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Statistical Approaches to Design and Development of an Assessment Instrument of Difficulties in Learning English Communication

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Abstract

Function of language is to communicate in a society, especially to the persons who work in hospitality industry. The learners who major in hotel management are required to have effective English communication competence to provide good service in international hotels. However, not high percentage of students can achieve it. In order to look into the factors which influence the learners' English communication competence, this research is to design and develop an assessment instrument (or measurement) to investigate the difficulties in learning English communication encountered by the students who major in hotel management. This study employs a three-phase research procedure: (a) Establishing the assessment instrument of difficulties in learning English communication (DLEC) through review of the literature, (b) Designing and developing the assessment instrument of DLEC by conducting deep interviews and answering questionnaires, and (c) Validating and finalizing the assessment instrument according to expert validity surveys. Seven points

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Semantic Differential Scale and five points Likert Scale are adopted in this study. Three hundred and twenty participants (PTs) are recruited from two universities of technology to answer the questionnaires. The collected data are analyzed by statistical procedures to identify differentially functioning items. Given the finding of this paper, a reliable assessment instrument has been designed to explore the difficulties in learning English communication encountered by EFL learners. This research was not only to bridge the gap in insufficient studies of this field, but also to provide a valid assessment measurement. Furthermore, the EFL teachers can apply this assessment instrument to diagnose students' difficulties in learning English and design the proper curriculum or the remedial instruction.

Keywords: assessment instrument, English communication, English learning difficulties, factor analysis, statistical analysis

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英語溝通能力學習困難與診斷工具之量化研究

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摘要

本研究目的是以建構一套針對技職校院旅館管理系(簡稱旅館系)學生英語溝通學習能力困難的診斷工具，作為協助技職校院教師及相關教育單位瞭解旅館系學生英語溝通學習上的困難，並提出改善策略與方向。研究步驟首先針對旅館管理系英語課程規劃進行瞭解，探討學生在英語學習歷程中所遭遇到困難，經由文獻回顧、焦點團體、訪談收集資料設計問卷，經前後測及結構方程式(Structural Equation Model - SEM)之因素分析(factor analysis)檢視問卷中各題項之信效度，加以修正後完成問卷設計。來自國內兩所科技大學 320 位旅館系學生參與問卷調查作為實證研究的對象，施測後有效問卷為 243 份。最後顯示，本研究所建構之診斷工具是可以協助教師瞭解學生在英語溝通學習能力上所遭遇到的困難，適時加以協助或提供補救教學；亦可提供學校相關系科於專業英語課程上設計以符合產業導向需求之教材及教法之參考。由於本研究所發展出之診斷量表，乃是屬於一個廣泛階段性的實證研究，而驗證過程主要目的是將能力指標敘述，轉化成為一個分級的評量工具，因此未來可以再進行驗證並改進，使其適合於各系科學生使用之診斷量表。除此之外，建議可以建構相關題庫(test bank)作為診斷學生英語聽說讀寫學習困難之量表。

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方程式

Introduction

We might hear many EFL learners in school complain that they could not establish English communication properly and effectively. In fact, most teachers could comprehend their situation, but we do not know the factors of difficulties in learning English communication they encountered. As we know communicating is the concern not only with English as a foreign language learner but with us all in our daily lives in whatever language we happen to use (Savignon, 2005). In addition, Takanashi (2004) pointed out that natural contexts are important to establish an effective communication in English. As we know, an effective communication needs at least two participant roles to use utterances to convey information and to lead each other toward an interpretation of meanings and intention (Schiffrin, 1995). That's to say, there is a mapping between communicating something (a message) to someone else, and giving or sending something to someone else (Goddard, 2009). If there is a gap in mapping, a miscommunicative discourse occurs consequently. This gap presumably results from the difficulties in learning English for EFL learners. Regretfully, little attention has addressed this issue and it often focuses on English speaking proficiency. This initiates the researcher to conduct this study. With this purpose, several concepts of learning English communication develop into some constructs of questionnaire which are designed originally by Deci et al. (1985). The subjects were recruited from hotel management major due to English communication competence is more important than the other majors, such as Chinese culinary, western culinary and baking. Admittedly, it is difficult to include all students from different majors in this research. In order to design an appropriate questionnaire to achieve the aim of this research, three deep interviews and a pretest were used to revise the

questionnaire to become a reliable and valid assessment instrument (AI) subsequently. This AI cannot only investigate the difficulties in learning English communication of EFL learners encountered, but also provide the information and knowledge to teachers to design an appropriate curriculum or remedial program. By virtue of this study did not discuss the constructs of reading and writing, further research may focus on these perspectives to make this AI enables to evaluate learning difficulties in four skills of English.

