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A Study of Factors Influencing Green IT Practices, Buying and Subscription Behaviours of Computer and Mobile Devices, and Streaming Services

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Abstract

The pressure of environmental sustainability and the introduction of strict transnational and local environment laws, regulations and targets have catalysed the emergency of Green IT. On individual level, Green IT can be achieved through environmentally responsible behaviour to purchase, use and disposal of products and services without damaging the environment. This research aims to investigate the Green IT behaviour of young consumers including their day-to-day Green IT practices, buying behaviour of mobile and computer devices and subscription behaviour of streaming services. The findings show that: 1) Understanding of Green IT practices (specific knowledge) has a positive influence on PBC, 2) Consumer's PBC has a positive influence on Green IT behaviour and 3) The communication strategy has a positive influence on PBC. Research results also show that young consumers' buying and subscribing decision are strongly influenced by factors such as appearance, specification, features, content and price than Green IT factors.

Keywords: Green IT, Green IT Practices, buying behaviour, subscription behaviour, perceived behavioural control

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Introduction

In the recent decades, concerns about the environment have been raised in response to climate change caused by greenhouse gas emissions. The excessive emissions have risen global temperature that leads to dangerous threats and challenges to our environment such as more frequent and severe floods, droughts, intense rain and heat waves. Ramayah et al. (2013) argue that individuals or firms should not attain a higher living standard or operating efficiency at the expenses of environmental well-being as the nature could not hold the negative effects much longer.

As a result, environmental sustainability is no longer the sole concern of scientists and environmentalists but sits high on the agenda for firms, non-government organizations and consumers (Malhotra et al., 2013; Banerjee, 2002; Bonini et al., 2008; Dedrick, 2010; Kuo and Dick, 2009; United Nations Environment Programme, 2008). Although the cost of mitigating the greenhouse gas emissions are expensive, many business leaders and senior executives understand the importance of satisfying the sustainability of economic, social and environmental capitals simultaneously as focusing on economic sustainability alone can deteriorate the natural environment in an unrecoverable manner and compromise the future generations to meet their own needs (Chen et al., 2008; Melville, 2008; Edgeman, 2015).

A major driver to the adoption of environmental sustainability principles and practices is by imposing coercive pressure. Some countries including Costa Rica, Denmark, Finland, Japan, Netherlands, Norway, Slovenia, South Africa and Switzerland chose to legislate for carbon tax to reduce carbon emissions (SBS, 2013). Another method to establish a regulative framework is by implementing a market-based regulatory program to allow participating companies to purchase extra emissions rights from other companies if their annual emissions exceed quotas set by the government. A multiplicity of regional, national and subnational carbon markets emerged including the EU Emissions Trading System (in EU countries), Regional Greenhouse Gas Initiative (in northeast and mid-Atlantic states of USA), Western Climate Initiative and Perform (in California, British Columbia, Manitoba, Ontario and Quebec) and Achieve and Trade Scheme (in India) (Newell et al., 2013).

The advance of IT not only creates numerous opportunities for companies but also environmental concerns to the society. As the combined IT services and manufacturing sectors is responsible for 6.5% of global GDP (United Nations Conference on Trade and Development, 2017), a huge impact to the environment is also expected through the production, use and disposal of IT equipment. For example, the carbon dioxide emissions contributed by IT sector is about 2% of the world emissions, similar to the global aviation industry (Accenture, 2015; Master, 2009).

Producing IT equipment not only consumes electricity, raw materials, chemicals and water but also generates hazardous waste (Murugesan, 2010). Besides, some raw materials used in IT equipment are obtained through removing and crushing tonnes of rock in which the amount of energy required implies significant greenhouse gas emissions (Fairweather, 2011). In terms of IT usage, both personal and enterprise IT equipment require significant energy primarily generated by coal, oil or gas to operate (Bose and Luo, 2012; Murugesan, 2010). It is reported that IT usage consumed 4.7% of electricity worldwide in 2012 (Gelenbe and Caseau, 2015) In USA, data centres are one of the largest and fastest growing consumers of electricity in the United States, consuming enough electricity to power all the households in New York City twice over (Natural Resources Defence Council, 2015). Furthermore, numerous IT equipment containing toxic materials can cause environmental pollution and contamination when the equipment is obsoleted and discarded within a few years after purchase (Bossuet, 2014; Herat and Bahadir, 2007). For example, about 462

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million computers and 789 million mobile devices were trashed or recycled in USA in 2009 (EPA, 2011).

