

國立臺灣師範大學英語學系

碩士論文

Master's Thesis

Graduate Institute of English

National Taiwan Normal University

大學生在電腦輔助語言自學中心之自主學習與學習方式

EFL College Students' Autonomous Learning at a CALL Self-Access  
Center with an Emphasis on Learning Styles

指導教授：林至誠博士

Advisor: Dr. Chih-Cheng Lin

研究生：林韻安

Student: Yun-An Lin

中華民國 102 年六月

June, 2013

## 摘要

藉由提供學習者可自由運用的教材，電腦輔助語言自學中心被視為培養學習者自主性的工具。好些研究調查學生觀感、學習策略使用、來訪自學中心頻率與其自主性發展的關係，但探討學習風格對自主學習潛在影響的研究卻寥寥無幾。

本研究藉由長期觀察第二外語學習者在電腦輔助語言自學中心的自主學習，針對此議題提供更多實證並進一步檢視學習風格和自選式學習的相關程度，學習軟體的選擇、來訪自學教室的頻率等皆為探討之要素。研究對象為非英語系之大一學生：1,579 名來自 2010 年第一學期，1,265 來自 2011 年第二學期。學生須填寫一份十題的線上問卷，評量他們當次於自學中心所使用的軟體。每學期末，學生另須填寫一份二十三題的問卷，評量他們在自學中心的整體學習。此外在 2011 年第二學期末，440 位學生自願填寫一份三十題的學習風格問卷。除了量化資料，質性資料也經由助教隨機訪談三十八位來自 2010 年第一學期的學生與三十二位來自 2011 年第二學期的學生中收集。

結果發現：由於舒適的環境、豐富的資源、個人化學習的可行性，第二外語學習者對於在自學教室學習英文抱持正向態度。學生亦指出他們在聽力、口說、閱讀、寫作、單字、批判性思考、評量技巧、西方文化理解等各面向的進步，其中又以聽力理解的進步最為顯著。觀看有字幕的電影是多數學習者練習英聽的主要管道，正因為看電影讓人放鬆且寓教於樂，學習者最常使用也最喜歡的學習軟體就是多媒體資源。接著，皮爾森相關分析與克瓦二氏檢定則用於探討自主學習和學習風格的關係。整體而言，大學生的學習風格並未對其在電腦輔助語言自學中心的自主學習造成顯著影響。學習者的學習風格與其英文程度和來訪自學教室頻率之相關均未達顯著。此外學生的性別、科系背景、軟體選擇皆未和特定學習風格達到顯著相關。

關鍵字：自學中心、自主學習、學習風格

## **ABSTRACT**

It is believed that self-access centers (SAC) serve as the best-known vehicle leading learners to autonomy by providing materials they can use on their own. Some studies investigated students' perception, strategy use, and frequency of visit in relation to their autonomy development while few explored the potential influence of learners' learning styles on their autonomous learning in SACs.

The present study aims to suffice for the longitudinal observation of adult EFL learners' autonomous learning in a CALL SAC and examine the extent to which learning styles correlate with their self-access learning, in terms of their program choices, frequency of visits, etc. Participants included 1,579 and 1,265 non-English-major freshmen from fall semester 2010 and spring semester 2011 respectively. They were required to fill in a ten-item online survey to assess the learning program they just used after each visit. At the end of each semester, they had to fill out a 23-item questionnaire to generally evaluate their learning in the SAC. Moreover, 440 students voluntarily took a 30-item learning style questionnaire at the end of spring semester 2011. Aside from quantitative data, qualitative data was also collected by interviewing 38 students and 32 students randomly selected by the SAC assistants from each semester.

Findings showed that adult EFL learners held positive attitude towards acquiring English in the SAC, owing to its cozy environment, abundant resources, and feasibility of individualization. Participants also reported their improvements in listening, speaking, reading, writing, vocabulary, critical thinking, evaluation skills, and western culture enhancement. Among them, betterment of listening comprehension was the most cited language gain and watching movies with subtitles appeared to be the principle mode for most learners to polish their listening in a rather relaxing and entertaining way. The most frequently-used and favorite learning program selected by those SAC visitors was accordingly the multimedia resources. Later, Pearson correlation and Kruskal-Wallis test were applied to probe into the relationships between autonomous learning and learning styles. On the whole, college students' learning styles did not exercise significant influence on their autonomous learning in the SAC. No generally significant correlation between learners' learning styles and their proficiency levels as well as frequency of visits was observed. In addition, students' gender, fields of study, and program choices did not identify with specific learning styles, either. Based on the results, pedagogical implications and suggestions for the institution are presented.

**Key words:** self-access center, autonomous learning, learning styles

## ACKNOWLEDGEMENTS

Eventually approaching the light at the end of the tunnel, I want to express my deep gratitude to those who joined me, accompanied me, helped me, and continuously urged me to put my thoughts into words. This research project would never be possible without the support of all the people walking beside me down the bumpy road. Were it not for them, I wouldn't be able to keep my faith alive while struggling to juggle my challenging research life as a graduate student with the career as an EHP homeroom teacher shouldering heavy work load, a September bride embarking upon another life stage, and various roles I play simultaneously.

My advisor, Dr. Chih-cheng Lin, guided me through the occasionally tedious research process via indicating potential research directions, sharing relevant literature, and constantly providing insightful advice as well as warm encouragement whenever acute anxiety was gnawing at me. It is Dr. Chih-cheng Lin's altruistic devotion that succors me to accomplish the thesis.

My committee members, Dr. Hsueh-ying Yu and Dr. Jun-jie Tseng, carefully read the thesis page by page, attentively listened to the oral presentation, critically examined the study results, and kindly offered constructive and detailed comments. It is Dr. Hsueh-ying Yu and Dr. Jun-jie Tseng's suggestions that better this research.

My fiancé, Chieh-Chih Chen, assisted me with the complex and time-consuming data processing, taught me how to operate the statistical analysis software, clarified my delusion of some statistical functions, tolerated my fiery temper, and surprised me by performing random acts of sweetness. Since he is a double major in statistics, I can rely on him to deal with the enormous data. Since he is my partner, I can rely on him for emotional support to fight for my goal. It is my fiancé's love and concern that accompanies me to survive the sufferings.

My dearest family provided me with financial support to go on with my study and mental shelter to take a rest from the exhausting world. They are my indispensable strength to pursue dreams. In the hope of enjoying more quality time with my mother, father and sister, I exerted myself to fulfill every obligation as effectively as possible. It is my family's selfless love that motivates me to hang on there.

My graduate school instructors fortified my knowledge about TESOL and ability to be an eligible teacher with their expertise and enthusiasm. My graduate school classmates explored the academic field with me and enriched my life. My colleagues generously substituted for me when I was sick or had to ask for leave. At last, thanks God for answering my prayer. To my beloved advisor, committee members, fiancé, family, teachers, classmates, colleagues, and God, I dedicate this thesis.

