Prior language experience and language anxiety as predictors for non-native language commercial website use intention

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Abstract

Based on the research model, language anxiety, prior non-native language experience, Internet self-efficacy and language self-efficacy are analyzed for the intention to use non-native language commercial web sites, respectively. Prior non-native language experience has affected language anxiety, language self-efficacy and intention to use non-native language commercial web sites, respectively. By the same token, whether or not Internet self-efficacy and language self-efficacy affected by language anxiety is also examined. A valid sample of 418 undergraduates was tested in this study. Regression analysis results fully supported the model tested. These results suggest that language anxiety, prior non-native language experience, language self-efficacy and Internet self-efficacy have an effect on the intention to use non-native language commercial web sites. Prior non-native language experience has significantly affected language anxiety, language self-efficacy and the intention to use the non-native language commercial web sites, respectively. Furthermore, language anxiety has significantly affected language self-efficacy and Internet self-efficacy, respectively. Educational research and practitioner implications are provided at the end of the paper.

1. Introduction

How are people's prior non-native language experiences associated with their subsequent language anxiety, language self-efficacy and intention to use the non-native commercial web sites? The function of language is to communicate with other people, so language is likely to play a crucial role as a communication medium. Language allows social communication, understanding of the host country society and supports the acquisition of cultural knowledge or enjoyment of leisure activities (Dustmann, 1997). English is one of the most popular languages the world over. In Taiwan, Mandarin is the official language, so all education is offered in Mandarin. Recently, owing to the trend and impact of globalization, English is becoming more and more important in Taiwan. Thus, the government encourages students to start learning English from the fifth grade in elementary school. However, will a student with more English learning experience intend to use a commercial web site in English context more easily, have less anxiety using English or have more self-efficacy in English? Although there are many factors affecting language anxiety and language self-efficacy, in this paper we only focus on the impact of prior non-native language experience. Hence, the first purpose of this study is to

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uncover the impact of prior non-native language experience on language anxiety, language self-efficacy and intention to use non-native language commercial web sites.

Currently, they are many educational practices using computers and computer networks as tools to learn languages (e.g. multimedia, computer-aided, distance learning and so on). A number of recent studies have focused on the factors affecting network or Internet usage, such as computer self-efficacy, Internet self-efficacy, perceived ease of use, perceived usefulness, complexity, social factors, subjective norm and so on (Liao et al., 1999; Chang and Cheung, 2001; Hu et al., 2003). Although much recent evidence on the impact factors were examined among the system use or usage, it could also be argued that previous studies have ignored the impact of language interface on system use. Language is an important interface affecting people's intention to use various systems. Therefore, it is worth noticing the impact of language anxiety and self-efficacy on the intention to use non-native language commercial web sites. Language anxiety and language self-efficacy should be important factors affecting system usage or intention to use.

Previous research has indicated that many web users are identifying attractive shopping opportunities on the Internet, but there are barriers and other concerns preventing the purchase from being completed or the users from revisiting international web sites (Nvision, 1999; O'Cass and Fenech, 2003). Why do web users hesitate to use commercial web sites? Does language interface play a critical role as the foundation of communication? Previous researches indicated that people possessing better prior non-native language experience and greater fluency in the non-native language have increased opportunities for interaction with non-native people (Landau, 2004; de Haan and Mariëtte Elbers, 2005). That is, people can easily communicate with each other because they use the same language. Examining surveys from previous research, foreign language anxiety is not examined in actual system usage or use intention. In fact, language anxiety has been generally missing from information technology behavioral research. What is important to note in this argument is that language differences are one aspect of the overall cultural differences. Cultural factors influence individuals' perceptions and behavior (Gullahorn and Gullahorn, 1966). Recent estimates suggest that there are over 480 million Internet users globally. Among them, just over half do not use English as their language of communication (Global Research, 2001; Hills and Argyle, 2003). In Europe, there are over 10 major languages—32.5% of European Internet users speak English, 16.3% speak German, and 10.6% Dutch. These are the three major language populations among the European Internet user base. There are at least 10% of websites using English in Europe (Hass, 2002). Thus, in this research the commercial website applications in English context were the study cases. Individuals' perceptions of their own competence in the second language will hinder or facilitate their intention to accept or refuse a specific activity. Specifically, this research seeks to examine the effect of language anxiety and language self-efficacy on the intention to use commercial web sites. Hence, the second purpose of this study is to investigate the effect of language anxiety and self-efficacy on the intention to use commercial web sites.