Theoretical Background

The following discussion mainly reviews briefly the theories related with this research due to the pages constraint. The related theories include communication competence, overall English learning difficulties, language learning attitude, language learning motivation, English learning anxiety and difficulties, self-access English learning environments, English learning strategies and teaching methodologies.

Communication Competence

Many scholars define the communication competence (CC). The first proposal is specified by Hymes (1967). He indicates the language competence could be adequately accounted as social and functional rules of language within specific contexts. This claim contrasts with Chomsky's (1965) communication competence which focuses on language knowledge and rules. From then on, more scholars expanded their works on communicative competence. Brown (2000) posits that communicative competence as one aspect of people's competence which can interpret and convey messages, and negotiate meanings with others in particular situations. More importantly, Canale and Swain (1980) and Canale (1983) asserted that

communicative competence composes of grammatical competence, sociolinguistic competence, discourse competence, and strategic competence. Grammatical competence focuses on features and rules of the language, such as vocabulary, word formation, sentence formation, pronunciation, spelling and linguistic semantics. Sociolinguistic competence embodies the knowledge of both sociocultural rules of usage and rules of discourse concerned with appropriateness of language use in diverse social contexts. Discourse competence involves the ability to combine grammatical forms and meanings to a unified spoken or written text in various genres (Canale, 1983). The last subcomponent, strategic competence, is an action to compensate for breakdowns in communication due to insufficient competence (Canale & Swain, 1980). Following Canale and Swain's framework of communicative competence, Bachman (1990) proposed it as language competence which includes organizational competence and pragmatic competence. Organization competence Organizational competence consists of grammatical competence (e.g., vocabulary, morphology, syntax, and phonology/graphology) and textual competence (e.g., cohesion and rhetorical organization). Strictly speaking, the subcomponents of grammatical competence in Bachman's framework are similar with the grammatical competence of Canale and Swain's module. Textual competence equals discourse competence in Canale and Swain's theory (Brown 2000). However, Bachman (1990) specified the textual competence as rhetorical organization and discourse analysis in conversation. The former emphasizes narration, description, comparison, classification, and process analysis. The latter focuses on establish, maintaining, and terminating conversation. It is widely believed that Bachman had contributed to efforts on language competence.

Overall English Learning Difficulties

The myth of high scores on test do really mean who can communicate English fluently result from historical factors to cause difficulties on English communication in the Chinese society. The influence from family is a crucial factor to children's attitude to learn English. Most family realizes that English plays an important role and believe English well can help their children to have a higher academic achievement. However, different social statuses of parents provide their children with different economic resources and instill into different learning attitudes into them (Xu, 2003). Parents from upper class can afford more opportunities to support their children to learn English after class. Comparatively, the children from lower-class families lack the financial support to learn English and may negatively influence their motivation in learning English. Rather, low motivation may undermine learners' confidence. Besides the influential factors from family, the insufficient confidence partially is from the difficulties of learners encountered in learning English listening and speaking. The difficulties do not only from confidence, but also from learning environment. The students prefer that their teachers use Chinese in their lectures (Lo, 2000). Whereas they suggested having more English conversation classes to provide them with chances to practice speaking. Besides, the Chinese students are unwilling to communicate due to traditional Chinese philosophy and value. Such as, "Silence is gold" (Wen and Clement, 2003). Furthermore, most students tend to be sensitive to social evaluation and care about their own images in relation to others. In addition, the teacher-centered way of teaching also negatively affects the students' willingness to communicate in English (Sue, 2004). The issues above are addressed briefly, and they can

be discussed further in other research.

Language Learning Attitude

Wenden (1991) points that learning attitudes consist of three principal components – cognitive, evaluative, and behavioral elements. The cognitive component of language learning attitudes compose that language learners believe about their role or ability in learning a language, while the evaluative component arouses positive or negative feelings, such as enjoy and hate. Furthermore, the behavioral component of language learning attitude suggests language learners to perform in certain ways. Gardner (1981) claims that attitude has orienting function which can influence the learner's cognitive action and selective response. Language learners have positive perception of the target language based on their cognition; they tend to be enthusiastic in their learning (Su, 2000). Besides, Brown (2000) indicates that attitudes constitute one's perception of s/her self, of others, and of the culture that one is exposed to. If a learner has a positive attitude toward himself/herself, the native culture and the target culture, he/she tends to a second or foreign language successfully (ibid.). In other words, language learners might be motivated by their admiration for the target country or the people speaking the target language, which was identified as integrative motivation (Rubin & Thompson, 1994). If language learners are motivated by their academic or career requirement, this was considered as an instrumental motivation. Accordingly, there is a correlation between learning attitudes and learning motivation of language learners (Su, 2002). Strong motivation can lead to constructive attitude and to perform task persistently. Likely, strong motivation in learning language might arouse a positive attitude to achieve the learning goal. Namely, learning motivation

and leaning attitudes have mutual influence in the process of learning a second/foreign language of individuals.