## TABLE OF CONTENTS

CHAPTER ONE INTRODUCTION .....	1
1.1 Motivation and Background .....	1
1.2 Research Question .....	3
1.3 Significance and Purpose of the Study .....	3
1.4 Definition of the Terms .....	4
CHAPTER TWO LITERATURE REVIEW .....	6
2.1 Learner Autonomy .....	6
2.1.1 What is autonomy? .....	6
2.1.2 Autonomy and culture.....	10
2.1.3 Autonomy and individual differences .....	13
2.1.4 Autonomy and learning styles.....	22
2.1.4.1 What are learning styles? .....	22
2.1.4.2 Learning styles and language learning.....	25
2.2 Self-Access Language Learning: Autonomy beyond the Classroom .....	28
2.2.1 CALL, SALL and autonomy .....	28
2.2.2 Empirical studies on SALL and autonomy .....	30
2.2.3 Empirical studies on SALL and learning styles.....	31
2.3 The Present Study .....	35
CHAPTER THREE METHOD .....	38
3.1 The CALL SAC in the Study: Pu101 .....	38
3.2 Participants.....	39
3.3 Research Instruments .....	42
3.4 Data Collection and Data Analysis .....	45
CHAPTER FOUR RESULTS AND DISCUSSION.....	47
4.1 Results.....	47
4.1.1 End-of-semester questionnaires and interview results.....	47
4.1.1.1 Questionnaire results.....	47
4.1.1.2 Interview results.....	56
4.1.2 End-of-visit survey results .....	64
4.1.2.1 Learners' evaluation of specific learning programs .....	64
4.1.2.2 Learners' written responses about what they have learned.....	67
4.1.3 Interaction between autonomous learning and learning styles .....	72
4.2 Discussion .....	79
4.2.1 General description of EFL learners' autonomous learning in the SAC .....	79

4.2.2 Relationships between autonomous learning and learning style preferences .....	85
CHAPTER FIVE CONCLUSION .....	90
5.1 Summary of Major Findings .....	90
5.2 Pedagogical Implications .....	93
5.3 Limitations and Directions for Future Research.....	94
REFERENCES .....	96
Appendix A List of Recent Quantitative Empirical Studies on Learning Styles .....	105
Appendix B List of Recent Empirical Studies on SALL and Autonomy .....	109
Appendix C Weekly Assigned Schedules in the SAC .....	119
Appendix D End-of-semester Survey Questionnaire (English version) .....	120
Appendix E End-of-semester Survey Questionnaire (Chinese version).....	122
Appendix F Learning Styles Questionnaire (English version) .....	124
Appendix G Learning Styles Questionnaire (Chinese version) .....	126
Appendix H Frequency of Use of Learning Software in the Fall Semester 2010 .....	128
Appendix I Frequency of Use of Learning Software in the Spring Semester 2011...	130

## LIST OF TABLES

Table 3.1 The Background Information of the Interviewees (Fall Semester 2010).....	40
Table 3.2 The Background Information of the Interviewees (Spring Semester 2011) .....	41
Table 3.3 Sample Items from the Ehrman and Leaver Learning Style Questionnaire.....	44
Table 4.1 Learners' Evaluation of Language Learning in the SAC .....	49
Table 4.2 Advantages of Learning in the SAC .....	50
Table 4.3 Top Five Most Favorite Learning Programs .....	51
Table 4.4 Reasons for Most Favorite Learning Programs .....	52
Table 4.5 Top Three Least Favorite Learning Programs.....	53
Table 4.6 Reasons for Least Favorite Learning Programs .....	54
Table 4.7 Areas the SAC Can Improve .....	55
Table 4.8 Five Most Frequently Used Learning Programs .....	65
Table 4.9 Learners' Evaluation of <i>Emergency Room</i> .....	65
Table 4.10 Learners' Evaluation of <i>Friends</i> .....	66
Table 4.11 Learners' written responses to "What I have learned" .....	67
Table 4.12 Correlation between Achievement Test Scores and Learning Styles .....	74
Table 4.13 Correlation between Frequency of Visits and Learning Styles .....	75
Table 4.14 Correlation between Placement and Learning Styles.....	76
Table 4.15 Kruskal-Wallis Tests: Gender, Field of Study, Placement, Frequency, Program Choice versus Learning Styles .....	78
Table 4.16 Kruskal-Wallis Tests: Placement, Frequency, Achievement Test Scores versus Program Choice .....	78

## **LIST OF FIGURES**

Figure 1 Interaction between the Learner and the Self-access Environment.....	30
---	----





## CHAPTER ONE

### INTRODUCTION

#### 1.1 Motivation and Background

The education system in Taiwan has been through a series of reforms over the past decades so as to achieve learner autonomy and lifelong learning. Recently, our Ministry of Education announced a new policy named twelve-year compulsory education, which is going to be executed in 2014. Whether the policy serves as a panacea for all our problems remains controversial, but a large number of teachers and scholars point out the same question in newspapers: The phenomenon of bimodal distribution will certainly deteriorate due to the lack of screening entrance exam like *The Basic Competence Test for Junior High School Student*.

In the aftermath of the policy, high school teachers encounter greater difficulty to cater to students' individual differences and the same problem remains when these students enter colleges. In other words, the varied proficiency levels between high and low language achievers grow even wider and teachers suffer how to help each student learn effectively. While lower language achievers struggle to memorize basic vocabulary, higher language achievers may read extensively and want to have more opportunities to practice English composition. At this time, guiding students learning by themselves and providing them with resourceful self-study material to foster autonomous learning seem to be a feasible solution (Gardner & Miller, 1999). For example, a high-proficiency-level student can take TOEFL simulated tests while a low-proficiency-level student can use the software *MyET* to correct and improve his or her pronunciation and spelling, both sides' needs and wants can be realized in a self-access classroom.