Personal confidence, anxiety or ability to adopt a new technology has been shown as major factors affecting an individual's willingness to accept or use a new technology (Hills et al., 1987; Igbaria and IIvari, 1995). Among the various theoretical models developed to investigate individual emotional reactions to adoption of computers or the Internet, the self-efficacy theory of Bandura (1977) offers promising insights into computer-related technology adoption. Anxiety and specific self-efficacy are both part of Bandura's (1997) self-efficacy framework. Self-efficacy and anxiety are the determinants of technology adoption. Bandura (1997) suggests that if individuals doubt their capability to undertake certain actions or behaviors, it will affect their intention to perform a certain behavior. Furthermore, prior research about information technology on self-efficacy and anxiety is confined to computer self-efficacy and computer anxiety. Among the cognitive variables, computer anxiety and self-efficacy stand out as two of the main factors for effective system adoption or acceptance in management information system (MIS) research (Igbaria and IIvari, 1995; Hong et al., 2002). In the past decade, many MIS researchers have paid great attention to the computer self-efficacy construct (Marakas et al., 1998; Compeau et al., 1999). Currently, owing to the pervasion of Internet technology, some researchers used the Internet self-efficacy construct to replace the computer self-efficacy construct (Torkazdeh and Van Dyke, 2001; Torkzadeh and Van Dyke, 2002). This research extends the self-efficacy theory to Internet anxiety and Internet self-efficacy on commercial website applications as study cases.

Thus, this study examines how prior non-native language experience, language self-efficacy and language anxiety influence an individual's intention to use the commercial web sites as a shopping medium on the net. One primary objective is to provide businesses with insight into understanding the characteristics of adopters. Another objective is to provide system designers with what is important in designing attractive and flexible user-friendly commercial web sites, and thereby help marketers target potential customers. In total, the aim of this research is to bridge the gap among research findings on language education practice, business practice and system design by enabling language educators, businesses and system designers to identify the importance of language interface for user adoption of new technology.

2. Theoretical background

2.1. Self-efficacy

Self-efficacy is the belief that one has the capability to perform a particular behavior (Bandura, 1977, 1997). In

other words, self-efficacy plays an important role in affecting one's behavior and motivation, which both relate to one's belief in one's capability to organize and execute the courses of action required to produce given attainments or behavior (Bandura, 1977, 1997). If an individual has little confidence in his ability to use the Internet, he is dissatisfied with his Internet skills or he is uncomfortable using the Internet, he may be said to have weak self-efficacy beliefs. Those with low self-efficacy will be less likely to perform related behavior in the future (Bandura, 1982; Eastin and LaRose, 2000). Bandura (1977, 1986) identified four powerful sources influencing the personal self-efficacy which are performance accomplishment, vicarious experience, verbal persuasion and emotional arousal. Bandura (1977, 1986) also suggested three outcomes of self-efficacy that can predict changes in people's behavior: (1) choice behavior; (2) effort expenditure and persistence; and (3) thought patterns and emotional reactions or arousal. Thus, Bandura (1986) suggested that the measurement of self-efficacy needed to be tailored to the specific domain of interest to maximize the prediction power. Translating the concept of self-efficacy into the domain of Internet efficacy and language self-efficacy in a commercial website context, web users or consumers can seek to increase this aspect of self-efficacy through specific behavior choice, the effort to expend and persist, and specific emotional reactions, respectively. Therefore, in this study, Internet self-efficacy and language self-efficacy are applied to a specific type of self-efficacy in the Internet commercial site environment and language domain, respectively. Specific self-efficacy is defined as one's ability to "mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands" (Wood and Bandura, 1989a, b). Thus, in this study, we define Internet self-efficacy and language self-efficacy as a belief of one's capability to use the Internet (in this context commercial websites) or language (in this context English), respectively.

2.2. Anxiety

Emotional reactions or responses include stress and anxiety for the individuals performing the behaviors (Stumpf et al., 1987; Compeau and Higgins, 1995a, b). Generally, there are three types of anxiety: state anxiety, trait anxiety and situational anxiety. State anxiety is apprehension experienced at a particular period of time; that is, state anxiety refers to a social type of anxiety that occurs under certain conditions and usually refers to a transitory state of a person and can vary in intensity (Spielberger, 1983). Trait anxiety refers to relatively stable individual differences that characterizes people's anxiety stated and their prominent defense against such states; that is, trait anxiety (also termed as personality trait) is a part of an individual's character or an aspect of a more serious disorder. Situational anxiety refers to individuals who suffer from reaching a specific environment; feeling anxious

only when certain factors are present. According to Horwitz (1991), foreign language anxiety can be associated with three factors: a fear of negative evaluation, test anxiety and communication apprehension. Hence, in this study we proposed that language anxiety is a state anxiety and is then defined it as "a negative emotional state or negative cognition experienced by a user when an individual is accessing a non-native language sites."