Language Learning Motivation

Motivation is a multifaceted and complex matter (Dörnyei, 1998). Different scholars of psychology interpret motivation from different aspects. Such as, Slavin (1997) defines the motivation as, “motivation is what gets you going, keeps you going, and determines where you’re trying to go” (p.345). From a cognitive point of view, Pintrich and Schunk (2002) claim the motivation as, “the process whereby goal-directed activity is instigated and sustained” (p.5). Namely, Dörnyei (1998: 118) asserts that motivation is a “process whereby a certain amount of instigation force arises, initiates action, and persists as long as no other force comes into play to weaken it and thereby terminate action, or until the planned outcome has been reached.” From the motivation in language learning, Robert Gardner (1985a) points out the social milieu and culture are like an integrative orientation, which refers to learners’ identification with the culture of the target language, and an instrumental orientation, referring to practical rewards or purposes for learning (cited in Kan, 2004). Beside Gardner’s view, Noels, Pelletier, Clément, and Vallerand (2000) conducted a research in L2 learning and self-determination theory. Motivation is categorized broadly into two types in this theory, intrinsic and extrinsic aspects. Intrinsic motivation refers to “motivation to engage in an activity because that activity is enjoyable and satisfying to do” (ibid., p.38). As long as the enjoyment or satisfaction is derived from engaging in the activities, the intrinsic motivation to choose to do those activities is elicited spontaneously. Conversely, extrinsic motivation is not got from inner satisfaction, whereas from identified

regulation, introjected regulation and external regulation. Identified regulation can lead a person to engage in the tasks with personal value and reasons. Introjected regulation is applied to carry out the activities with the guilty feelings or the pressure one perceives for not doing so. Lastly, external regulation is like an external force that pushes individuals to do something due to gaining rewards or avoiding punishment for not doing so. Based on the discussion above, it seems controversial to identify the major roles in integrative and instrumental motivation as predictors of the success in learning L2 (Cao & Philp, 2006).

English Learning Anxiety and Difficulties

More than sixty percent of the learners had the general belief, “Some languages are easier to learn than others (Chen, 1997; Horwitz, 1988; Kern, 1995; Peacock, 1999; Yang, 1999). Furthermore, Peacock (1999) pointed out that the overwhelming majority (65%) of university freshmen in Hong Kong agreed that English is “a language of medium difficulty.” As to the difficulty level with respect to specific language skills, such as speaking and understanding (listening), over forty-five percent (46.2%) of English learners in Taiwan agreed, “It is easier to speak than understand a foreign language” (Chen, 1997). This occurs very often in the students from French, German and Spanish university agree it is easier to read and write this language than to speak and understand it, though a majority of students estimated the foreign language as a language of medium of difficulty (Horwitz, 1988; Kern, 1995). In addition, Manlte-Bromely (1995) claims that criterion of assessing the language difficulty is problematic when the assessors’ beliefs and performances are less proficiency.

Self-access English Learning Environments

Self access English learning environment is named broadly as educational English learning facilities designed for student learning that is at least partially, if not fully self directed. Students can access to resources ranging from photocopied exercises with answer keys to computer software for English learning. Self-directed learning resource including, self-access program, multimedia learning software, on-line resources (Cheng, 2005:14). Learning resources with self-access properties contain modern facilities like audio, video, computer assisted instruction, computer workstation, multimedia software, Internet and a variety of learning materials. The one of most famous self-access properties is a computer assisted instruction (CAI) which the learning materials are presented by the computer. CAI can overcome the limits of human resources and time that hinder teacher to offer individualized instructions. There are several advantages of adopting CAI. First, the computer system can provide students with immediate feedback. Second, students can proceed with the learning at their own pace. Third, students can practice repeatedly, and fourth, teacher's workload of teaching can be greatly reduced (Su, 2000; Huang 2001; Tu, 2001; Chen, 2003). Notwithstanding, there are so many advantages of modern facilities of learning English, getting to the point where students can exploit them effectively can be problematic. How to provide primarily tutor or instructor guidance for student work is another important issue should be considered.