The pressure of environmental sustainability and the introduction of strict transnational and local environment laws, regulations and targets have catalysed the emergency of Green IT. Green IT refers to the ecologically-friendly and efficient consumption of raw materials and energy during management of IT infrastructure (Molla et al., 2009). This can be achieved by systematic planning, implementing and controlling the design, manufacture, use and disposal of IT infrastructure.

In a research conducted in 2009 surveying 1052 companies worldwide, 86% of the participated companies stated that implementing Green IT initiatives was somewhat/significantly important and 97% of them had already started to discuss a Green IT strategy (Symantec, 2009). Organizations have been pursuing Green IT solutions motivated by three categories of determinants namely economic (such as competitiveness and cost reduction), ethical (such as social responsibility and entrepreneurs' skills) and regulatory (such as legal regulations, and internal and international policy) (Radu, 2016).

On individual level, Green IT can be achieved through environmentally responsible behaviour to purchase, use and disposal of products and services without damaging the environment (Loo at al., 2014). This research aims to investigate the Green IT behaviour of young consumers including their day to day Green IT practices and buying behaviour of computer devices and streaming services.

Research Background

Green IT behaviour has been researched extensively by Molla and his colleagues (Molla, 2009; Molla and Cooper, 2009; Loeser et al., 2017) as well as other researchers
such as Bose and Luo (2012) but their research is based on organizational rather than individual perspective. Molla (2009) and Loeser et al. (2009) point out that organizational Green IT behaviour covers three aspects namely sourcing, operations and end of IT life management. Further explanation of the three aspects are shown in Table 1.

Similar to organizational Green IT behaviour, environmentally responsible individual consumers are expected to carry out additional Green IT practices such as reduce energy consumption of IT equipment, minimize waste produced by IT equipment, and reuse, recycle and dispose IT equipment in an environmentally friendly manner. They are also expected to subscribe IT related services and purchase environmentally friendly IT products from environmentally responsible vendors and service providers.

As consumers have become more environmentally aware since mid-1990s, they are more likely to take environmental impacts as their procurement considerations (Lee, 2008). Hence a new force of green consumerism has been formed where they avoid products or services that are likely to endanger their health, cause significant damage to the environment in the product life cycle, consume excessive energy, cause unnecessary waster and use materials obtained from threatened species or environments (Civero, 2017; Hoang and Nguyen, 2012). In fact, many consumers favour such green buying behaviour. For examples, young consumers tended to choose products that are least harmful to the environment (Kanchanapilbul et al., 2014) and 54% of Europeans often bought environmental-friendly products (Flash Eurobarometer, 2013).

Table 1 - Aspects and Definitions of Organizational Green IT Practices		
Aspects of Green IT Behaviour (Molla, 2009; Loeser et al., 2017)	**Definitions**	**Reduce Carbon Footprint in Bose and Luo (2012)**
Sourcing	Practice of environmentally preferable IT purchasing	Asset Management
Operations	1. Improving energy efficiency in powering and cooling corporate IT assets and reducing IT induced greenhouse gas emissions 2. Role of IT in supporting a business's overall sustainability initiatives	Asset Management, Energy Efficiency, Enabling Green IT Practices through the utilization of IT
End of IT Life Management	Practices in reusing, recycling and disposing IT hardware	Asset Management

Green buying behaviour can be carried out individually but a collection of buying decisions that take into account environmental consequences can impact on how organizations behave (Bose and Luo, 2011; Dedrick, 2010; Murugesan, 2008). This has motivated organizations to respond to public's environmental concerns as this could directly affect consumer buying and subscription decisions.

What is more, the positive effect of "green image" building up by environmental sustainability practices is capable of directing consumers to pay more for credible green products (Cordeiro and Sarkis, 1997). Their willingness to pay will increase in accordance with savings from the inherence benefits of products (Drozenko et al., 2011). This offset negative effects in competitiveness and economic performance in commercial organizations due to additional implementation and operational costs entailed by the adoption of environment sustainability practices (Cordeiro and Sarkis, 1997; Klassen and McLaughlin, 1996; Levy 1995; Russo and Fouts, 1997; Schoenherr and Talluri, 2013; Worrell et al., 1995).