2.3. Language Experience

Experience usually refers to a particular instance of personally encountering something or the process of personally observing or undergoing something. Obviously, experience is a general concept comprises knowledge or skills in or some event gained through involvement in exposure to that thing. The word "experience" may refer both to mentally unprocessed immediately perceived events as well as to the purported wisdom gained in subsequent reflection on those events or interpretation of them. Most wisdom-experience accumulates over a period of time, though one can also experience a single specific momentary event (Experience, 2008). Yates and Chandler's research presented that prior knowledge or experience provides a great amount of relevant information in specific fields or domains as a foundation for organizing that knowledge (Yates and Chandler, 1991). In Eviatar's research (Eviatar, 1997), he suggested that the language experience can be operationalized in two ways. One is by the number of language system in which the subject is fluent (non-verus multilingualism), and the other is by the a specific characteristic of languages being tested (reading and writing direction). In this study, we proposed language experience is a experience in reading and writing abilities which accumulate over a period of time.

3. Research models and hypotheses

In the past decade, the explosion of the Internet has led to many online commercial activities such as electronic commerce (Yates and Chandler, 1991). Many researchers focused their researches on the factors affecting adoption behavior or intention to use the commercial web sites (Chang and Cheung, 2001; Hills and Argyle, 2003; O'Cass and Fenech, 2003). Few evidences show the impacts of non-native language anxiety on commercial web sites. According to previous research, we proposed and tested a number of hypotheses related to the intention to use non-native language commercial web sites incorporating the self-efficacy theory and anxiety. Prior non-native language experience, Internet self-efficacy, language self-efficacy and language anxiety affect the consumer's or webuser's intention to use non-native language commercial web sites. The constructs were chosen because of their relative importance in other studies on electronic commerce technologies and the social psychological domain (Chang and Cheung, 2001; Hills and Argyle, 2003; O'Cass and
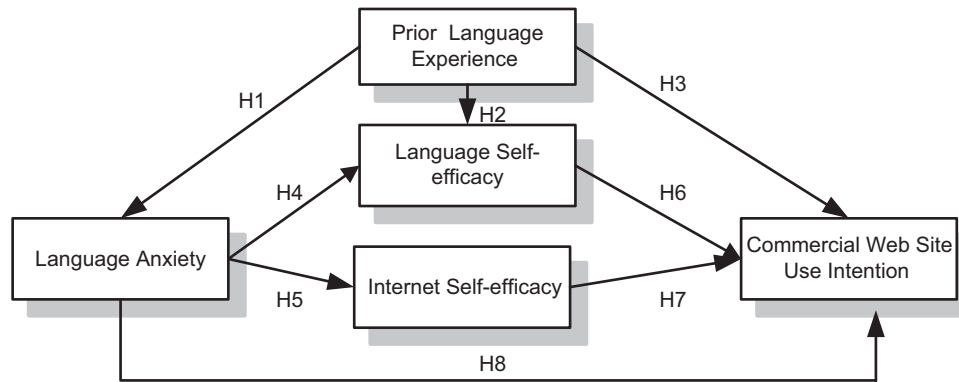
Fig. 1. Non-native language commercial website use intention model.

Fenech, 2003). The relationships between these constructs and the intention to use non-native language commercial web sites are illustrated in Fig. 1. Language anxiety was taken as antecedents of Internet self-efficacy and language self-efficacy, respectively. Prior non-native language experience would have an effect on language self-efficacy, language anxiety and intention to use commercial web sites, respectively. In turn, Internet self-efficacy and language self-efficacy would have a significant relationship with the intention to use commercial web sites. We also examine the impact of prior non-native language experience and language anxiety on the intention to use commercial web sites, respectively.

3.1. Prior non-native language experience

Prior non-native language experience means the degree of prior non-native language exposure for a person. Prior knowledge or experience provides a great amount of relevant information in specific fields or domains as a foundation for organizing that knowledge (Yates and Chandler, 1991). Previous research indicates that if students enter a program with a wide range of prior experience and knowledge, it will help them quickly learn, adopt and develop self-confidence in the new skills or capabilities in what they are learning (Yates and Chandler, 1991). Previous research has also shown that failed and successful feedback from the past experiences significantly affected the subsequent behaviors (Bateman and Zeithmal, 1989). Specifically, past success would increase one's self-efficacy and reduce one's fear, and thus, increase one's effort to put into potential new projects (Wood and Bandura, 1989a, b). Thus, in this research we assume that prior fluency in non-native language would increase one's tendency to interpret one's self-efficacy on language and intention to adopt non-native commercial web sites more positively. We also assume that prior fluency in non-native language would decrease one's anxiety on language. So Hypotheses 1–3 were then proposed as follows.

