveal that gender is another factor which influences buying behavior. Male is more likely to buy pirated software than female. Increasing of tendency is influenced by encouragements from professors as well as number of experience in using PC while classmates may persuade their colleagues not to use the pirated software. Lastly, people working in private organization are apt to use pirated software than people working in public organization.

Therefore, the conclusion is that although people recognize buying, using, and sharing pirated software are an

intellectual property violation and unacceptable behaviors, they still would buy, share and use depending on their intention without considering ethics in their mind. Based on the results from the study, there are many options to decrease software piracy rate in Thailand. Firstly, the Thai Government should revise the strategy to teach ethics in school. It should be a compulsory subject not only for undergraduate students but also for graduate students due to the lack of awareness in ethics and morals. Secondly, with the result that professors have an influence to persuade people in the usage of pirated software, therefore, the information on software piracy avoidance should be provided to public (especially professors and classmates) for encouraging them to use legitimate software rather than illegal software. Thirdly, the government agencies have to try to stop sharing and buying which affects on using behavior by enforcing rules, laws, and punishments or banning some websites which allow people to download software without having the right licenses or strictly prosecuting an infringer of pirated software both software piracy troublemakers and sellers. Finally, encouraging people to use open source software is another way to reduce software piracy rate without violating intellectual property and paying a large amount of money for license fee. These alternatives are the suggestion which can be driven from the internal government policies. If we can strictly do all of these suggestion, the software piracy rate in Thailand should be reduced.

There are some limitations in this study. The first limitation is the sample group concentrating only on students, therefore, the study should be extended to cover to workforce group which are well-educated, having more working experiences, and probably they are aware of software piracy problem more than students. The second limitation is the scope of pirated software which is mainly focused on application software, not including operating system, games, movies, and songs. With the broader scope of pirated software, the new significant results might be shown.

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