There has been a lot of research concerning behaviour of green buying in various products such as household appliances (Sonnenberg et al., 2015) and fashion (D'Souza, 2015). Research shows that the four significant exogenous variables of eco-fashion buying behaviour are environmental concern, sustainable pricing, sustainable commitment and sustainable image. In the household appliances research, respondents preferred appliances that consumed less water and electricity as well as had a reputation of having a longer service life. They also inclined to use energy rating as an indication and to buy from a retailer with a recycle centre for used appliances.

To respond to market demand of energy efficient household appliances, many manufacturers have provided product energy performance information through energy rating labels at point-of-sale or on their website. This labelling mechanism is usually coordinated and administrated by a national body. For instance, the Department of Industry and Science in Australia is responsible for coordinating the energy rating program to allow consumers to obtain clear and objective energy efficiency information not limited to household appliances but also office and industrial office equipment.

European Union has taken a step forward to conduct a voluntary labelling scheme so that consumers can rely on Ecolabels to identify environmental friendly products and services. Products and services are awarded an Ecolabel if their main environmental impacts are reduced in the life cycle when comparing with other similar

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products. Some popular yet high risk IT equipment is also covered in the labelling scheme. For example, notebook computers with an Ecolabel mean that the products have a longer durability, consume less energy, use less polluting batteries, contain less health- and environmental-threatening substances as well as dismantle and recycle easily.

Among all risky IT equipment, PCs, smartphones and tablets are more popular. According to a recent survey conducted by Accenture (Accenture, 2013), purchase plans of technologies of consumers from 11 different countries (including US) were more strongly focused on PCs, smartphones and tablets than other devices such as digital camera and e-book reader. As a result, the number of these devices owned had increased dramatically. For example, homes that owned smartphones and tablets had increased more than 200% from 2009 to 2013 and 500% from 2011 to 2013 respectively.

Another research conducted by Nielsen (2014) provides a more detailed insight in the age distribution of US consumers in which younger consumers (35 years of age or younger) were more likely to purchase PCs, smartphones and tablets in the next 12 months than the average US population. Rather than watching live TV programs through regular TVs, the adoption of PCs, smartphones and tablets allows consumers to watch video and listen to music provided by video or music streaming service providers. For example, about 38% of US consumers subscribed to Netflix to stream video in 2013, which represents an increase of 31% in 2012. Younger consumers are also being influenced more by the streaming services as they are using more streaming services than their older counterparts.

In general, decisions on purchasing a product or service are motivated by many factors such as price, brand, quality, design, innovativeness, functionalities, delivery time, information access and promotion of the product/service; attitude, value, belief, self-image, prior experience, culture, availability, psychographic characterization, age, gender, education background, literacy, social class and income of consumers; peer pressure; word of mouth (Akehurst et al., 2012; Akir and Othman, 2010; Bigne et al., 2005; Chiu et al., 2006; Sonnenberg et al., 2015; Young et al., 2008; Zhu et al., 2006). The complexity of motivation factors makes it hard to explain buying behaviour. In terms of green buying behaviour, the contradictive survey results conclude that this behaviour is irrelevant to be explained using demographic qualities such as gender, age, income, literacy and education background (Akehurst et al., 2012)

The rising awareness levels on Green IT has encouraged enterprises, education providers, and environmental agencies and organizations to develop Green IT promotion campaigns, training programs and advertisements to strengthen consumers' and individuals' Green IT knowledge. It is therefore essential to understand the relationship among communication strategies, knowledge and Green IT behaviour. We therefore propose a framework that can be used to study how specific knowledge and communication strategy can impact Green IT practices, buying behaviour of computer devices and streaming services.