According to Gardner and Miller (1999), a self-access center (SAC) is a place where self-access materials and activities are made available in an organized way. By integrating self-access learning with regular coursework, learners satisfy diverse needs, develop individual strategies, reflect on learning, take responsibility and gain greater independence. With the advent of the Internet, increased internationalism and easier availability of educational technology, computer-assisted language learning (CALL) also plays a pervasive role in individualization and learner autonomy (Benson, 2006). Combining the concepts of SAC and CALL, National Taiwan Normal University (NTNU) established a computer-assisted self-access classroom, Pu101, in 2001. As the beacon and goalkeeper of Taiwanese education, NTNU pioneers not only the establishment of the self-access classroom but also the evaluation of its effectiveness. Several researchers investigated students' perceptions of the SAC and their autonomous learning in it: In Ning's (2008) study, an 8-item online survey questionnaire and a semi-structured interview were conducted to look into students' perceptions of Pu101; a modified 10-item online survey questionnaire, an 23-item end-of-semester questionnaire and a semi-structured interview were administered in Lin's (2010) study to further examine students' autonomous learning. Their findings shed light on the contribution of SAC to EFL college students both quantitatively and qualitatively and indicate EFL college students' improvement in vocabulary, listening, speaking, reading and cultural understanding (Lin, 2010; Ning, 2008; Wang, 2006). However, Lin (2010) and Ning (2008) mainly looked into the environment-related factors motivating EFL learners to continue visiting the SAC and their autonomous learning in it. Whether individual-difference-related factors like learning styles correlate with autonomous learning hasn't been fully investigated and therefore needs confirming. Since learning styles imply a value-neutral nature to

decipher individual learners' language acquisition (Kinsella, 1995) and several researchers investigated how learning styles enhance students' autonomous learning (Borg & Al-Busaidi, 2012; Cohen, 2002; Ehrman & Leaver, 2003; Yang, 2003); the present study thus take learning style preferences into account when looking into EFL college students' autonomous learning in a CALL SAC.

## **1.2 Research Question**

Specifically, the present study seeks to answer the following research questions:

1. What motivates adult EFL learners to keep visiting a computer-assisted self-access center throughout one academic year?
2. How do adult EFL learners engage themselves in the self-access language learning?
3. To what extent do learning styles correlate with EFL learners' autonomous learning in a computer-assisted self-access center, in terms of their use of learning program, proficiency level, and frequency of visit, etc?

## **1.3 Significance and Purpose of the Study**

Since Gardner and Miller (1999) clearly delineated the conception of self-access, SAC has grown into a prominent theme of language learning and theoretical as well as empirical studies have been continuously conducted to examine its facilities, systems, materials, roles, management and effectiveness (Barnett & Jordan, 1991; Cotterall & Reinders, 2001; Gardner & Miller, 2011; Koyalan, 2009; Miller & Rogerson, 1993; Morrison, 2008; Reinders & Lewis, 2005; Reinders, 2007). Among them, the idea learner autonomy is frequently associated with SAC (Figura & Jarvis, 2007; Gardner & Miller, 2011; Gieve & Clark, 2005; Hua, 2001; Koyalan, 2009; Lin, 2010; Navarro & Thornton, 2011; Ning, 2008; Sanprasert, 2010). They investigated the connection between SAC and autonomous learning by looking into learners'

attitude, perception, belief, and strategy use, etc.

Koyalan (2009), Morrison (2008) and Reinders (2007) further point out that when individual differences emerge, the dilemma teachers face can be solved through the implementation of self-access centers, which serve as an alternative to conventional face-to-face learning model where learners' needs are too great or diverse to be met. In the hope of generally introducing self-access classrooms to Taiwanese universities to alleviate the phenomenon of bimodal distribution resulting from the twelve-year compulsory education, the study aims to evaluate EFL college students' autonomous learning in a CALL SAC in NTNU and further probes into whether EFL learners' learning style preferences account for their autonomous learning in the SAC.

In brief, the purpose of the present study is to examine the extent to which autonomy correlates with learning styles in the context of SAC; hopefully, the study can be another inquiry into the important issue of SAC and autonomy, providing more empirical evidence in the EFL context.

#### **1.4 Definition of the Terms**

- Learner autonomy: The ability to set individual learning goals, make personal decisions, select learning materials, monitor learning processes, and evaluate learning outcomes through self-reflection. In other words, autonomous learners refers to those who possess positive attitude towards English language learning and frequently visit the self-access classroom, Pu 101 in NTNU, to watch movies in English, listen to English online magazines, or employ English learning programs to improve their four skills—listening, speaking, reading and writing—even without their instructors' requirements.
- Self-access center (SAC): A place where provides self-study materials and

counseling services that learners can use on their own. These materials or activities are organized in a structured way for learners to browse through and select what they need or want. Pu 101, the multimedia computer-assisted language learning center in NTNU which complements students' in-class learning, refers to the CALL SAC in the current study.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

This chapter firstly aims to define the complex nature of learner autonomy and its interaction with culture, individual differences and particularly learning styles. In the second section, self-access language learning in self-access centers and its relationship with autonomy and learning styles are further illustrated. Apart from the theoretical accounts for each concept, empirical studies concerning these issues are discussed as well.

#### **2.1 Learner Autonomy**

##### **2.1.1 What is autonomy?**

Recently, the deconstruction of traditional language learning classrooms and courses has aroused considerable interest in autonomy. As reported by Dickinson (1987), autonomy described the situation where learners took responsibility for all of the decisions about their learning and the implementation of those decisions. Different from the learning-situation point, Holec (1981) regarded autonomy as an attribute of learners who had “the capacity to take control of [their] own learning” (p. 3) by planning, selecting, monitoring, and assessing. Following the same line of thought, Little (1991) also supported the psychological attributes of autonomous learners. That is, autonomous learners accepted responsibility for their own learning, drew on their intrinsic motivation, and committed themselves to develop the skills of reflective self-management. Hence, their learning was efficient and effective and their knowledge acquired in the classroom could be applied to wider contexts. In Palfreyman and Smith’s (2003) review book, they briefly summarized Benson’s (1997) three perspectives of autonomy in language education: technical, psychological, and

political. First, the technical view accentuated “[cognitive, metacognitive, and social] skills or strategies for unsupervised learning” (p. 3). Second, the psychological view accentuated “broader attitudes and cognitive abilities which enable the learner to take responsibility for his [or] her own learning” (p. 3). Third, the political view accentuated “empowerment or emancipation of learners by giving them control over the content and processes of their learning” (p. 3). Among them, the psychological perspective was the most frequently adopted one (Benson, 2006).

Owing to the inconclusive definitions of autonomy, many researchers sought to model levels of autonomy with a view to clarifying the components of it (Benson, 2001; Littlewood, 1997; Macaro, 1997; Nunan, 1997; Scharle & Szabo, 2000). According to Nunan (1997), learner autonomy could be sequenced into five stages ranging from awareness, involvement, intervention, creation, to transcendence. For instance, learners would transfer what they learn in the classroom to the situations arising outside the classroom when they achieved the transcendence level. Another insightful model was proposed by Littlewood (1997), suggesting three distinctive autonomy degrees: autonomy as a communicator, autonomy as a learner, autonomy as a person. In the context of language acquisition, autonomous learners were able to use the language to communicate personal meanings in real and unpredictable situations. In the context of classroom organization, autonomous learners were able to be responsible for their own learning and actively apply strategies to solve problems. Finally, autonomous learners were able to realize higher autonomy as individuals.