H1. Prior non-native language experience has a negative effect on non-native language anxiety.

H2. Prior non-native language experience has a positive effect on non-native language self-efficacy.

H3. Prior non-native language experience has a positive effect on the intention to use non-native language commercial web sites.

3.2. Internet self-efficacy, language self-efficacy and language anxiety

Anxiety would inhibit one's ability to process incoming behavior or performance. If anxiety impairs one's cognitive function, it may cause other related problems with self-esteem, self-confidence and risk-taking ability, and ultimately hampers one's behavior or attitudes. Language anxiety can pose potential problems, because it can interfere with the acquisition, retention and production of the new language (MacIntyre and Gardner, 1991). Thus, language anxiety in this study is defined as "a feeling of tension, apprehension and nervousness associated with the situation of using commercial websites in English context".

As mentioned above, possessing greater fluency in the non-native language can lead to increased opportunities for interaction with non-native people (Gullahorn and Gullahorn, 1966; Mak and Tran, 2001). This means that if an individual is good at a language which is not his native language, it can increase his opportunities to communicate with foreign people. With globalization, English has become one of the most popular languages. Currently, many homepages are designed in English. Therefore, if a person has problems comprehending a foreign language site, it will reduce their confidence or intention to shop or use specific non-native-language commercial web sites.

Much previous research supports that the greater the anxiety is, the lower the self-efficacy is (Bandura, 1977; Gist and Mitchell, 1992). The relationship between anxiety and self-efficacy is a well-established topic in the socio-psychological research field. A number of studies in MIS literature found that there is a negative relationship between computer anxiety and computer self-efficacy (Compeau and Higgins, 1995a, b; Marakas et al., 1998).

Generally speaking, the depressed people would be a self-critical denying his own idea and ability. Bandura (1986) presented that the psychological pressure or anxiety would hinder one's capability to judge the problem he/she faces. In other words, anxiety would affect one's ability of confidence. Simply stated, the higher the anxiety the individual has, the less the self-efficacy he has.

H4. Non-native language anxiety has a negative effect on non-native language self-efficacy.

H5. Non-native language anxiety has a negative effect on Internet self-efficacy.

3.3. Anxiety, self-efficacy and intention to use commercial web site

Self-efficacy judgments are in turn related to outcome expectations. Outcome expectation depends on how well one thinks he can perform the behavior (Bandura, 1977). Self-efficacy is not a measure of skill; rather, it reflects what a person believes he can do with the skills he or she possesses. Thus, Internet self-efficacy and language self-efficacy focus on what individuals believe they can accomplish with online surfing. In turn, a significant amount of research has been conducted to examine the relationship between anxiety and adoption behavior (Compeau and Higgins, 1995a, b; Marakas et al., 1998; Reisinger and Mavondo, 2005; Tung and Chang, 2007). Previous MIS research also suggests that computer self-efficacy has a positive impact on computer usage (Igbaria and IIvari, 1995). Previous researchers argue that computer self-efficacy is a natural precursor to the Internet, and is invariably a necessary component for use of the Internet (Maitland, 1996; Rampodi-Hnilo, 1996; O'Cass and Fenech, 2003). Therefore, in the present context, it means that Internet self-efficacy and language self-efficacy should be positively related to the intention to use commercial web sites, and language anxiety should be negatively related to the intention.

In total, these studies and theories have laid a firm background for the study of the intention to use commercial websites. Thus, our research hypotheses six to eight are presented as follows.

H6. Non-native language self-efficacy has a positive effect on the intention to use non-native language commercial web sites.

H7. Internet self-efficacy has a positive effect on the intention to use the non-native language commercial web sites.

H8. Non-native language anxiety has a negative effect on the intention to use non-native language commercial web sites.

4. Method

4.1. Participants

The target sample for this study was undergraduate students. Complete data sets were obtained for 418 of the original 476 participants of college or university students in Taiwan, which included 218 males (52.2%) and 200 females (47.8%). The age of participants ranged from 18 to 25 years. The native or host language of the participants is Mandarin. English is their second language. In the public school system, students have learned English from junior high school till the first year of university study, which is a period of 7 years with 3–5 h a week of normal study, not including multimedia teaching and computer-aided teaching. The respondents completed a five-section self-report questionnaire in 15–20 min. The survey was administered in class by the researcher with a brief introduction regarding the goal of the study.