Research Framework and Hypotheses

This research is built on the insights of a comprehensive structural equation model (Oom Do Valle et al., 2005) that was developed based on a well-known attitude-behaviour theory, the theory of planned behaviour (TPB) (Ajzen, 1985). TPB, an extension of the Theory of Reasoned Action (TRA), is an influential model designed to provide explanations of informational and motivational influences on behaviour (Conner and Armitage, 1998). Similar to TRA, TPB specifies intention as a predictor of behaviour as well as attitude toward a behaviour and subjective norm as determinants of intention (Friedrich, 2016). To address TRA's incompetency of explaining behaviours over which people have no complete volitional control, TPB includes perceived behavioural control (PBC) as a direct predictor of intention and behaviour to account for factors outside individual control that may affect intentions and behaviours (Soon and Gutierrez, 2010; Haustein and Hunecke, 2007; Montano and Kasprzyk, 2015).

TPB has been used to explain a wide range of behaviours such as online consumer behaviours, health behaviours and environmental behaviours (de Leeuw et al., 2015; Montano and Kasprzyk, 2015; Pavlou and Fygenson, 2006). Meta-analysis of 185 independent studies has shown that TPB accounted for 27% and 39% of the variance in behaviour and intention respectively (Armitage and Conner, 2001). Oom Do Valle's model is designed to explain recycling behaviour and the results of the model support the use of TPB as a basic for modelling one type of green behaviour (Oom Do Valle et al., 2005). Furthermore, Oom Do Valle's model has been proven to be useful in explaining certain specific pro-environmental behaviours including consumer buying behaviour (Stern et al., 1995; Yadav and Pathak, 2016; Yazdanpanah and Forouzani, 2015). We therefore argue that the model can also be used to explain individual behaviour towards Green IT.

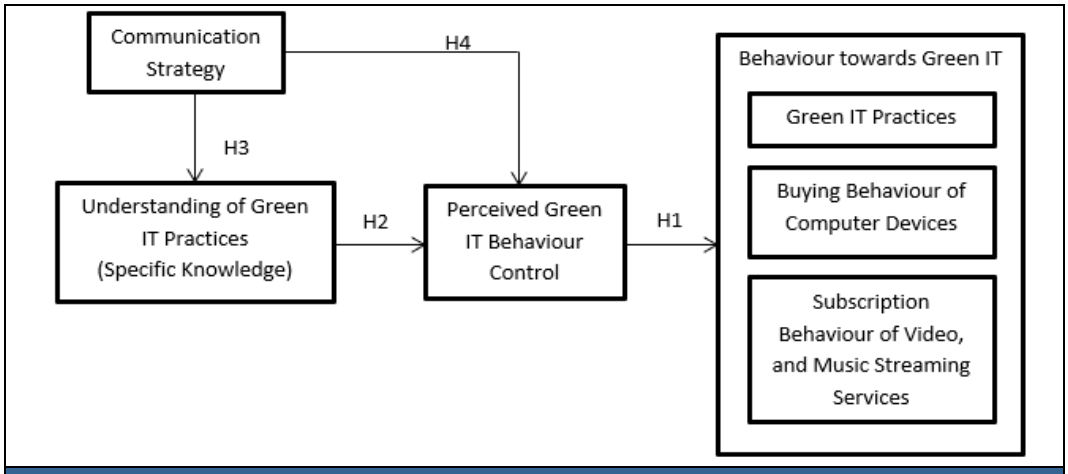

Figure 1 - Green IT Behaviour Model

As mentioned earlier, individual behaviours are jointly dependent on intention and PBC but researchers such as Akman and Mishra (2014), Afroz et al., (2015), Cheung et al., (1999), Gatersleben et al., (2012) and Litvine and Wustenhagen (2011) argue that PBC has a direct and significant effect on behaviour. PBC refers to individual confidence in terms of ability and controllability to perform a specific behaviour. PBC is relatively more useful than intention as volitional control over the behaviour declines. In other words, the engagement between behaviour and intention is stronger if consumers can decide at will to perform Green IT

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behaviour or not, but unfortunately performing the behaviour depends to some degree on some non-motivational factors (Ajzen, 1985). As TPB assumes intentions precede behaviours, we therefore echo Oom Do Valle et al. (2005)'s research to exclude intention from this research model due to the fact that our research only assesses respondents' future intention, not the past decisions or motives to guide the current behaviour. Furthermore, Green IT behaviour intention is also difficult to measure, therefore intention is excluded from this research model. The first hypothesis is defined to use PBC to explain Green IT behaviour that includes Green IT practices, buying behaviour of computer devices and subscription behaviour of video and music streaming services.