English Learning Strategies

In the early twentieth century, learning was mainly regarded as a mechanistic process of responses and learners were viewed as passive recipients. During the 1950s and 1960s, the view on learning turned to

knowledge acquisition and learners became active construction and managers in processing knowledge. The educational researcher started to think highly of the strategies learners employed in the process of their learning (Hsieh, 2006). In language education, the term “strategy” is often transformed to “learning strategy.” Wenden (1987) claims that the learning strategy was classified into three different aspects: the behavioristic, cognitive, and affective aspect. The behavioristic perspective, “learner strategies” was defined as “language learning behaviours learners actually engage in to learn and regulate the learning of a second language” (p.6). The cognitive perspective, “learner strategies” referred to “what learners know about the strategies they use” to learn a new language, namely, their strategic knowledge (p.7). Lastly, the affective perspective, learner strategies were not only regarded as what learners understand about aspects of their language learning, but also as what they use, such as the personal factors which allowed the learners to facilitate second language learning (p.7). In addition, Oxford (1990) defines the learning strategies as “specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations” (p.8). This definition contains cognitive, affective and social aspects of learning strategies (Hsieh, 2006). Oxford identified learning strategies into two major categories, direct and indirect strategies, and six subcategories. Direct strategies composed of memory, cognitive, and compensation strategies and indirect strategies include metacognitive, affective and social strategies. In a similar vein, Oxford (1990) also proposed 12 features of learning strategies listed as follows:

1. They contribute to the main goal, communicative competence.
2. They allow learners to become more self-directed.

3. They expand the role of teachers.
4. They are problem-oriented.
5. They are specific actions taken by the learner.
6. They involve many aspects of the learner, not just the cognitive.
7. They support learning both directly and indirectly.
8. They are not always observable.
9. They are often conscious.
10. They can be taught.
11. They are flexible.
12. They are influenced by variety of factors.

For decades researchers in foreign language education have been investigating the language learning strategies. Many researchers and scholars have attempted to define language learning strategies from various perspectives. It is possible to synthesize the definitions of language learning strategies mentioned above that can refer to behaviors, actions, knowledge, or affective elements learners use with an aim to facilitate their second or foreign language learning.

Teaching Methodologies

The role of teacher plays as a lecturer, discourse initiator, topic switcher and controller, while students play mostly a passive role (Li, 2005). How to elicit the students' motivation from involving the teaching process actively, teaching methodology becomes a crucial factor which leads to the success of instruction lies in teachers' methodological decisions (Liu, 1995; Lu 1997). Many language scholars suggest various methods for language teachers to follow (Brown, 1994; Nunan, 1992; Richards & Rodgers, 1986). Notwithstanding, different methods have their own specific features, there are

some limitation in each of them (Chang, 2003). The appropriation of teaching methods is even asserted to be culturally determined (Holliday, 1994). Far more likely is that is impossible to adopt one absolute method that can be fit for any situation (Johnson, 2001). Hence, it pragmatically selects the best method from diverse sources, systems or styles (Huang, 1986; Newton, 1980; Tseng, 1993, 1994). Namely, this method is termed as an eclectic method which was proved to be useful in teaching vocabulary (Ho, 2001), writing (Yan, 1995), or even listening (Cheng, 2000). Besides, the pragmatic factors can affect the teachers' methodological decisions, teachers' characteristics also have impact in their methodological decisions (Lu, 1997; Strasheim, 1987; Woods, 1996). In addition, the external factors, educational policy or available teaching aids, will determine teachers' methodological decisions (Chang, 2003). Inevitably, many factors may influence teachers' methodological decision, whereas this cannot be fully explained with only a paragraph. These factors comprise 'teacher thought processes'; 'teachers' beliefs in teaching', and they can be explored in other research.

Methods

The purpose of this study is to investigate the difficulties in English communication encountered by the students major in hotel management and to design an assessment instrument. The researcher organized three deep interviews individually with six students of NKHC, three managers from hotels and five teachers from the Hotel Management Department of NKHC. The results of interview and theoretical structure (Deci et al., 1985) provide the basic structure of questionnaire which was designed into eight major sections: (a) personal information, (b) overall English learning difficulties; (c)

language learning attitude; (d) language learning motivation; (e) English learning anxiety and difficulties; (f) self-access English learning environments; (g) English learning strategies; (h) teaching methodologies. Seven points Semantic Differential Scale was used in the second section, and five points Likert Scale was used in the other six major sections. The capital letters of A, B, C, D and F (see Appendix) were showed before each item of six major sections in the questionnaire. Thirty-two students from the fourth year of NKHC after having domestic or oversea internship, and thirty-four students from the second year before internship were the participants (PTs) to pretest the questionnaire. The computer software, SPSS 14.0 was adopted to analyze the collected data and determined the effective items of questionnaire according to the values of Means and Standard Deviation (SD). Cronbach's α used as measure of the internal consistency reliability was greater 0.7 of each item of questionnaire. The factor analysis was employed to analyze the items while the values of KMO (Kaiser-Meyer-Olkin) were greater 0.6, whereas the factor loading was greater than 0.3 by Principal Component Analysis, this item was deleted (see Table 1). This distribution was proves the questionnaire can be modified by the factor analysis to lead the data reduction and summarization. After the modification process, the version of questionnaire was finalized.