Apart from the three-stage model implying a progression from lower to higher levels of autonomy, Littlewood (1999) also made a distinction between proactive and reactive autonomy. Learners belonging to the former category set up directions which they partially created by themselves while learners belonging to the latter category

organized their resources to reach the goal set up by others instead of creating their own one. Similar to the distinction, studies kept cutting the cake in different ways. Smith (2003), for instance, mentioned weak and strong pedagogies for autonomy. Weak pedagogies were based on the assumption that learners lacked autonomy and needed training towards. On the other hand, strong pedagogies were based on the assumption that learners were already autonomous to some degree and teachers could collaborate with them to exercise their autonomy. Corresponding perspectives including narrow and broad views of autonomy as well as convergence and divergence models of autonomy were recognized at the same time (Kumaravadivelu, 2003; Ribe, 2003).

While the majority of researchers advocated the indispensability of learner autonomy and its characteristics as well as reliance on the learners' part, Allwright (1990) and Little (1995) argued that, in fact, the development of learner autonomy depended on the development of teacher autonomy, and that because learning originated from interaction and a major feature of interaction was interdependence, learner autonomy substantially matured through teacher's pedagogical dialogues. In other words, teachers' ability and volition played an essential role in fostering their students' autonomy, which was empirically corroborated in Nakata's (2011) study. In detail, the study investigated Japanese high school English teachers' perception and strategy use of autonomy by collecting the data through a closed questionnaire and a focus group interview. The results showed that most Japanese EFL high school teachers were not fully prepared for autonomous teaching approach despite their awareness of its necessity and urgency in the globalization era. Although they realized the importance of autonomous strategies, they seldom applied what they knew to where they taught, thus failing to promote autonomy in their students. Johnson (2006)



therefore suggested refined teacher education to nourish the “teaching force of transformative intellectuals who [could] navigate their professional worlds in ways that enable[d] them to create educationally sound, contextually appropriate, and socially equitable learning opportunities for the students they [taught]” (p. 235). So we could say that teacher autonomy should be fostered as much as learner autonomy to really engage students in their own learning.

After glancing through the diverse interpretations and versions of learner autonomy, it seemed to be difficult to define the complex term comprehensively. Nevertheless, researchers in language-acquisition field generally accepted that autonomous learners understood the purpose of their learning, accepted responsibility, set their goals, took initiatives in planning and executing activities, and regularly reviewed and evaluated the effectiveness of their learning. In other words, autonomous learners were metacognitive learners who took conscious steps to understand what they were doing when they learned, thus tending to be the most successful learners (Rahimi & Katal, 2012). Capturing the core spirit of learner autonomy, Little (2002) provided a rather holistic definition of it: “The practice of learner autonomy require[d] insight, a positive attitude, a capacity for reflection, and a readiness to be proactive in self-management and in interaction with others,” which revealed the cognitive, metacognitive, affective, and social dimensions of language learning.

In this study, autonomy is viewed as the ability to set individual learning goals, make personal decisions, select learning materials, monitor learning processes, and evaluate learning outcomes by self-reflection. In addition, the operational definition of autonomous learners refers to those who possess positive attitude towards English language learning and frequently visit the self-access classroom, Pu 101, in NTNU, to

watch movies in English, listen to English online magazines, or employ English learning programs to improve their four skills—listening, speaking, reading and writing—even without their instructors’ requirements.

### **2.1.2 Autonomy and culture**

The concept of autonomy arising in Europe entails individualism and active participation by nature. However, whether it is appropriate to take learner autonomy as a universal goal of language education across different cultures has been hotly debated. Palfreyman and Smith (2003) summarized three uses of culture in their widely-cited book to speculate the interaction of autonomy and culture. First, national or ethnic culture was the most common connotation of culture, underlining the substantial influence of culture differences between East and West on the implementation of autonomy in non-Western societies. Second, culture connoted “values and customary ways of behaving in different kinds of community” (p. 1). Namely, it was the culture of specific kinds of learning environment such as a classroom or a school that marked a difference in autonomy. Moreover, the third interpretation of culture opposed the idea of learner in isolation and related autonomy to the sociocultural context. Precisely, this trend pointed out the grandness of sociocultural context and collaboration with others when it came to education and our lives.

In addition to Palfreyman and Smith’s (2003) abundant accounts of culture and the potential of learner autonomy around the world, a large number of studies have also kept arguing the appropriateness of learner autonomy. Some complained that the cultural attributes of Asian societies resulted in the reticence and passivity of learners, and that learners from Confucian-heritage cultures were particularly resistant to developing autonomy and were overly dependent on their teachers (Biggs, 1996;

Cheng, 2000; Ho & Crookall, 1995; Palfreyman & Smith, 2003). On the other hand, some argued that depending on others could be a responsible way to learn and that group-oriented activities as well as collaboration fostered the autonomous learning of students from ethnic cultures such as Japanese culture, Arab culture, African culture and Chinese culture (Chanock, 2004; Little, 1991; Smith, 2001; Sonaiya, 2002). That is, they tried to turn the shift from independence to interdependence, emphasizing the value and importance of working together with others and sharing responsibility to pursuit mutual benefits. Autonomy therefore meant setting one's own goals and developing one's own standards instead of simply pursuing learning activities without others' assistance.

In line with the alternative interpretation of autonomy in particular cultures, Littlewood (1999) focused on the traditions of East Asian education system and examined three sources of influence on students' learning approaches, including the collectivist orientation of East Asian societies, learners' acceptance of teachers as the authority figure and fount of all the knowledge, and the belief that success could be achieved through effort as effectively as through innate ability. At the same time, he considered which aspects of autonomy might be the most strongly rooted in East Asian culture and how they could be fostered to support English learning. After one year, Little (2000) carried out a follow-up study investigating Asian students' learning attitudes with a comparison to European students'. Surprisingly, the results did not indicate significant differences between the East and the West, but a greater difference was shown between individuals within the same country, guiding us towards a better understanding of Asian students and their autonomous learning.

Aside from theories and review articles, several empirical studies have been done to get a further look at the cultural appropriateness of autonomy as a learning

objective, especially in Asian contexts (Gieve & Clark, 2005; Ho & Crookall, 1995; Nakata, 2011; Sanprasert, 2010). Although their findings were mixed, a pervasive phenomenon was observed; that is, most Asian learners valued freedom in language learning and appreciated the opportunity to direct their own learning. Take Sanprasert's (2010) study for example. Two groups of Thai college students, who were believed to be obedient and uncritical under the influence of their cultural and educational contexts, participated in an English foundation course accompanying with a course management system. They were acquired to fill in questionnaires concerning their perception of the course management system and to write journals to keep a record of their reflection and learning process during the whole semester. The results showed that Thai university students held a positive attitude towards autonomous learning with the help of the course management system. Additionally, they demonstrated their autonomy development through their behavior, strategy use and working with their peers, albeit the stereotype that autonomous learning would be hindered due to the negative effect of Eastern culture.