> Hypothesis 1 (H1): Consumer's perceived Green IT behaviour control has a positive influence on Green IT behaviour.
>
> Hypothesis 1a (H1a): Consumer's perceived Green IT behaviour control has a positive influence on Green IT practices.
>
> Hypothesis 1b (H1b): Consumer's perceived Green IT behaviour control has a positive influence on buying behaviour of computer devices.
>
> Hypothesis 1c (H1c): Consumer's perceived Green IT behaviour control has a positive influence on subscription behaviour of video and music streaming services.

Ajzen (2002) finds that control belief is a determinant of PBC. He further defined control belief as a set of beliefs that deals with presence or absence of requisite resources and opportunities based on previous experience with the behaviour that can be influenced by second-hand information and acquaintances' and friends' experiences. de Leeuw et al. (2015) identify five control beliefs that have a significant effect on PBC influence young people's pro-environmental behaviour in which two of them are related to information and knowledge they possessed, namely the availability of ecological information suitable for adolescents and guidelines regarding appropriate eco-friendly behaviours. Many studies (such as leisure, low-fat diet consumption and academic achievement research) have also identified knowledge and information possessed as one of the key control beliefs that give rise to PBC (Ajzen and Driver, 1991; Armitage and Conner, 1999; Ajxen and Madden, 1986). Instead of investigating how PBC is influenced by a range of control beliefs, we choose to focus on measuring only one control belief, that is young consumers' understanding of Green IT practices (specific knowledge) and the communication strategies used to deliver specific knowledge.

It is impractical to expect individuals to behave in an environmentally responsible manner if they do not possess knowledge of the appropriate behaviour (Antil, 1984; Kozar and Connell, 2013). Individuals who are more knowledgeable on environmental issues, possible solutions to environmental problems and how to take actions on environmental issues were more likely to engage in environmentally responsible behaviours (Granzin and Olsen, 1991; Hines et al., 1987; Loo et al., 2014; Taylor and Todd, 1997). Insufficient knowledge about a given behaviour can make PBC unrealistic which in turn can further lead to inaccurate behavioural prediction (Ajzen, 1991; Nuttavuthisit and Thogersen, 2017). Therefore, the greater Green IT knowledge a consumer possesses, the more likely s/he will understand the PBC. This premise is presented in H2.

> Hypothesis 2 (H2): Understanding of Green IT practices (specific knowledge) has a positive influence on perceived Green IT behaviour control.

The last two hypothesises are used to examine the influence of communication strategy of Green IT towards specific Green IT knowledge and PBC. Consumers are expected to have more PBC and Green IT knowledge if they are more exposed to the communication strategy.

Hypothesis 3 (H3): The communication strategy has a positive influence on understanding of Green IT practices (specific knowledge).

Hypothesis 4 (H4): The communication strategy has a positive influence on perceived Green IT behaviour control.

Effective communication strategies can be used to educate consumers to significantly increase their knowledge about the motivation to maintain health (Kim and Ham, 2016) and environmental issues (Garma, 2014). Effective communication strategies can also influence individuals' environmentally responsible behaviours by delivering messages to raise their awareness of environmental protection (Moore et al., 2009; Oom Do Valle et al., 2005; Ramayah et al., 2012). For example, an education campaign on public environmental attitudes and behaviour was successful in increasing the recycled waste collected and the number of inhabitants participating in Poland (Grodzinska-Jurczak et al., 2006). The messages can be delivered through one or multiple medium (such as television, radio, newspapers and interview) by organizations such as Government, vendors, manufacturers and service providers.

PBC is an important aspect of communication strategies to reduce environment impacts (Bortoleto et al., 2012). Here, communication strategies refer to online and offline medium used to delivery Green IT knowledge to consumers. Although communication strategies failed to positively influence PBC in OOM DO Valle et al., (2005)'s research, his research only covered offline communication strategies such as television, radio, newspapers and billboards. As online media has become the mainstream communication strategies, it is therefore appropriate to re-test this hypothesis again.

