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一、中文摘要

本研究的主要目的乃是採用創新傳佈的觀點，檢視影響採用網路購物及有線電視購物之因素。根據文獻，本研究找出了五個影響科技採用的因素，其分別是：科技擁有量、創新性、生活形態、人口變項、及媒體使用習慣。本研究用電話訪談來蒐集資料，以隨機抽樣的方式共取得了1227個有效電訪。資料分析的結果於論文中詳細的討論。

關鍵詞：網路購物、有線電視購物、科技採用、創新傳佈

Abstract

The main purpose of the study is to examine the factors that influence the intentions to adopt Internet shopping and cable television shopping in Taiwan. The literature review identifies five factors -- technology ownership, innovativeness, lifestyles, demographics, and mass media use -- as having significant effects on the intentions to adopt these two types of

二、緣由與目的

Introduction

The strength of non-store shopping lies in its convenience over traditional store shopping because customers shop at home and avoid inconvenience like traffic. It is valuable to working people with limited time and those who live far from shopping centers. Non-store shopping does have limitations, the greatest of which is much higher risk. Non-store shoppers purchase via catalog or printed ads without actually seeing products, making it difficult to assess quality. Many customers hesitate at using this type of shopping (Chang, 1994). Catalog shopping has long been available in Taiwan, but it is still not widely accepted because Chinese people are used to thoroughly examining products before purchasing. However, the Internet and satellite technologies allow non-store shoppers greater opportunities for 'virtual' inspection of products, thus eliminating the not-seeing barrier (Brubach, 1993; Li, 1999; Peng, 1999; Wigand & Benjamin, 1995).

only three terrestrial television stations dominating the market. Television shopping channels were not allowed then because frequencies were limited. Cable television was legalized in 1993 and the penetration rate rapidly increased to 80% by the end of 2000 (Liu & Chen, 2000). Cable television has a much larger channel capacity, which allows most cable television operators in Taiwan to include 4 to 5 shopping channels. Thus, cable television shopping is emerging as a new type of non-store shopping in Taiwan (Li, 2000).

With Internet shopping and cable television shopping emerging as new types of non-store shopping, this study is concerned with the adoption behaviors of the two types of shopping in Taiwan. For many years, researchers of communication technologies have been developing various theories or models to explain adoption behaviors, however, a close examination on the adoption literature reveals that Rogers' diffusion of innovation model is the theoretical framework used by most studies (Atkin, 1995; Atkin & LaRose, 1994; Leung, 1998; Leung, 2000; Leung & Wei, 1998; Lin, 1998; Lin, 2000; Lin & Jeffres, 1998; Li & Yang, 2000; Reagan, 1987; Rogers, 1986, 1995).

The existing literature using Rogers' diffusion of innovation model shows that three sets of variables-- innovation attributes, technology ownership, and adopters' characteristics-- have been discovered to have an enduring impact on technology adoption. This study investigates the effects

Atkin, 1996; Leung & Wei, 1998; Lin, 1995; Rogers, 1995). Those technologies that offer similar functions to users are called functionally similar technologies. The concept of technology clustering predicts that past experience of using a technology will encourage the adoption of functionally similar technologies (Atkin, 1995; Jeffres & Atkin, 1996; Leung & Wei, 1998; Lin & Jeffres, 1998; Rogers, 1995).

Atkin (1995) discovered that the adoption of the entertainment-oriented 1-900 service was more related to the use of entertainment technologies than information technologies. Leung and Wei (1998) found that cable television and Internet subscribers were significantly more likely than non-subscribers to adopt interactive television. Atkin's study (1993) shows that cable subscription was positively related to the use of entertainment media, but unrelated to that of interpersonal media. Li (2002) found that the intention to adopt electronic newspapers in Taiwan was related to the ownership of information-based and interpersonal technologies, but unrelated to that of entertainment-oriented technologies.

Though Internet shopping and cable television shopping belong to non-store shopping, both of them provide different functions to their adopters. Internet shopping by utilizing the strengths of the Internet is capable of offering interpersonal and informational functions to their users. While, the mechanism of interactivity of cable television is not yet established in Taiwan and some studies found that people

shopping is positively related to the ownership of information-based and entertainment-oriented technologies.

Adopters' Characteristics. According to Rogers' diffusion of innovation model, three types of adopters' characteristics -- demographics, mass media use, and personalities -- have an important impact on technology adoption. Two personality traits -- innovativeness and life style -- were examined in this study.