Chinese undergraduates enrolling in a British university also embraced and enjoyed autonomy by adopting self-directed and tandem learning, as Gieve and Clark (2005) stated. In their study, Chinese college students and their European counterparts studying English as part of their university degree both expressed appreciation of such kind of autonomous learning in their written reflections, though they had different learning needs, language abilities, and cultural backgrounds. Gieve and Clark (2005) therefore asserted that autonomy was not a culturally-determined term; instead, it was a flexible approach could be adopted worldwide. Their commentary echoed Cheng's (2000), who strongly claimed that the obstacles in our way to autonomy did not result from culture itself, but from the adverse effects of teaching methodologies and

learners' insufficient language proficiency. In other words, it was unfair to overgeneralize the Eastern passive stereotype to all Asian learners and the so-called cultural impediments to autonomy development in EFL contexts were actually situation-specific factors.

The researcher therefore concluded that with training and practice, language learners in non-Western learning environment could cultivate their autonomy as well as those in Western countries. As for students in Taiwan, incorporating the spirit of autonomy into our education can definitely promote and sustain their lifelong learning and simultaneously solve the educational problem we always encounter, the phenomenon of bimodal distribution. In brief, it was suitable and worthwhile to take learner autonomy as a universal goal of language education across different cultures because of the recent decontextualization and globalization of it (Schmenk, 2005).

### **2.1.3 Autonomy and individual differences**

Entering mainstream language education, autonomy has started to interact with other important second language acquisition (SLA) concepts, especially with individual differences and sociocultural approaches (Benson, 2006). In an attempt to get rid of the notoriety that autonomy connotes—learning in isolation or separation, a renewed focus on individual differences sprouted in the late twentieth century and has continued until now. As Benson (2006) mentioned in his condensed review article, “there [was] a clear conceptual link between autonomy and individual differences—the idea of autonomy [responded] to the fact that individual learners [differed] from each other and [might] seek to develop their individuality through divergent learning processes” (p. 29). Before examining the relationship between autonomy and individual differences, we must firstly review what individual differences encompass in the field of SLA.

According to Dörnyei (2005), “individual differences (IDs) [were] characteristics or traits in respect of which individuals [might] be shown to differ from each other” (p. 1), and the study of it has been a prominent theme of applied-linguistic investigations for the past thirty years because the diverse outcomes of second language acquisition were attributable to the significant influence of individual differences including language aptitude, motivation, learning styles, learning strategies, anxiety, creativity, willingness to communicate, self-esteem, and learner beliefs (Dörnyei, 2009). Among them, the previous four ID factors enjoyed a greater popularity in SLA studies and their brief definitions synthesized by Dörnyei (2005) are as follows:

- *Language aptitude* refers to individuals’ learning ability and their potential for acquiring new knowledge or skills, representing the cognitive domain of ID.
- *Motivation* consists of effort, desire, and attitude towards learning. It implies the direction and magnitude of learning behavior in terms of the learner’s choice, intensity, and duration of learning, concerning the affective dimension.
- *Learning styles* represent the manner of learning, a profile of the individual’s approach to learning, or a blueprint of the habitual or preferred way the individual perceives, interacts with, and responds to the learning environment.
- *Learning strategies* are learners’ behaviors and thoughts aiming at facilitating their learning as well as the learning processes consciously selected by the learner who manages to overcome obstacles by using a battery of resources.

Even though individual differences were naturally and theoretically embedded in autonomy, to our surprise, the link between the two areas has seldom been directly and empirically investigated. Fortunately, autonomy-investigating instruments such as case study, action research, and diary writing contributed to corroborating the interaction between the two important concepts (Benson, 2006). For instance, Benson

(2005) employed autobiography and biography to look into learner diversity and the mental processes behind their observable behavior. Norton (2001) probed into the issue of non-participation of two immigrant ESL learners in Canada and their dynamic expectations of ESL courses by conducting interviews and writing diaries, which also provided an insight into the interplay between individual differences and autonomy. Moreover, Lam (2000) documented the learning process, behavior, perception and outcome of a focal student, Almon, who emigrated from Hong Kong to America and was grouped into a low-proficiency-level ESL writing class. Explicitly, the researcher carried out an in-depth case study on him to capture the complexity of the ESL teenager's learning and the way he changed by the written correspondence with a transnational group of peers on the Internet. Findings showed that Almon used different programs on the Web and from the files automatically, and that his English-writing ability improved dramatically through the computer-mediated communication. The progression Almon made proved that autonomy could be achieved through CMC, the individualized form of learning which catered to individual differences and facilitated autonomous and independent learning.

In addition to viewing individual differences as a whole, much more studies investigated the link between autonomy and the factors in it like motivation and learning strategies in particular (Benson, 2006). As for motivation, Deci and Ryan's (2002) self-determination theory, where self-determination was understood as the degree to which individuals were active participants in their own learning, formally related autonomy to it by pointing out that the three fundamental psychological needs for their proposition were competence, relatedness and autonomy. They further asserted that "autonomy [played] a central role in the distinction between intrinsic and extrinsic motivations as well as the variants of internalization along the

self-determination condition” (p. 392), and that it could even nourish intrinsic motivation. Afterwards, the belief that motivated learners took responsibility for their own learning was widely accepted and supported in a series of empirical studies, which commonly assessed participants’ motivation and autonomy through questionnaires and their consequent engagement and achievement in language learning through interview or observation (Hayes, 2008; Lamb, 2004; Lüftenegger *et al.*, 2012; Noels, 2005; Wijnia *et al.*, 2011; Wu, 2003).

In Wu’s (2003) quasi-experimental study, firstly he documented the classroom instruction and learning dynamics in both the experimental and control group; then he interviewed the students to understand their intrinsic motivation, perceived competence, and perceived autonomy to examine the effect of learning environment on their development of L2 intrinsic motivation and autonomy. His findings indicated that integrative strategy training and freedom to choose learning content, methods, and performance outcomes indeed promoted autonomy and the autonomy helped lead learners to develop L2 intrinsic motivation effectively. To add more evidence, Lamb (2004) carried out a case study, in September 2002 and May 2003, of a focal group of learners in one Indonesian school, seeking to unveil students’ attitude and motivation towards English acquisition and their level and type of independent learning activity. A total of nine students were selected on the basis of their initial questionnaire responses which showed their being highly motivated. Then, Lamb (2004) found a consistent picture of sustained autonomous learning behavior among these adolescent Indonesians who were highly motivated in English learning. For middle-class students, their autonomy seemed to be an attitude towards learning where they were prepared to take responsibility for their own learning. They took private courses, reflected on how to benefit from formal English classes, considered their improvement in different



aspects of English, and set up their own communicative goals for learning, which respectively embodied planning, monitoring, and evaluating in autonomy. As for motivated pupils whose parents could not afford the fees of private courses, they turned to school teachers, paper dictionaries, or superior peers for help and also became autonomous learners.