Research Methodology

Data for this study were collected through a survey of university students between April 2014 and April 2015. The survey has been validated in the studies by Oom Do Valle et al. (2005), Molla et al. (2009) and Cromar (2010). University students were targeted as research conducted by Nielsen (2014) show that younger consumers (35 years of age or younger) are more likely to purchase computers, smartphones and tablets than the general population. They are also more likely to watch video and listen to music through video and music streaming service providers. Thus this research focuses on young consumers such as university students to study their Green IT purchasing behaviour.

The questionnaire consists of four sections. Section 1 is related to demographic information, section 2 identifies respondents' understanding of Green IT practices, while Section 3 asks them to report various types of Green IT behaviours. Section 4 contains information on communication of Green IT messages. The data were analysed using descriptive and exploratory statistics. Exploratory factor analysis (EFA) was used to reduce the number of measured variables to a smaller number of factors. Principal factor component analysis and Varimax were used in EFA. Confirmatory factory analysis (CFA) was used to test model fit obtained from EFA. Structured equation modelling is used to test the hypotheses. SPSS and AMOS software was used to conduct statistical analysis in this project.

Results

Data for this study were collected by surveying 311 students from five universities in five countries, namely Hong Kong, USA, Japan, Vietnam and Australia. After missing data and outliers were removed, 277 data were used for analysis. The distribution and profile of respondents in each country is shown in Table 2 and 3. Table 4 shows the dimensions of each construct as a result after EFA.

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Table 2 - Distribution of Students		
Country	**Frequency**	**Percent**
Hong Kong	73	26.4
USA	41	14.8
Japan	32	11.6
Vietnam	101	36.5
Australia	30	10.8
Total	277	100.0

Table 3 - Profile of Students (in terms of Gender and Age)											
		Country									
		Hong Kong		**USA**		**Japan**		**Vietnam**		**Australia**	
		n	%	n	%	n	%	n	%	n	%
Gender	**Male**	50	18%	26	9%	18	6%	60	22%	13	5%
	Female	23	8%	15	5%	16	6%	41	15%	17	6%
Age	**18-23**	73	26%	32	11%	25	9%	43	16%	15	5%
	24-29	0	0%	6	2%	5	2%	53	19%	9	3%
	30-35	0	0%	1	0%	0	0%	5	2%	3	1%
	>35	0	0%	2	1%	2	1%	0	0%	3	1%

Table 4 - Dimensions of each Construct after EFA	
Construct	**Dimensions**
Communication Strategy	Public Information – information obtained publicly that include television, radio, newspaper, government and internet Vendor information – information obtained from manufacturer, vendor and service provider.
Understanding of Green IT Practices	Sustainable production – Design and production of ICT products that are beneficial to the environment. Sustainable consumption – Consumption and disposal of ICT products that are beneficial to the environment.
Green IT Practices	Responsible production – Environmental friendly production of computer-related devices and services. Responsible operation – Responsible operation of computer-related operations.
Buying Behaviour	Look – Appearance and look of the devices. Specification – Specification of the devices. Features – Features available on the devices. Price – Price of the devices. Responsible manufacturing – Environmental track record of manufacturer of devices.
Subscription Behaviour	Content – Content of subscription provider. Provider track record – Environmental track record of subscription provider.

Table 5 shows the model fit summary for latent variables in measurement model. As there are only two question items for perceived Green IT behaviour control, no factor analysis was conducted. The results show that the measurement model has good fit, whereas the structural model only has a reasonable fit.

Table 5 - Model Fit Summary	
Chi-square/df	1.41
Root Mean Square Residual (RMR)	0.07
Goodness of Fit Index (GFI)	0.83
Adjusted goodness of fit index (AGFI)	0.81
Normed Fit Index (NFI)	0.85
Relative Fit Index (RFI)	0.84
Incremental Fit Index (IFI)	0.95
Tucker Lewis Index (TLI)	0.95
Comparative Fit Index (CFI)	0.95
Root Mean Square Error of Approximation (RMSEA)	0.04

Cronbach's alpha was used to test internal consistency of the constructs. Table 6 shows the result of Cronbach's alpha, indicating high consistency, except Perceived Green IT practice. We note that the Cronbach's alpha for Perceived Green IT practice is less than 0.6, this is due to this construct only have two items.