Innovativeness. Innovativeness is defined as an individual's tendency to seek novelty or to be more receptive to new ideas (Leung & Wei, 1998; Lin, 1998; Lin & Jeffres, 1998; Li, in press; Rogers, 1995). Innovativeness varies from person to person, and is discovered to be critical in technology adoption. Lin's study (1998) and Lin and Jeffres' study (1998) both show that adopters and non-adopters were significantly differentiated by the variable of innovativeness. Busselle et al. (1999) found that innovativeness was able to predict the intention to adopt the Internet in a university. Li and Yang' study (2000) discovered that the variable of innovativeness was a significant predictor for the likelihood to adopt Internet shopping in Taiwan. Li (2001) examined the intention to adopt interactive cable television services in Taiwan and found that innovativeness was able to predict the adoption intention. Based on the literature review, the second hypothesis is developed as follows:

H2: The more innovative the respondents are, the more likely they are to adopt

measure people's personalities, attitudes, or interests to reflect their psychological characteristics. The unique contribution of lifestyles lies in its visibility. Individuals express parts of themselves by developing different types of lifestyles, so lifestyles become an essential indicator to understand the psychological world of consumers. Lifestyles have been heavily researched by marketing scholars because past studies continually discovered developed relationships between particular brands consumed and lifestyles (Johansson, 1994; Pingree & Hawkins, 1994; Shrum, John, & Tina, 1995).

Scholars develop different approaches to measure lifestyles of consumers, among which the most widely used one is A.I.O. approach. This approach assesses people's activities, interests, and opinions to classify them into different lifestyles. Activities refer to the actual behaviors of an individual, interests the degree to which an individual pays attention to certain matters, and opinions the views and expectations an individual has toward an issue. Marketing research shows that examining the lifestyles of consumers allows researchers to understand the motivations behind consumption behaviors, which is critical for niche marketing (Li, 1999; Plummer, 1974; Wei, 1997). One motive to consume new technologies is for social identity (Rogers, 1995), however, only a few studies have investigated the relationship between lifestyles and the adoption process of new technologies. These few studies found that

Wei, 1999; Rogers, 1986, 1995). However, demographics play different roles in the process of diffusion. As an innovation is in its early diffusion, demographics exert an important influence on differentiating adopters from non-adopters (Busselle et al., 1999; Dupagne & Agostino, 1991; Leung & Wei, 1998; Li, in press; Lin, 1998; Neuendorf et al., 1998). While, when an innovation has passed its critical mass, demographics loses its discriminating ability for the adoption (Atkin, 1993, 1995; Atkin & LaRose, 1994; Wei & Leung, 1998). Lin (1998) found that while the diffusion of personal computers in the US was still at the early stages, demographics possessed a strong discriminating effect among adopters, likely adopters, and non-adopters. Li's study (2001) demonstrates that only 2% of Taiwan's population adopted interactive cable television services, demographics were strong predictors for the adoption. However, Atkin's study (1993) shows that as more than 60% of the US households had subscribed to cable television, demographics were no longer able to differentiate adopters from non-adopters. According to Li's study (2000), approximately 20% of Taiwan's population is cable television shoppers and 8% Internet shoppers. Cable television shopping is approaching its critical mass, while Internet shopping is still in its early stages of diffusion. Based on the literature review, the third hypothesis is developed as follows:

H3: Demographics have a stronger effect on the intention to adopt Internet shopping

& Yang, 2000; Lin, 1998). Leung and Wei (1998) found that mass media use exerted a significant effect on the intention to adopt interactive television in Hong Kong because most mass media use was related to the adoption. Li's study (In press) shows that the intention to adopt electronic newspapers by Taiwan's people was positively related to magazine reading and movie going, and negatively related to television viewing. However, Lin's study (1998) demonstrates that the adoption of personal computers in the US had no significant relations with most traditional mass media use, but a negative relation with television viewing. The literature has not come up with a conclusive finding regarding the effect of mass media use on technology adoption. Hence, this study uses a research question to explore the relationships between the two types of non-store shopping and mass media use.

RQ2: What are the relationships between the two types of non-store shopping and mass media use including television viewing, radio listening, newspaper reading, magazine reading, and movie going ?

三、結果與討論

Research Methodology

Technology ownership. This study refers to several studies that investigated technology adoption in Taiwan, and identifies a list of 23 communication technologies available in Taiwan (Li, & Yang, 2000; Li, 2001; Yang, 2002). Based on the

each respondent has.

Innovativeness. This study uses two ways to measure innovativeness; one is to employ the scale of need for innovativeness in Lin's study (1998), the other one question asking the respondents their specific attitudes toward Internet shopping or cable television shopping.

Lifestyles. This study uses 22 items to measure lifestyles. The 22 items was employed in Leung's study (1998), which originally came from the 1995 IMI Consumer Surveys. The surveys use activity, interest, and opinion as indicators of lifestyles orientations and are a combination of items from both the US and the France A.I.O inventories. Leung's study (1998) contained 52 items, but only 23 items passed a factor analysis. This study examines the 23 items and deletes one item that does not fit the situation in Taiwan.

Demographics and Mass Media Use.