Three hundred and twenty participants (PTs) were recruited from two universities of technology of Northern Taiwan to answer the questionnaires. Finally, 293 questionnaires were collected, and then 243 copies were effective after checking. 76% of effective questionnaire were collected. The collected data were analyzed based on the statistical procedures which used descriptive statistics – percentage, Mean, skewness, SD, kurtosis to explore the variables' distribution; SEM – factor analysis was to examine the

reliability and validity of the questionnaire. Twenty PTs from NKHC were invited to have an interview after answering the questionnaires to examine the reliability and validity of this assessment measurement.

Table 1 Statistical Analysis on Overall English Learning Difficulties Difficulties in Designing Questionnaire

	OELD	LLA	LLM	ELAD	SALE	ELS
Means	2.86	5.03	3.55	3.40	2.91	3.45
SD	0.79	0.90	0.37	0.53	0.52	0.40
Skewness	-0.31	-0.89	0.64	-0.05	-0.87	0.11
Cronbach's α	0.91	0.86	0.72	0.90	0.86	0.92
KMO	0.85	0.71	0.70	0.60	0.73	0.62
Deleted Items	A1	0	C1~C4	D27、D34	E1、E5~E9、 E11、E14、 E18、E19	F8、F11、 F25、F27

※ SD < 0.75; discriminant validity was low; the value of skewness was near ± 1 means skewed apparent; $\alpha > 0.7$ means high reliability; KMO > 0.6 means the phase could be analyzed by factor analysis.

Findings

As a results, the researcher gained a sharpened understanding of what the overall difficulties in English learning, English learning motivation, reliability and validity analyses of measurement instrument, and the structural equation modeling (SEM) from this research.

The overall English learning difficulties (OELD)

The mean scores on Table 2 were between 3.37 and 3.70 showed the top five overall English learning difficulties were grammar, vocabulary retention, confidence, and learning consistence individually. The highest rank of OELD was “too little vocabulary retention to be used”, and the lowest rank was “lack of confidence of using English” and “lack of consistence of learning English.” The latter two items indicate that the difficulties in

learning English presumably results from lack of financial support, poor learning environment, ‘silence is gold’, teacher-centered way of teaching and so on. These issues can be discussible further in other research.

Table 2 The Ranks of Overall English Learning Difficulties

No.	Items / variables	Mean	SD	Skewness	kurtosis	Rank
1.	Grammar is too difficult to me.	3.65	0.785	-0.275	0.270	3
2.	Too many phrases I do not understand.	3.69	0.776	-0.577	0.641	2
3.	Too little vocabulary retention to be used	3.70	0.775	-0.485	0.279	1
8.	Lack of confidence of using English	3.37	1.034	-0.213	-0.598	5
11.	Lack of consistence of learning English	3.63	0.865	-0.393	-0.107	4

English Learning Motivation

The Mean value of C3 was 2.95 showed the most PTs satisfied with their reading competence. The Mean value of C4 was 2.52 showed the writing ability was the lowest value in English competence of PTs (see Table 3). The standard deviation (SD) was presented between 0.80 and 0.83. That meant the discriminant of construct of ELM was excellent. The skewness came in the form of “negative” in “reading competence” was -0.098 to show the PTs felt satisfied with this skill resulted from personal intrinsic motivation to engage in reading activities Vallerand (2000). In addition, the data points of three other skills were skewed to the right (positive skewness) of the data average to present most PTs did not recognize their three skills were excellent. The flatness results from a platykurtic data on Table 3 showed less concentrated around its mean, due to large variations within observations.

My Expectation on English Learning (MEEL)

Higher value of mean score of item C11(see Table 3), ‘I consider English to be a basic tool I can apply it for my advanced education, job hunting, or going abroad in the future’ was 4.39 which reflected the most PTs considered English learning was a basic survival language tool in daily life or academic career. This also specifies the most PTs whose expectation on English learning is from positive intrinsic motivation and constructive attitude. Next high score mean was C12, ‘I hope to communicate fluently with others in English’. The standard deviation was between 0.649 and 0.996 which meant the discriminant of construct of ‘my expectation of English learning’ was good. In addition, the items of C12 and C13 were skewed to the right (positive skewness) of the data average. The other variables (C11, C14 and C15) were skewed to the left (negative skewness) of the data average. A platykurtic data set had a flatter peak.

Reliability and Validity Analyses of Assessment Instrument

This session comprises composite reliability, convergent validity, discriminant validity, the general difficulties in English of two-order factor analysis and multiple fit indices of the overall model fit.