Table 6 - Cronbach's Alpha of Constructs	
Construct	**Cronbach's Alpha**
Communication Strategy	0.73
Understanding of Green IT Practices	0.87
Perceived Green IT Behaviour Control	0.56
Green IT Practices	0.77
Buying Behaviour	0.92
Subscription Behaviour	0.92

Structured equation modelling is used to test the hypothesis. Table 7 shows the results of the hypothesis testing. The results show understanding of Green IT practices has a significant positive influence on perceived Green IT behaviour control. The perceived Green IT behaviour control also has significant positive influence on Green IT practices, buying behaviour of computer devices and subscription behaviour of video and music streaming services. Thus perceived Green IT behaviour control has a positive influence on Green IT behaviour (H1). However communication strategy has no significant influence on consumers' understanding of Green IT practices, but it has a significant positive influence on perceived Green IT behaviour control.

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Table 7 - Results of Path Analysis		
Hypothesis	**Standardised regression weight**	
H1a: Consumer's perceived Green IT behaviour control has a positive influence on Green IT practices.	0.32	Significant
H1b: Consumer's perceived Green IT behaviour control has a positive influence on buying behaviour of computer devices.	0.82	Significant
H1c: Consumer's perceived Green IT behaviour control has a positive influence on subscription behaviour of video and music streaming services.	0.88	Significant
H2: Understanding of Green IT practices has a positive influence on perceived Green IT behaviour control	0.30	Significant
H3: The communication strategy has a positive influence on understanding of Green IT practices (specific knowledge)	0.01	Not Significant
H4: The communication strategy has a positive influence on perceived Green IT behaviour control	0.44	Significant

Conclusion and Discussion

The research findings confirm that the more Green IT knowledge the young consumers possess, the more likely they perceive 1) practicing Green IT is not a very difficult task for them and 2) practicing Green IT is up to them. This result is consistent with prior studies that specific knowledge has a positive influence on PBC (Granzin and Olsen, 1991; Hines et al., 1987; Taylor and Todd, 1997).

In addition, the findings also imply that Green IT behaviour of young consumers can be enhanced by increasing their perceived Green IT behaviour control. Such findings are consistent with other researches that investigated the relationship between PBC and Green IT behaviour (Akman and Mishra 2014), green buying behaviour (Afroz et al., 2015; Litvine and Wustenhagen 2011) and other green behaviours such as recycling and sustainable transport behaviour (Cheung et al., 1999; Gatersleben et al., 2012; Oom Do Valle et al., 2005). It is imperative to change the perception that practicing Green IT is a very difficult task and practicing Green IT is not up to me as both behavioural controls greatly influence Green IT behaviours.

Communication strategy via frequently used media is vital to influence perceived Green IT behaviour control but not understanding of Green IT knowledge (specific knowledge). These two findings are inconsistent with previous study indicating 1) specific knowledge is positively influenced by communication strategy, and 2) communication strategy has no significant influence on PBC (Oom Do Valle et al., 2005). Such inconsistencies may be related to online medium used in communication strategies. These inconsistencies may also be related to the design of communication strategies as evidence shows that consumers choose to ignore communication messages if they are too aggressive or even offensive or if they only provided procedural information (Kollmuss et al., 2002; Oom Do Valle et al., 2005).

The effectiveness of communication strategies also depends on the repetition of a message the strategies want to convey, its consistency over time and apparent corroboration (DeFleur and Dennis 1998; Qader and Zainuddin 2011). Further research needs to be done to investigate the correlation among communication strategy, PBC and specific knowledge. However, enterprises, education providers, and environmental agencies and organizations must carefully consider all of the above factors that have direct or indirect impacts on the effectiveness of

communication messages when designing their communication strategies as this research has confirmed communication strategy has a positive influence on perceived Green IT behaviour control that plays a significant role in young consumers' Green IT behaviour.

Another research finding that are worth to discuss are the extent of performing Green IT behaviour. As shown in Table 8, the extent of practising end of life management of IT and IT consumable equipment is far below other Green IT practices. For example, only about 39% of the respondents chose to recycle IT consumable equipment, dispose IT equipment in an environmentally friendly manner or sell/donate unwanted IT equipment. Although most sizeable vendors and manufacturers have their own end of life management programs that allow consumers to trade in (for new products) or send back (for free recycling) their unwanted IT equipment, these programs are not well-promoted or program information is not easily accessible in their websites.