Demographics include age, education, personal income, and family income. Five types of mass media use -- television viewing, newspaper reading, magazine reading, radio listening, and movie going -- are examined in the study.

Adoption Likelihood and Types of

Adopters. In the questionnaire, this study asked the respondents if or not they ever used Internet shopping or cable television shopping, if not, this study further asked the respondents to indicate from zero to five the likelihood that they would use Internet shopping or cable television shopping in the future (zero means no likelihood at all. one a

television shopping, but indicated that they would do it in the future, and (3) non-adopters who had not adopted Internet shopping or cable television shopping, and said that they would not do it in the future. This study found that among 1227 respondents, 128 (10.4%) were adopters of Internet shopping, 602 (49%) likely adopters, and 497 (40.5%) non-adopters. As for cable television shopping, the data show that 181 (14.8%) were adopters, 338 (27.5%) likely adopters, and 708 (57.7%) non-adopters.

Telephone survey. A telephone survey with a stratified random sampling was conducted to in January of 2002. The month-long telephone survey was administered in a central location supervised by the researcher with 12 research assistants doing the interviews. The most recent telephone books for every city and county in Taiwan were used for selecting telephone numbers. Whenever a number was chosen from a telephone book, a 'one' was added to the number to avoid any biases existing in the telephone directory (Babbie, 1995; Wimmer & Dominick, 2000). After omitting business numbers, disconnected phones, and no-answers, this study made 2445 telephone calls, from which 1227 valid questionnaires were obtained. The response rate was approximately 50.2%, which is acceptable.

Discussion of the Findings

This study found that 10.4% of the respondents are Internet shopping adopters, 49% likely adopters, and 40.5% non-adopters.

1995). The finding of the study demonstrates that more than half of the early adopters in Taiwan have adopted Internet shopping. Hence, it is expected that the diffusion of Internet shopping will speed up very soon.

This study discovered that approximately 15% of Taiwan's population was cable television shoppers, and more than half of the respondents indicate that they will not adopt this type of shopping in the future. Li's study (1999) conducted in 1998 found that about 23% of Taiwan's population was cable television shoppers. Another study administered in 2000 shows that about 20% of Taiwan's population adopted cable television shopping (Li, 2000). The three figures indicate that the adoption rate of cable television shopping is declining. According to Rogers (1995), not every innovation is able to successfully diffuse into a society, and obtaining a critical mass is the key for an innovation to succeed in diffusion. Cable television shopping has not passed its threshold of a critical mass, and its adoption rate is decreasing. Therefore, the future of cable television shopping seems not very optimistic in Taiwan.

Technology Ownership. The H1a of the study states that the intention to adopt Internet shopping is related to the ownership of informational and interpersonal technologies. The H1b of the study predicts that the intention to adopt Internet shopping is related to the ownership of entertainment-oriented and informational technologies. The data analysis shows that

strong in offering interpersonal services. However, this study found that Internet shopping was only significantly related to the ownership of informational technologies, and not related to that of interpersonal technologies. The possible explanation for this finding may be that most stores on the Internet now are busy with improving the security issue of Internet shopping, hence, they ignore to fully utilize the mechanism of interactivity in their Internet stores. Several studies on E-Commerce in Taiwan indicate that the issue most people in Taiwan concern regarding Internet shopping is the security of the Internet because people fear their numbers of credit cards will be stolen (Leung & Yang; MIC Survey, 2000). Therefore, some stores on the Internet try to overcome this barrier by asking shoppers to pay by post offices or some other ways. After the issue of security is eliminated, providing interpersonal services may become a strong point of Internet shopping.

Most of the advertisements in Taiwan's shopping channels take more than ten minutes introducing one product to their audience (Li, 1999). With so much time for advertising, cable television shopping channels should be good at giving sufficient information to potential shoppers. However, this study found that cable television shopping is significantly related only to the ownership of entertainment-oriented technologies, and unrelated to that of informational technologies. One study in Taiwan show that more than 80% of the respondents said they never intentionally

entertainment is congruent with some studies on Taiwan's shopping channels (Li, 1999).

Innovativeness. This study predicts that the degree of innovativeness is positively related to the intentions to adopt Internet shopping and cable television shopping. The data in Table 3 show that the intentions to adopt Internet shopping and cable television shopping are positively related to the attitudes toward the two types of shopping, but not related to the need for innovativeness. Hence, the findings of the study only partially support H2.