Similarly, more recent studies have verified that the link between autonomy and motivation accounted for language learners' behavior and performance to a certain degree (Wijnia *et al.*, 2011; Lüftenegger *et al.*, 2012). Analyzing the effectiveness of problem-based learning versus lecture-based teaching, Wijnia *et al.* (2011) discovered that undergraduates scored higher on competence when receiving problem-based learning. However, their study motivation and autonomy level did not differ from their counterparts, which might be attributable to controlling factors such as mandatory presentence and strict requirement. Although problem-based learning did not always foster autonomy and increase motivation, collaboration was proved to be a motivating and better-structured course design which helped elicit real autonomous and motivated learning. Besides, in Lüftenegger *et al.*'s (2012) research, they put persistent motivation and self-regulated learning behavior together as the key components of lifelong learning. Their study involved 2266 fifth to seventh graders to see the impact of classroom instruction on pupils' interest, learning goals, and self efficacy. The triangulation of the data indicated that a student's motivational belief served as a strong predictor of his or her autonomy in the classroom. Hence, a temporary conclusion based on the plentiful studies mentioned above could be drawn that promoting learner autonomy could simultaneously motivate learners, and vice versa.

Another area enjoyed great popularity among research concerning the

relationship between autonomy and individual difference factor was learning strategies. According to Little (2000), learning strategies involved strategic control of language learning and use, thus being seen as a by-product of learner autonomy. In other words, students naturally adopted and created a wide range of strategies to overcome difficulties in their processes of becoming active, independent, involved, and autonomous. In order to achieve fluency and accuracy in the target language, students instinctively set up their own learning goals, monitored their performances, and evaluated their outcomes; all the stages required learning strategies to put them into practice. In agreement with this point of view, Wenden (2002) stated that the practice of strategy training as well as learner training or learner development, an interchangeable term for autonomy, was closely related to the concept of learning strategies. Since autonomy was theoretically allied with learning strategies, the interaction between them has successfully aroused researchers' interest to tackle the issue (Figura & Jarvis, 2007; Gieve & Clark, 2005; Hart, 2002; Hurd *et al.*, 2001; Mori, 2007; Sanprasert, 2010; Xhaferi & Xhaferi, 2011; Yang, 2003; Zangari, 1999). These experimental or empirical studies fell into two main categories: Firstly, some incorporated learning strategies into existing curricula through distant learning, small grouping, authentic material or portfolio to foster autonomous learning (Hart, 2002; Hurd *et al.*, 2001; Xhaferi & Xhaferi, 2011; Yang, 2003; Zangari, 1999), which revealed the general assumption that autonomy could be enhanced through the implementation of various learning strategies; secondly, some directly analyzed to what extent the type or choice of learning strategies augmented the development of learner autonomy (Figura & Jarvis, 2007; Mori, 2007).

Take Mori's (2007) representative research for example. 151 college students were recruited from Japanese courses at an American university in the Pacific

Northwest during the spring term of 2005. In specie, the participants consisted of 46 freshmen, 40 sophomores, 36 juniors, and 29 seniors. Aiming to examine the degree to which the frequency and choice of strategy use differed across learners with varied Japanese proficiency levels, the researcher adopted the Strategy Inventory for Language Learning invented by Oxford in 1990 to collect students' self-rating data. Although the results did not show any discrepancies in the frequency of strategy use among different levels of learners, the choice of strategy use varied significantly and revealed that different learning strategies were selected and used by students at varying levels. When it comes to juniors and seniors, metacognitive (organize language notebook to record important information), cognitive (use reference materials such as dictionary), affective (talk about my feelings concerning the language learning), social (ask the speaker to slow down, repeat or clarify), and compensation (if I cannot think of right expression, use gesture etc.) strategies were the most frequently adopted ones, which not only clearly described learners' being responsible and their active participation but also embodied autonomous learning. The freshmen and sophomores, on the other hand, tended to employ metacognitive (preview the lesson), social (try to learn about the culture, pay attention to the feelings and thoughts of interacting people), and compensation (guess general meaning) strategies. Compared to the fourth and third year, the first and second year seemed to be less autonomous and more passive learners. For instance, both groups picked up metacognitive strategies but juniors and seniors organized language notebook to record important information while freshmen and sophomores previewed the lesson only. That is, the former required higher level of thinking and intellectual challenge, but the latter didn't. In sum, the choice of strategies both reflected and enhanced learners' autonomy because it allowed learners to take different degrees of

responsibility for their own learning. Since autonomous learners used strategies more effectively, the researcher therefore concluded that language learning strategies play an influential role in the formation of autonomy and vice versa. Conforming to Mori's (2007) conclusion, Figura and Jarvis (2007) looked into the types of strategies EFL students used along with computer-based materials, finding that they demonstrated conscious application of cognitive and metacognitive strategies the most often and hence increased their autonomy.

Aside from the focus on examining the direct causal link between strategies and autonomy, many researchers have devoted themselves to the preparation for autonomous language learners by introducing innovative learning strategies via media like portfolio (Yang, 2003; Xhaferi & Xhaferi, 2011) or distant learning program (Hurd *et al.*, 2001). In Xhaferi and Xhaferi's (2011) study, they investigated eighty university students and twenty language teachers in South East European University so as to identify students' strategy employment and teachers' teaching techniques, calibrate students' autonomy level, and document teachers' instruction on strategies. Generally speaking, findings indicated that students relied heavily on their teacher and that note-taking for learning new vocabulary was their most used strategy, which pointed out the need for students to reflect on and react to their learning experiences and difficulties. To improve the situation, teachers had to offer students a wide repertoire of language learning strategies to show them ways towards achieving learner autonomy. Accordingly, learner diary, vocabulary notebook, and portfolio were proposed as powerful tools to elicit and enhance autonomy step by step. This approach echoed Yang's (2003), which also put emphasis on the integration of portfolios into regular courses as a medium for strategy training and autonomy development. In Yang's (2003) freshman English course targeting at listening and

speaking, 42 Taiwanese non-English-major college students participated in the pilot study and later 45 in the formal one. Four instruments including learning strategy questionnaire, learning style survey, and two-phase portfolio survey were implemented to assess EFL learners' autonomous performance. Based on the questionnaire results, compensation strategies were used most frequently while memory strategies the least. With such individualized strategy profiles, learners could utilize the information to re-set their learning objectives, arrange their learning activities, monitor and record their learning processes, and therefore develop better manipulation of strategies to achieve autonomy. According to the first-phase portfolio survey results, participants reported that they had to continuously keep contact with English by listening to or reading English materials everyday to prepare their portfolios. Concretely, up to eighty percent of the participants felt that portfolios offered them direction for learning. They formed a daily language learning habit, explored new learning materials from newspapers, magazines and the Internet instead of limiting themselves to classroom-based or textbook-based learning (90%), gradually possessed the sense to select their favorite topics for in-depth learning or work on their weakest areas (95%), acquired the skills of collecting, organizing and presenting information (86%), and simultaneously reflected on their learning results and check progress (91%). The second-phase portfolio survey results similarly approved that portfolios promoted students' metacognitive strategy use as well as motivated active and multi-dimensional learning, which helped long-term independent learning. To conclude, the advantages of applying portfolios to the EFL context were as follows: raising students' awareness about learning strategies, facilitating their learning process, and enhancing their self-directed learning.