Table 8 - The Extent of Practising Green IT

To what extent do you practice Green IT	***All the time/Often***
I disable Bluetooth connection when I do not need to use it	77.3%
I buy computer devices whenever a new model is available	25.6%
I print using the double-sided option on the printer	70.8%
I prefer buying and using more energy efficient IT equipment	69.7%
I switch off my computer devices when I do not use them	67.5%
I switch off the lights in the computer lab when there is no one in the computer lab	69.0%
I upgrade and reuse computer devices whenever it is possible	56.7%
I prefer hardware vendors/manufacturers that offer "take back" options when my hardware can no longer be used	50.5%
I dispose the IT equipment in an environmentally friendly manner	39.7%
I recycle IT consumable equipment such as ink cartridges	39.4%
I sell or donate my unwanted IT equipment	39.4%
I disable Wi-Fi connection when I do not need to use it	35.0%
I subscribe to IT services from providers that have a green track record	31.8%

Furthermore, young consumers' buying decision is strongly influenced by appearance, specification, features and price of computer and mobile devices as illustrated in Table 9. Other than power consumption, Green IT factors still receive insufficient attention when they consider buying PCs, tablets or smartphones. Similar to the buying behaviour of computer and mobile devices, young consumers are more likely to subscribe video and music streaming services based on content related factors than Green IT factors (see Table 10).

Even though young consumers may want to buy computer and mobile devices or subscribe streaming services based on Green IT factors, the information they can obtain are very limited. This can be proved by another research findings in which about 38.6% and 45.6% of respondents agree vendors, manufacturers and streaming service providers have provided sufficient Green IT information for their products and services. In fact, most vendors/manufactures and streaming service providers only highlight information on appearance, specification, features, content and price of their products and services in their marketing materials. They provide Green IT information on their website but it is not easy to find without a little digging. As environmentally responsible organizations, it is essential for vendors, manufacturers and streaming service providers to provide easy access or eye-catching Green IT information to allow

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consumers to make buying and subscribing decisions based on Green IT factors. Moreover, it is also the responsibility of vendors, manufacturers and streaming service providers to provide latest Green IT knowledge to influence consumers' PBC which in term can positively influence their Green IT behaviour.

Table 9 - Factors Influencing Buying Decision of PCs, Tablets or Smartphones

To what extend do you consider the following factors when buying PCs, Tablets or Smartphones?	***All the time/Often***
Processor speed	88.1%
Battery Life	88.1%
Screen quality	86.6%
Price	86.3%
Build quality	85.9%
RAM size	82.3%
Ease of Use	80.5%
Operating system	80.1%
Hard disk capacity	78.7%
Brand	79.1%
Weight and size	78.0%
Look	77.6%
Availability of Apps	76.2%
Innovative features	75.8%
Power consumption	73.6%
Stylishness	72.2%
Security features	70.8%
Colour	66.8%
Ease of integration of social network	66.8%
The device is made of non-toxic materials	45.5%
The manufacturer reuses, refurbishes, recycles or disposes IT equipment in an environmental friendly manner	39.4%
The manufacturer operates its IT systems in an energy efficient manner	39.7%
The manufacturer uses IT to reduce the carbon footprint of their business	38.6%
The components of device can be recycled properly	35.7%
The track record of the manufacturer on using IT suppliers that have a track record in Green IT	33.9%

Table 10 - Factors Influencing Subscribing Decision of Video and Music Streaming Services

To what extent do you consider the following factors when subscribing to Video and Music Streaming Services?	***All the time/Often***
Content quality	86.6%
Service quality	84.8%
Flexibility of contents	84.5%
Accessibility of contents	82.3%
Cost	80.5%
Easy to use interface	79.1%
Range of contents	77.6%
Contents that can be personalized by subscribers	71.8%
Privilege to access exclusive content	67.1%
The track record of the service provider on using IT suppliers that have a track record in Green IT	41.5%
The service provider uses IT to reduce the carbon footprint for their business	41.5%
The service provider operates its IT systems in an energy efficient manner	40.4%
The service provider reuses, refurbishes, recycles or disposes IT equipment in an environmental friendly manner	40.1%

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