4.2. Measures

The questionnaire items used to operationalize the constructs of each investigated variable were adopted from relevant previous studies, with necessary validations and modification of wording. The questionnaire used in the present study consists of five parts. The first part includes some items on socio-demographic background such as gender, age, school system attended, hours spent on commercial websites, frequency of commercial website use and experience of commercial website surfing. The second part is an adaptation of the Internet self-efficacy and language self-efficacy scale (in this case, English) of Torkazdeh and Van Dyke (2001) and Eastin and LaRose's concept (Eastin and LaRose, 2000) of Internet self-efficacy in the case of commercial websites. The third part is an adaptation of the foreign language classroom anxiety scale of Horwitz and Young (1986) with modifications made to fit the language anxiety in commercial websites. The fourth part is an adaptation of the language experience scale of Oxford (1990) and Dobson (2001), which is modified into the previous language experience scale. The last part is the measurement of the intention to use commercial web sites. Intention to use the commercial web site was adopted and modified from the works of Davis (1989) and Agarwal and Prasad (1999) with modifications to fit the content of non-native language commercial web sites.

In this study, a participant was asked to indicate the extent of their disagreement and agreement with a seven-point scale ranging from "1" strongly disagree to "7" strongly agree irrespective of anxiety or self-efficacy constructs. To assess Internet self-efficacy, eight items were adopted from the work of Torkazdeh and Van Dyke (2001) and Eastin & LaRose's scale (Eastin and LaRose, 2000) of Internet self-efficacy, replacing the references to computer software and hardware with the non-native language commercial website environment. The measure of language

self-efficacy was not focused on respondents' specificity and correspondence to actual English performance, but on the participants' beliefs, experiences and feelings of foreign language self-efficacy. That is, language self-efficacy is not assessed using self-ratings of skills regarding specific English problems. Therefore, the language self-efficacy instrument was also modified from the work of Torkazdeh and Van Dyke (2001). Internet self-efficacy and language self-efficacy were computed by summing the confidence rating of all levels of proficiency. Higher self-efficacy scores indicate higher self-efficacy in both Internet and language. This procedure is the standard procedure for assessing self-efficacy and has been used previously by numerous researchers (Gist and Mitchell, 1992). In turn, language anxiety was also computed by summing the respective anxiety levels. Similarly, higher anxiety scores indicate higher anxiety in language.

To reduce the potential ceiling effect and monotonous responses to the items for measuring a particular construct, all items in the questionnaire were randomly ordered. Furthermore, to ensure the data's content and face validity and reliability, this study had the questionnaire pre-tested by 26 undergraduate students (10 males and 16 females) in

their second year of study in business school. After pre-test, only some words in the questionnaire were modified and no items were deleted.

4.3. Reliability and validity

The instruments were developed through extensive refinement and rigorous validation. To ensure data validity and reliability, internal consistency and discriminant validity were examined. To evaluate the measurement accuracy, a reliability test was used to measure whether the respondent could answer the same questions in the same way each time. The Cronbach's alpha values of variables all exceed 0.7, which is recommended as the passing mark of the reliability test for social science research (Nunnally, 1978). All items passed the reliability test for language anxiety in general and yielded 0.92 alpha values. Prior non-native language experience has 0.87 alpha values. No items were dropped from language self-efficacy and Internet self-efficacy, which yielded 0.82 and 0.89 alpha values, respectively. The alpha value of the intention to use non-native language commercial web sites is 0.93. This

Table 1
The factors loadings, means, SD of Internet SE, language SE, language anxiety and intention of commercial website use

Items	Constructs			
	Language SE Loadings (Mean/SD)	Internet SE Loadings (Mean/SD)	Language anxiety Loadings (Mean/SD)	Intention Loadings (Mean/SD)
1	.85 (4.30/1.32)	.59 (4.42/1.23)	.97 (4.51/1.37)	.90 (3.911/1.21)
2	.89 (4.62/1.30)	.82 (4.70/1.13)	.67 (4.47/1.36)	.98 (4.32/1.16)
3	.84 (4.67/1.20)	.83 (4.65/1.10)	.69 (4.40/1.37)	.86 (4.49/1.11)
4	.83 (4.55/1.28)	.87 (4.69/1.13)	.96 (4.13/1.39)	
5	.75 (4.77/1.23)	.96 (4.85/1.11)	.91 (4.41/1.44)	
6	.69 (4.45/1.14)	.96 (4.88/1.09)	.99 (3.96/1.22)	
7	.93 (4.57/1.26)	.76 (4.7/1.05)	.94 (4.03/1.24)	
8	.86 (4.59/1.22)	.80 (4.71/1.18)	.88 (4.72/1.29)	