The finding that the variable of need for innovativeness is not related to the adoption intentions is inconsistent with Lin's study (1998), Lin and Jeffres' study (1998), Busselle et al.'s study (1999), and Li's study (2001). These previous studies show that need for innovativeness was a strong predictor for technology adoption. There are two possible explanations for these inconsistent findings: (1) Most of these past studies except Li's study (2001) were conducted in the US. Therefore, it may be that the effect of need for innovativeness varies from one culture to another; this variable is a good predictor of technology adoption in western cultures, while, it is not in the Chinese culture. However, Li's study was conducted in Taiwan using a Chinese sample. (2) Hence, the alternative explanation is that when taking need for innovativeness alone into consideration, it is a critical predictor for technology adoption. However, when putting this variable together with the attitudes toward a technology and

assumption that people have positive perceptions toward all new technologies may not correct (Weng, 1996). There may be some technologies with which people do not want to associate. For these technologies, Rogers' model may not be able to explain their processes of diffusions. Future studies should focus on this variable and clarify its effect on technology adoption.

Lifestyles. The first research question of the study examines the relationships between lifestyles and the intentions to adopt Internet shopping and cable television shopping. The data in Table 3 show that the intention to adopt Internet shopping is correlated positively with the lifestyle of preference for foreign products, negatively with the lifestyle of enjoying life. According to Leung (1998), this factor -- preference for foreign products -- is not included in the US or France inventories, and reflects people's interest in foreign products. This factor is the same with that in Leung's study (1998) that was conducted in urban China. Hence, this factor may be the characteristic of consumption trend in great China. Some studies on Internet shopping in Taiwan found that one of the motives for people to use Internet shopping was to purchase foreign products from the Internet (Li, 2000; Peng, 1999), which is congruent with the finding of this study. However, Leung found that preference for foreign products was negatively related to the adoption of new technologies in China, which is inconsistent with the finding of this study. There are still few studies that investigate the

may be that most people adopt non-store shopping because they are busy and using non-store shopping allows them to shop efficiently (Peng, 1999).

The factor of being fashionable indicates the interest dimension of the A.I.O. measures, and is the same one found in Leung' study (1998). This study found that the factor of being fashionable is positively related with the intention to adopt cable television shopping, which is consistent with Leung's findings (1998). Li's study (1999) shows that about 15% of the products advertised in shopping channels are cosmetic merchandise, and 40% dieting products, both of which are fashion related products. Hence, it may be that people who are more concerned about fashion trends are more interested in using cable television shopping channels.

Demographics. The third hypothesis states that demographics exert a stronger effect on the intention to adopt Internet shopping than on the intention to adopt cable television shopping. The data in Table 3 demonstrate that demographics are the most powerful set of variables for the intention to adopt Internet shopping, accounting for 14.3% of the variance. However, demographics were discovered to have no significant effect on the intention to adopt cable television shopping. Therefore, the prediction of the third hypothesis was supported.

The adoption literature indicates that when a technology has not passed its critical mass, demographic variables play important roles in differentiating adopters from

Furthermore, the data of the study show that approximately 15% of Taiwan's population is adopters of cable television shopping, indicating that the diffusion is still at the early stages. However, demographics were found to have no impact on the intention to adopt cable television shopping, which is inconsistent with the adoption literature. The possible explanation for this finding may be that most people in Taiwan have a negative perception regarding cable television shopping, and thus its diffusion has digressed the path predicted by Rogers' diffusion of innovation. In addition to having exaggerated advertisements for products, most shopping channels operators try to use unethical ways to cheat audience. Li' study (1999) found that most people did not shop the second time after purchasing products from shopping channels because they felt somewhat cheated by the advertisements of shopping channels.

Mass Media Use. The second research question of the study investigates the relationships between mass media use and the two types of non-store shopping. The data in Table 3 illustrate that the intention to adopt Internet shopping is positively related to radio listening, magazine reading, and movie going, and that the intention to adopt cable television shopping is positively related to television viewing, but negatively related to movie going.

The adoption literature demonstrates that mass media use exerts an important influence on the adoption when the diffusion of a technology is still at its early stages

literature. Past adoption studies show that technology adoption is positively correlated with movie going, but negatively related with television viewing (Leung & Wei, 1998; Li, in press; Lin, 1998; Wei, 2001), while this study found just the opposite. The possible explanation for this finding is that shopping channels operators in Taiwan do not establish a positive image for their channels, and thus most people avoid being associated with these channels. According to some reports (China Times, 4,13; Li, 1999), cable television shopping channels employ lots of sexual materials to attract people, and use many advertisements with low-quality pictures to save money.

四、計畫成果自評

Conclusion

This study uses Rogers' diffusion of innovation model to examine the factors that influence the intentions to adopt Internet shopping and cable television shopping. Most findings regarding Internet shopping are congruent with the predictions by Rogers' diffusion of innovation model. However, most findings on cable television shopping are inconsistent with the predictions from Rogers' diffusion of innovation model. The reason for these inconsistent findings may be that cable television shopping channels have a negative image in Taiwan's society, and thus their processes of diffusion digress from the path predicted by Rogers' model. This study also found that Rogers' model may only

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