Composite Reliability (CR)

Most t-values of CFL were more than 0.5 (threshold value) except D15 (The difficulties in English speaking – There are many tense errors in my oral expressions), D25 (The difficulties in English reading – I do not know how to make use of the appropriate tools for translation) and D28 (I know each word, but I cannot understand the sentence meaning) (see Table 4), were 0.48, 0.32, 0.30. The result indicated that standardized estimator of most variances were presented between 0.50 and 0.60. Moreover, all variances reached

statistic significance level ($p = .05$, t -value > 1.96).

Table 4 The Difficulties in English for CFA Model Results

Number/ Item		CFL (t-value)	Error
The difficulties in English speaking			
D15	There are many tense errors in my oral expressions	0.48 (5.91)	0.45
The difficulties in English reading			
D25	I do not know how to make use of the appropriate tools for translation	0.32 (4.78)	0.76
D28	I know each word, but I can not understand the sentence meaning because I do not know many idioms or slangs	0.30 (4.40)	0.74

In addition, the Table 5 showed that the CR values were more than 0.7 which reflected higher construct reliability among the latent variables (Fornell et al., 1981; Bagozzi et al., 1988).

Table 5 The Composite Reliability of the Difficulties in English Learning

Items	CR
The difficulties in English listening	0.88
The difficulties in English speaking	0.91
The difficulties in English reading	0.87
The difficulties in English grammar	0.86

Convergent Validity

The individual item reliability of latent variables in measurement model can calculate the goodness-of-fit of this model (Bagozzi et al., 1988).

The measure of average variances extracted (AVE) presented the overall amount of variance of English learning difficulties reached the threshold value (0.5) except the difficulties in English listening (0.45), The difficulties in English speaking (0.48) and the difficulties in English reading (0.41) (see Table 6). The results denoted that this measurement tool had convergent validity in this research.

Table 6 The Composite Reliability of the Difficulties in English Learning

Items	CR	AVE
The difficulties in English listening	0.88	0.45
The difficulties in English speaking	0.91	0.48
The difficulties in English reading	0.87	0.41
The difficulties in English grammar	0.86	0.60

CR: Composite Reliability / AVE: Average Variances Extracted

Discriminant Validity

Discriminant validity is the degree to which conceptually similar concepts are distinct. The measures of theoretically different constructs should establish low correlations with each other. Thus, a low cross-construct correlation is an indication of discriminant validity. Discriminant validity can be assessed by AVE. The AVE for each construct should be greater than the squared correlations between the construct and all other construct in the model (Nusair et al., 2009). Table 7 presented a high discriminant validity between each pair of constructs.

Table 7 Discriminant Validity Matrix

LV	Listening	Speaking	Reading	Writing	Vocabulary	Sentence patterns	Grammar
1. Listening	0.68						
2. Speaking	0.65*** (0.00)	0.70					
3. Reading	0.55*** (0.00)	0.63*** (0.00)	0.64				
4. Writing	0.57*** (0.00)	0.68*** (0.00)	0.72*** (0.00)	0.65			
5. Vocabulary	0.48*** (0.00)	0.52*** (0.00)	0.61*** (0.00)	0.55*** (0.00)	0.72		
6. Sentence patterns	0.50*** (0.00)	0.65*** (0.00)	0.64*** (0.00)	0.73*** (0.00)	0.58*** (0.00)	0.76	
7. Grammar	0.44*** (0.00)	0.53*** (0.00)	0.60*** (0.00)	0.65*** (0.00)	0.57*** (0.00)	0.72*** (0.00)	0.77
Mean	3.42	3.60	3.27	3.68	3.22	3.51	3.49
SD	0.57	0.60	0.56	0.54	0.71	0.70	0.69

※ LV: Latent Variable / * $p < 0.1$ 、** $p < 0.05$ 、*** $p < 0.01$ 。

For example, listening exhibited high discriminant validity from all other constructs. The AVE root square for listening was 0.68 while the shared variance occurred between listening and other constructs ranged from 0.44 to 0.65, and indication of discriminant validity. However, the AVE root square for reading was 0.64 while the shared variance was between reading and writing (0.72). Likely, it occurred between reading and sentence patterns (0.64). These presumably resulted from the similarity of questionnaire items of difficulties on writing and sentence patterns. However, writing could not avoid composing the concepts of vocabularies, sentence patterns and grammars (Schoonen, 2003; Lo, 2000). Accordingly, the constructs of reading and writing could be explored further and

individually without including the constructs of vocabularies, sentence patterns and grammar in other research.

The General Difficulties in English of Two-order Factor Analysis

Two-step SEM approach can be used to certain discriminant validity of latent variables (or constructs) while factor loading is higher than the standard value (0.75) (Anderson & Gerbing, 1988). The measurement model comprised factors' loadings which were higher than the standard value except listening(0.72)(seeFigure.1).