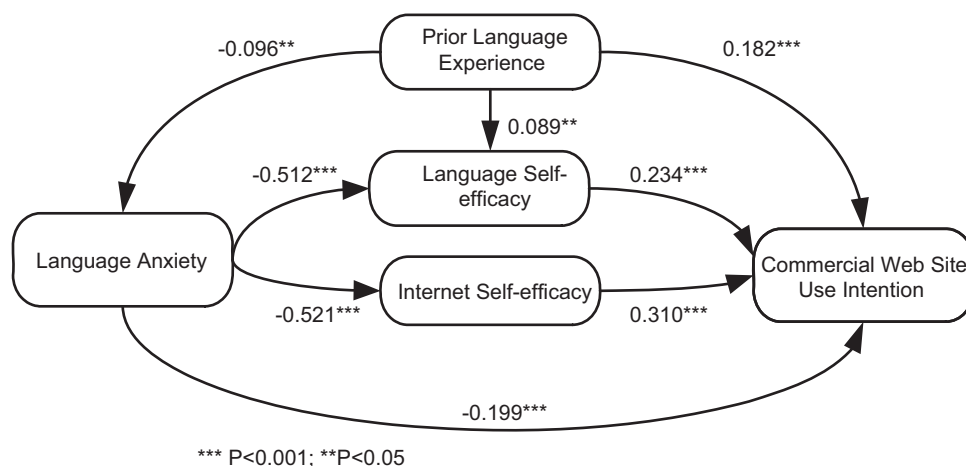SD: Standard deviation; SE: Self-efficacy.

Fig. 2. Results of the model of non-native-language commercial website use intention.

Table 2
Results of regression analysis of this study

Dependent variables	Independent variables	Beta	t-value	P value/Sig.
Language anxiety $R2 = .096$, $F = 3.908$, Sig. $= .049^{**}$	Prior non-native language experience (H1)	−.096	−1.979	.049**
Language self-efficacy $R2 = .279$, $F = 80.294$, Sig. $= .000^{***}$	Prior non-native language experience (H2)	.089	2.121	.035**
	Language anxiety (H4)	−.512	−12.231	.000***
Internet self-efficacy $R2 = .271$, $F = 154.789$, Sig. $= .000^{***}$	Language anxiety (H5)	−.521	−12.441	.000***
Commercial web site use intention $R2 = .224$, $F = 29.774$, Sig. $= .000^{***}$	Prior non-native language experience (H3)	.182	4.052	.000***
	Language self-efficacy (H6)	.234	4.550	.000***
	Internet self-efficacy (H7)	.310	6.917	.000***
	Language anxiety (H8)	−.199	−3.092	.000***

$^{**}P < 0.05$.
$^{***}P < 0.001$.

demonstrates good internal consistency of each construct and indicates that the scale is trustworthy.

Discriminant validity was checked by means of factor analysis (Kerlinger, 1986). If constructs are valid, factor analysis will yield relatively high corrections between measures of the same construct and low correlation between measures of the same construct that are expected to differ (Lim, 2003). The measurement model using exploratory factor analysis (EFA) was assessed to check discriminant validity as shown in Table 1. The steps of EFA were, in the beginning, using principal component analysis to process factor, then using Varimax as orthogonal rotation and Eigen value equaling to 1 to get factor loading which should be greater than 0.5 (Kaiser, 1958). If an item with factor loading values is not greater than 0.5, then the item had to deleted and abandoned from further analysis. The factor loading, mean and standard deviation of the items in each construct were illustrated in Table 1. Among them, no items of factor loading in each construct were less than 0.5, so no items were deleted in each construct.

5. Results

The results are presented in this section. First, the demographic data for sample characteristics among commercial website use behavior are presented. Second, we test the various hypotheses using regression analysis, and the results are shown in Fig. 2 and Table 2.

5.1. Sample characteristics

The respondents reported having an average of 3.12 years of Internet experience. Around 49% of the respondents had 3–5 years of Internet experience. Respondents spent an average of 4.49 h a week on commercial websites, with 24% of respondents spending over 20 h a week and 21% spending 2–5 h a week. The average shopping frequency of respondents was 1.48 times per week. The reasons why they liked to shop on commercial web sites include cheap prices (27.7%), convenience (27.9%), curiosity (10.3%), being a personal hobby (16.1%), products

Table 3
Summary of research findings

Hypothesis	Hypothesized direction	Result
H1: Prior language experience→language anxiety	Negative	Moderately supported
H2: Prior non-native language experience→language self-efficacy	Positive	Moderately supported
H3: Prior non-native language experience→commercial web site use intention	Positive	Strongly supported
H4: Language anxiety→ language self-efficacy	Negative	Strongly supported
H5: Language anxiety→ internet self-efficacy	Negative	Strongly supported
H6: Language self-efficacy→ commercial web site use intention	Positive	Strongly supported
H7: Internet self-efficacy→ commercial web site use intention	Positive	Strongly supported
H8: Language anxiety→ commercial web site use intention	Negative	Strongly supported

$^{**}P < 0.05$ $^{***}P < .001$.

worth keeping (10%), killing time (9.7%) and as a source of reference (6.3%).