In addition to ascertaining the interplay between autonomy and learning

strategies, Yang (2003) also probed into the interrelationship between autonomy and learning styles, which is the central focus of the present study. Before looking into this issue, an overview of learning styles would be provided in the next section.

#### **2.1.4 Autonomy and learning styles**

##### **2.1.4.1 What are learning styles?**

It is generally believed that different language learners approach the same learning task in quite different ways and the systematic variation or patterns of their learning behavior can be termed learning styles. As Dörnyei (2005) summarized in his prestigious work, learning styles, also called modality, sensory preference, cognitive style and personality type, referred to an individual's natural and habitual preferences for absorbing, processing, and retaining information. These preferences were not clear-cut points; instead, they represented a bipolar continuum ranging from one extreme point to the other. In other respects, Brown (2000) regarded learning styles as learners' biologically-determined ways to respond to new information and situations in the educational context. Rayner (2000) highlighted that learning style was a profile of the individual's approach to learning which comprised two aspects: One referred to the stable and internalized characteristic of individuals' thinking whereas the other referred to their adaptation to the external learning environment. Thus far, the concept of learning styles has been clarified but it seemed quite similar to the definition of learning strategies because the two ID factors were both related to how learners deal with the learning tasks. Nevertheless, learning strategies were task-dependent or situation-dependent skills whereas learning styles were stable and consistent functioning within individuals; moreover, the former involved a conscious choice of alternatives but the latter operated without learners' awareness (Riding, 2000; Snow *et al.*, 1996; Sternberg & Grigorenko, 2001). After distinguishing learning styles from

learning strategies, it is time to scrutinize the theoretical construct of its measurement instruments for they not only described the components of learning style but also introduced the various dimensions it covered. This helped us gain further and more concrete understanding of learning styles, apart from the rather abstract definitions.

The instruments to assess language learning styles have evolved from Reid's (1995) Perceptual Learning Style Preference Questionnaire (PLSPQ), Oxford's (1993, 1999) Style Analysis Survey (SAS), Cohen *et al.*'s (2001) Learning Style Survey (LSS) to Ehrman and Leaver's (2003) Learning Style Questionnaire, which consisted of ten sub-dimensions. The following are Dörnyei's (2005) brief descriptions of each subscale:

- *Field dependent–independent*: Field dependence refers to the preference for selection and prioritization whereas field independence treats the whole context as the same. Field independents are better at focusing on some aspects of experience or stimulus, separating it from the background, and analyzing it unaffected by distractions. Field dependents are more responsive as they interact with the environment and, thus, tend to have a stronger interpersonal orientation and greater awareness to social cues than field independents. Besides, this scale treats the foreground and background as the same.
- *Field sensitive–insensitive*: Field sensitivity–insensitivity concerns the preference for considering materials in a situated manner and being aware of their position in their broader context. Field-sensitive learners prefer to address material as part of the context in contrast to their field-insensitive counterparts, who make little or no use of the context. This scale relates to foreground and background together.
- *Random (non-linear)–sequential (linear)*: This dimension relates to how the learner processes information. Random learners follow their own, internally

developed and idiosyncratic order of processing (which may seem random to others), whereas sequential learners prefer a step-by-step, externally provided order of processing (such as the units in a syllabus).

- *Global–particular*: This dimension is well encapsulated by the top-down vs. bottom-up processing metaphor.
- *Inductive–deductive*: Inductive learners start with the details and facts, then form hypotheses, and finally test them; deductive learners start out with rules or theories and then try to apply them to examples.
- *Synthetic–analytic*: Synthetic learners like to use pieces to build new wholes, whereas analytic students like to disassemble wholes into parts to understand their componential structure.
- *Analogue–digital*: Analogue learners prefer to use metaphors, analogies, and conceptual links among units and their meanings, whereas digital learners take a more surface approach, characterized by a literal and logical understanding of what they can hear or see.
- *Concrete–abstract*: Concrete learners prefer a relationship with direct experience to the extent of sensory contact, whereas abstract learners may have more interest in the system underlying language than in the actual language of communication.
- *Leveling–sharpening*: This dimension concerns how people perceive, store and retrieve information. Levelers often blur things together and form a generalized image, whereas sharpeners notice small differences and store them as salient attributes in their memories.
- *Impulsive–reflective*: Impulsive learners tend to respond rapidly and act on gut, whereas reflective learners prefer to think things through before they respond. Different from an ability continuum where impulsive is inefficient and reflective



efficient, this style dimension implies that both poles can be beneficial or dysfunctional.

#### **2.1.4.2 Learning styles and language learning**

Learning styles were an appealing domain in the eyes of educationalists since the concept itself offered a “value-neutral approach for understanding individual differences among linguistically and culturally diverse students” (Kinsella, 1995, p. 171). Unlike language aptitude, learning preferences did not imply inborn ability automatically leading to success or make judgment on the value of each learning style, which meant that learners with divergent styles could all succeed, just in different ways. Along with the growing interest in learning preferences, a series of studies attempted to diagnose and construct the elements affecting or characterizing individuals’ learning styles (Cohen *et al.*, 2001; Ehrman & Leaver, 2003; Oxford, 1993; Reid, 1987; Reid, 1995; Sadler-Smith, 2001; Wintergerst *et al.*, 2003).

Although the theoretical accounts of learning styles were abundant, empirical studies centering on the issue in the context of language learning were rather inadequate (Ehrman & Leaver, 2003). Fortunately, several qualitative (Bailey, 1980; Carson & Longhini, 2002) and quantitative studies (Ehrman & Leaver, 2003; Ghapanchi & Dashti, 2011; Jones, 1998; Lincoln & Rademacher, 2006; Psaltou-Joycey & Kantaridou, 2011; Reid, 1987; Srichanyachon, 2011; Wintergerst *et al.*, 2003) have dedicated to investigating and validating the role of learning styles in SLA. It was clear that a majority of empirical studies were done in a quantitative way and this proved the practicability of the published evaluating instruments to look into learning styles when a large number of participants were involved. Recent quantitative empirical studies on learning styles from 2000 onwards were indexed in Appendix A, which simultaneously showed the foci that these studies in language

learning primarily explored the relationship between learners' learning styles and their learning background to identify their preferences of learning. Nevertheless, the classification of learning styles in these studies seemed chaotic and inconsistent. Different researchers had different ways to look at learning preferences. To my understanding, there seemed to be no empirical study directly employing Ehrman and Leaver's (2003) ten-dimension learning style questionnaire, which had a comprehensive theoretical construct, in a quantitative way. Ehrman and Leaver (2003) themselves simply carried out two case studies on two adult ESL learners with their newly-devised questionnaire.