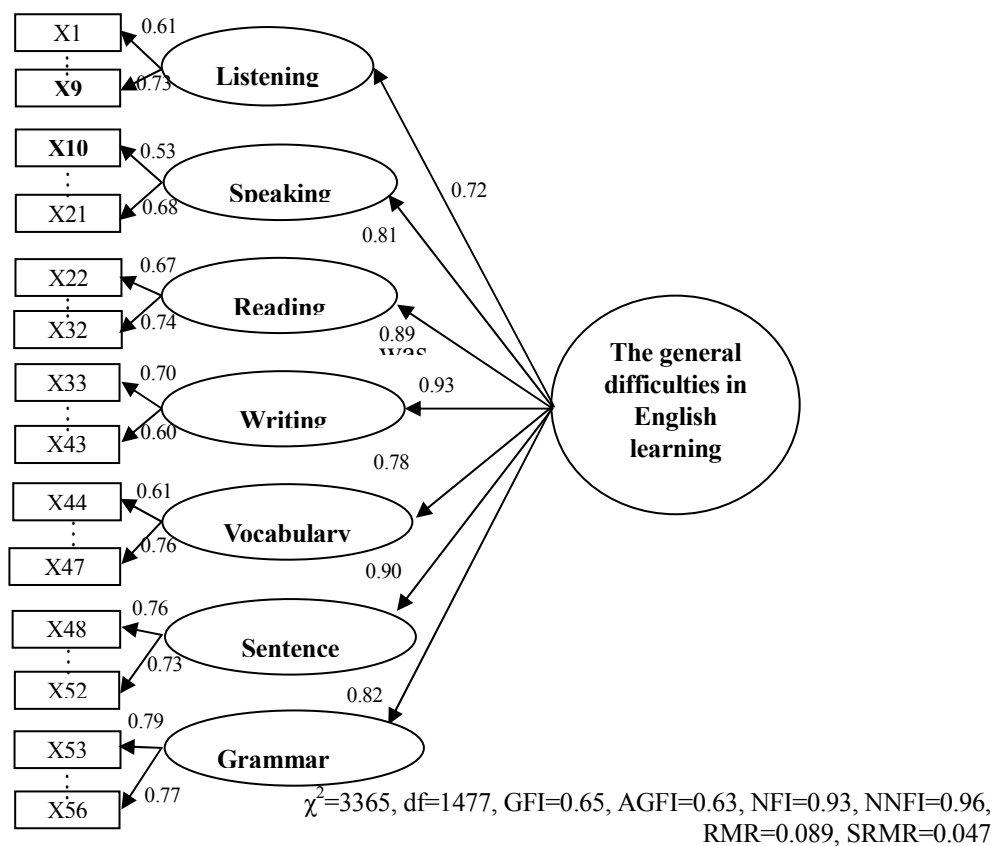


Figure. 1 The Difficulties in English Learning of Two-order Factor

Regarding, the measurement model could achieve model's goodness-of-fit. Therefore, the questionnaire design could assess the difficulties of PTs reliably

and properly in this research.

Multiple Fit Indices of the Overall Model Fit

The overall model fit in both measurement and structural models is evaluated using goodness-of-fit indices including χ^2 / df ration, GFI, AGFI, RMR, SRMR, RMSEA, ECVI, NFI, NNFI, CFI, Q-Plot. Table 8 indicated the ration between χ^2 and df was 2.28 smaller than 5. In addition, the other indices of GFI, AGFI, SRMR were smaller than the suggestive values.

Table 8 Multiple Fit Indices of Overall Model Fit

	GFI Index	Ideal Standard	Index Values of This Research
	χ^2	The smaller value is better.	3365 (p<0.01)
	GFI (Goodness-of-fit index)	> 0.9	0.65
	AGFI (Adjusted goodness of fit index)	> 0.8	0.63
A G F I	RMR (root mean square residual)	The smaller squared value is better.	0.047
	SRMR (standardized RMR)	< 0.05	0.07
	RMSEA (root mean square error of approximation)	< 0.08	0.074
	ECVI (expected cross-validation index,)	The smaller value is better.	15.80
	NFI (normed fit index)	> 0.9	0.93
R F I	NNFI (non-normed fit index)	> 0.9	0.96
	CFI (comparative fit index)	> 0.9	0.96
	RFI (relative fit index)	> 0.9	0.93
S E G F I	NCI (normed Chi-square index)	2~3	2.28 (df=1477)
	Q-Plot	The slope is greater than 1, and the more steeper is better.	