5.2. Hypotheses testing

We employed a regression model estimation to quantify the significant effects of the identified factors for each hypothesized path on the adoption behavior of Taiwan undergraduate students on the intention to use non-native language commercial websites. The results are summarized and presented in Fig. 2 and Table 2. The eight hypotheses are all significant at levels of 0.05 or 0.001. Fig. 2 and Table 2 present the Beta, t-values and P values for the hypothesized relationship between the studied constructs. Prior non-native language experience had a significant negative effect on language anxiety ($t = -1.979$, $P < .05$), positive effect on language self-efficacy ($t = 2.121$, $P < .05$) and positive effect on intention to use non-native language

commercial web sites ($t = 4.052$, $P < .001$), as hypothesized H1, H2 and H3, respectively. Language anxiety had a significant negative effect on language self-efficacy ($t = -12.231$, $P < 0.001$), Internet self-efficacy ($t = -12.441$, $P < .001$) and intention to use non-native language commercial web sites ($t = -3.092$, $P < .001$), as hypothesized H4, H5 and H8, respectively. Language self-efficacy and Internet self-efficacy had a significant positive effect on intention to use non-native language commercial web sites ($t = 4.550$, $P < .001$; $t = 6.917$, $P < .001$) as hypothesized in H6 and H7. Table 3 summarizes the research findings, illustrating that all eight hypotheses are significantly supported.

6. Discussion and research implications

The results of this research support the hypotheses that a causal model exists for prior non-native language experience, language anxiety, Internet self-efficacy, and language self-efficacy on the intention to use non-native language commercial web sites. As predicted and consistent with the theoretical perspective, language anxiety has a negative effect among language self-efficacy, Internet self-efficacy and the intention to use non-native language commercial web sites. This result is also consistent with previous studies (Compeau and Higgins, 1995a, b; Igbaria and IIvari, 1995; Marakas et al., 1998). This result indicated that if students have higher anxiety in a non-native language, they would lack confidence of non-native language and students would be thus afraid to access non-native language commercial web sites. As to the relationship between language anxiety and Internet self-efficacy, the resulting data suggests a negative relationship in this research. This result indicates that if students have higher anxiety with non-native language usage, they have low Internet self-efficacy. This means that if students with greater non-native language anxiety, they would not have confidence to access the Internet. This result is consistent with previous research (Compeau and Higgins, 1995a, b; Marakas et al., 1998). The results imply that people know what it is which is bothering them, should they try to eliminate or minimize their anxiety in some way. According to the researcher's private, partially in-depth one-to-one personal interviews, the respondents expressed that they would be afraid to access sites with the language they are not familiar with. Hence, non-native language proficiency would affect their intention or confidence to use commercial web sites.

There is a consensus in the literature on the effects of self-efficacy. The extensive self-efficacy literature suggests that users' self-efficacy with specific domain application influences subsequent behavior (Bandura, 1977, 1982, 1986; Eastin and LaRose, 2000). Language self-efficacy and Internet self-efficacy respectively has a positive effect on the intention to use non-native language commercial web sites. These findings are consistent with the theory of self-efficacy (Bandura, 1977). Students with higher self-efficacy have a higher intention to use commercial websites. Even when considering sites in a second language which is not students' native language, students still have intention to use these sites. Language self-efficacy has a positive effect on the intention to use non-native language commercial web sites.

Additionally, prior non-native language experience, as predicted, has a positive effect on language self-efficacy and intention to use non-native language commercial web sites and a negative effect on language anxiety, respectively. From a theoretical perspective, it seemed logical to hypothesize that more experience with the non-native language would result higher judgment of self-efficacy on the part of individuals because experience would affect one's self-efficacy. Bateman and Zeithmal, 1989 proposed that failed and successful feedback from past experiences significantly affected subsequent behavior. Specifically, past success would increase one's self-efficacy, and thus, increase one's effort to put into potential new projects (Wood and Bandura, 1989a, b). In other words, positive prior non-native language experience would affect one's confidence and behavior. So in this study, students with more positive prior non-native language experience would have both greater language self-efficacy and intention to use non-native language commercial web sites. Whereas, prior non-native language experience as predicted has a negative effect on language anxiety.

6.1. Limitations and future research

Three weaknesses must be addressed in this study. Firstly, the measurement of prior non-native language experience is based on respondents' self-reporting about their non-native language experience, which may cause subjective judgment bias. Further research should try to overcome this bias. Secondly, this research concerns applying anxiety and self-efficacy into the scope of commercial web sites. For the intention or confidence to adopt (use) a new technology or new language to be a competent commercial website user, it is possible that self-efficacy in the scope of Internet is different from the concept of language self-efficacy. Furthermore, more reliable and direct measure of language self-efficacy is needed. Further research should have this limitation rectified. Thirdly, this research used college or university students as sampling targets which may cause the low external validity. We therefore cannot infer from our findings as integrated. The results may not be generalizable to all commercial website users. Further research should try to avoid this limitation to get integrated data and reduce the bias of the research. Thus, future follow-up research should replicate, improve and extend the present study, including the refinement of the each measure to fit the scope of research issues, sampling scopes, more predictor variables of the intention to use non-native commercial web sites, various prior non-native language experience in user-based variables and context-based

variables to further interpret the complex effects of intention to use the commercial web sites and so on.

6.2. Implications

The new empirical evidence from this study reveals the relationships among language anxiety, prior non-native language experience, language self-efficacy and Internet self-efficacy on the intention to use non-native language commercial web sites. Traditionally, language use mostly constraints within the face-to-face communication. However, the prevalence of Internet technology has changed the way we communicate. Nowadays, people spend a lot of time surfing or exploring on the Internet. Thus, people face a new challenge in web usage under foreign commercial web sites quite often. This phenomenon influences not only on educator but also on the academic researchers and practitioners. The findings of the study suggest that students with greater non-native language experience have lower non-native language anxiety, higher non-native-language self-efficacy and greater intention to use non-native commercial websites. This evidence displays that having better non-native language experience could not only reduce students' language anxiety, but also increase their self-efficacy on language and the Internet and intention to use non-native language commercial web sites. Since prior non-native language experience significantly affects anxiety, self-efficacy and use intention, further effort should be made to develop students' motivation to learn non-native language better, faster and more enjoyable. Thus, education plays a crucial role not only for increasing students' prior non-native language experience and reducing language anxiety, but also for increasing students' self-efficacy on the Internet and language. Therefore, in spite of the aforesaid limitations, this study is noteworthy for academic researchers, practitioners and educators alike. Results indicate the impact of culture (i.e. language or prior non-native language experience) on new IT usage or the intention to adopt new technology.

From an academic researcher's perspective, the findings suggest that the nature of emotional reaction (i.e. anxiety) and individual belief (i.e. self-efficacy) could account for different scopes of information technology adoption or usage intention. Actually, cultural factors have long been proposed as a critical element in information technology studies, especially for the new prevalent electronic commercial applications (Gullahorn and Gullahorn, 1966; Wood and Bandura, 1989a, b). This research expanded the research scope applying the self-efficacy theory on the cultural factors to investigate the impacts of commercial website use intention. It needs more advanced study to deeply dig the cultural factors on adoption behavior on different information technology.

From a practitioner's perspective, it is imperative for marketers to understand the user characteristics in this relatively new electronic environment to permit targeting of users in their marketing plan (Shim and Mahoney, 1991).

When marketing a new information technology and also considering its effects, managers should consider the impact of language anxiety, language self-efficacy, prior non-native language experience and Internet self-efficacy on new information technology usage or intent to use. Additionally, when system designers try to design a commercial web site, they should design a multiple-choice language interfaces for users to choose. Users can choose the language they are familiar with to reduce their language anxiety and increase their language self-efficacy on the commercial web sites. Simultaneously, an online free dictionary linking function is also necessary in the commercial web sites. Furthermore, commercial web site system designers should use more graphics to depict the contents of sites to attract the attention of users instead of language instruction. Further, understanding the contribution of prior non-native language experience, language anxiety and self-efficacy of individuals in using online commercial web sites will allow marketing managers and software vendors to focus attention on factors that will result in the greatest user acceptance of Internet applications.

From an educational perspective, the result illustrates that the belief and emotional reaction of language play an important role on the use of commercial web sites. Hence, how can educators reduce students' language anxiety when they access non-native-language commercial websites? One possible solution is to access the non-native commercial web sites to support foreign language teaching. For instance, English teachers can surf or browse on different non-native commercial web sites to guide students to familiarize with the content of each site. If students have confidence on the non-native-language Internet environment, this would increase student's intention to use the non-native commercial web sites. This approach can reduce students' language anxiety. At the same time, this approach can also increase both student's Internet self-efficacy and language self-efficacy. Additionally, in school, except for the regular second-language learning course, school should provide additional courses to teach elementary students to use or surf on non-native web sites to reduce students' anxiety as early as possible.

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