※ AGFI=Absolute good of fit index / SEGFI=Simple and effective good of fit index

Conclusions

In conclusion, this research had designed and developed a reliable and valid assessment instrument to investigate the difficulties in learning English communication encountered by the students who majored in hotel management by conducting deep interviews and answering questionnaires. The collected data were modified by the factor analysis. The results presented the high SD which indicated the discriminant of construct of ELM, MEEL and RLE were good. More important, all variances reached statistic significance level. In addition, the CR values reflected higher construct reliability among the latent variables. Likewise, the measure of AVE indicated the almost overall amount of variance of English learning difficulties reached the threshold value. The results denoted that this measurement tool had convergent validity in this research. Moreover, the findings of general difficulties in English of two-order factor analysis identified the measurement model could achieve model's goodness-of-fit and had proved the questionnaire design could assess the difficulties of PTs reliably and properly. The significance of this research was not only to bridge the gap in insufficient studies of this field, but also to provide a valid measurement to assess the difficulties in learning English communication. Furthermore, the EFL teachers can apply this assessment instrument to diagnose students' difficulties in learning English and then to design the remedial instruction for different majors. The limitation of this research was the participants recruited only from hotel management departments. Accordingly, different majors of learners can help address the same issues diversely. For the future research, the constructs of reading and writing could be explored further and individually without including vocabularies, sentence patterns and grammar. Additionally, it is worth designing a test

bank which can diagnose the difficulties in learning English communication for EFL learners based on the findings of this research.

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Appendix

A sample page of questionnaire

Part I: The general difficulties in English learning

	totally disagree	disagree	fine	agree	totally agree
A1. I think the grammar is too difficult.	1	2	3	4	5
A2. There are too many phrases I do not understand.	1	2	3	4	5
A3. There are very few words I can use.	1	2	3	4	5
A4. I do not understand the whole article.	1	2	3	4	5
A5. I do not know how to pronounce the words or my pronunciation is poor.	1	2	3	4	5
A6. I can not or dare not talk to foreigners in English.	1	2	3	4	5
A7. I am not interested in English.	1	2	3	4	5
A8. I do not have a sound knowledge of English, which makes me unable to achieve mastery through a comprehensive study of English now.	1	2	3	4	5
A9. I am concentrated on teachers' instruction in class, but I can not understand that.	1	2	3	4	5
A10. I do not have enough time to learn it.	1	2	3	4	5
A11. I do not have patience and perseverance	1	2	3	4	5
A12. I think I do not have the talent to learn English	1	2	3	4	5

Part II: The attitude toward English learning (please circle one of the number from the continuum)

I think English learning is								
B1. Meaningless	1	2	3	4	5	6	7	Meaningful
B2. Boring	1	2	3	4	5	6	7	Interesting
B3. Unmanageable and Unpleasant	1	2	3	4	5	6	7	Manageable and pleasant
B4. Without advantage	1	2	3	4	5	6	7	With advantage
B5. Not easy	1	2	3	4	5	6	7	Easy
B6. Tough	1	2	3	4	5	6	7	Relaxing
B7. Supposed to be not positive	1	2	3	4	5	6	7	supposed to be positive
B8. Supposed to be not active	1	2	3	4	5	6	7	supposed to be active
B9. Not controlled by myself	1	2	3	4	5	6	7	Controlled by myself

Part III: The motivation of English learning

	totally disagree	disagree	fine	agree	totally agree
C1. My listening ability is pretty good.....	1	2	3	4	5
C2. My speaking ability is pretty good.....	1	2	3	4	5
C3. My reading ability is pretty good.....	1	2	3	4	5
C4. My writing ability is pretty good.....	1	2	3	4	5
C5. I can get good grades in the tests.....	1	2	3	4	5
C6. I can learn it well so that I feel dignified staying with my classmates....	1	2	3	4	5
C7. I can meet my parents' expectation.....	1	2	3	4	5
C8. I am afraid to fail this course for low grades.....	1	2	3	4	5
C9. I like this course from the beginning.....	1	2	3	4	5
C10. I like this course from the beginning.....	1	2	3	4	5
C11. I consider English to be a basic tool I can utilize that for my advanced education, job hunting, or going abroad in the future.....	1	2	3	4	5
C12. I hope to talk with others in fluent English.....	1	2	3	4	5
C13. I hope to improve my English ability, especially in four skills of listening, speaking, reading and writing.....	1	2	3	4	5
C14. I do not have any special expectation in English learning; I only want to pass the tests and graduate from school.....	1	2	3	4	5
C15. I do not have any expectation in English learning; I do not want to exert himself to learn English.....	1	2	3	4	5

Part IV: The difficulties in English learning

	1	2	3	4	5
D1. I do not understand what the foreigners mean because I do not get used to their accent.....	1	2	3	4	5
D2. I do not understand what the foreigners mean because they speak too fast....	1	2	3	4	5
D3. I do not understand what the foreigners mean because there are too many liaisons in English conversation.....	1	2	3	4	5
D4. I can not totally understand the colloquial English.....	1	2	3	4	5
D5. I do not spend enough time practicing listening comprehension skill.....	1	2	3	4	5