Aside from looking into the influence of individuals' learning background on their preferences for acquiring a language, another trend in learning style studies contributed to relating learning preferences to learner autonomy, principally through courses aiming to decipher students' learning styles and how their learning styles enhance their independent and autonomous learning (Borg & Al-Busaidi, 2012; Cohen, 2002; Ehrman & Leaver, 2003; Yang, 2003). For example, Cohen (2002) revised teaching materials and encouraged language learners to be more in touch with their learning style preferences. In this way, students paid more attention to their own styles of learning and developed a self-regulated learning mode. Following the same line of thought, Yang (2003) integrated portfolios into his freshman English courses in Taiwan and gathered information about EFL students' preferences for learning with the new medium. The results indicated that, on the whole, students liked to take part in the decision-making process about how they were going to learn and felt great to take responsibility for their own learning. In detail, significant correlations were found between portfolio use and students' learning styles; the following were the most representative ones. Learners with the learning style preference for taking notes

approved that portfolios helped them organize and arrange their English learning. Learners with the learning style preference for working in pairs or small groups approved that sharing portfolios with peers increase cooperation and mutual growth in English. Learners with the learning style preference for practicing English outside of the classroom approved that they could learn anytime and anywhere with portfolios demonstrating their efforts. Learners with the learning style preference for evaluating their own learning processes approved that portfolios helped them reflect on what they did and understand their strengths and weaknesses. In addition, most participants reached an agreement that portfolios enabled them to share useful English learning resources with peers, got into the habit of reading or listening regularly, and most important of all, reflected and assessed themselves consciously. To conclude, the use of portfolios facilitated EFL learners' learning in accordance with their learning style preferences and became the momentum towards their independent, autonomous and life-long language learning.

In order to foster autonomy, some researchers have further steered their studies towards observing and documenting learners' learning behavior and their autonomous performance in a hypermedia environment like self-access centers or through the assistance of online learning resources to identify different learners' learning preferences as Ehrman and Leaver (2003) summarized in their prestigious article. Self-directed learning in self-access centers, usually a computer-assisted environment, accordingly led trends in the SLA field. What is the relationship between CALL and autonomy? How can SAC foster learner autonomy? To which extent do learning styles correlate with autonomous learning in a self-access center? To answer these questions, the second phase of the literature is going to tackle the important issues.

## **2.2 Self-Access Language Learning: Autonomy beyond the Classroom**

### **2.2.1 CALL, SALL and autonomy**

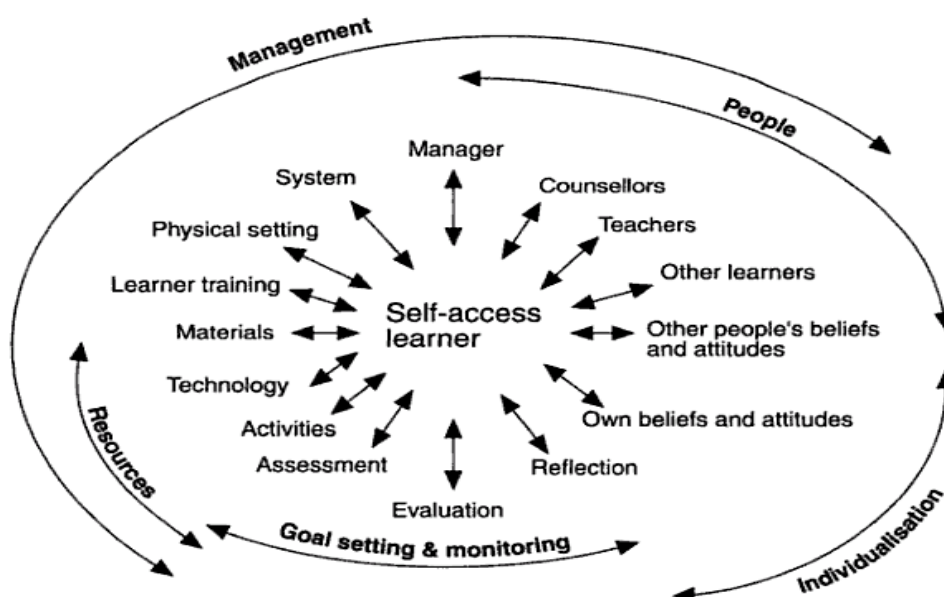
The contexts of application for autonomy emerged in a variety of forms, including self-access language learning (SALL), computer-assisted language learning (CALL), distance learning, tandem learning, studying abroad, out-of-class learning, and self instruction; the previous two learning modes particularly accounted for a great portion of studies regarding autonomous learning (Benson, 2006). So, what is the relationship between CALL and autonomy? According to Blin's (2005) comprehensive summary of CALL applications and their potential for autonomy development, language learners could take control over their pace and mode of learning when drilled and tested on vocabulary and grammar by matching or selecting multiple choice items on the screen. They could also take control over text creation, text interpretation as well as process of learning, and develop metacognitive skills when using word processors or databases. They could even take control over the selection of materials and strategies for interpreting the materials when situated in a multimedia, hypermedia and interactive environment. Moreover, they could take control over their learning content and access as well as the way to interact with these inputs when involved in Internet-based activities such as online discussion and collaborative projects. In addition to accelerating autonomy development, another evident function of CALL was satisfying language learners' individual needs and accommodating these differences ranging from proficiency levels to learning preferences, which has been proved true in many studies (e.g. Chapelle & Heift, 2009; Jones, 2009).

Because CALL provided a promising autonomous learning environment which catered to individual differences, learner autonomy was often associated with

particular kinds of place, especially self-access centers (SAC) (Palfreyman & Smith, 2003). Self-access learning center was the best-known vehicle that attempted to train learners by providing materials that they could use on their own. Additionally, self-access learning could take place either in a controlled or in an uncontrolled environment (Gardner & Miller, 1999). Classrooms, libraries and self-access centers were representative of the controlled self-access learning contexts while the Internet, airports and student clubs were typical of the uncontrolled ones. Namely, the latter was totally away from the supervision of teachers or counselors. As for the former type, self-access materials and activities were organized in a structured way for learners to browse through and select what they need or want. Counseling services were also provided to encourage learners to “keep records, submit to assessments and participate in evaluations” (p. 20). In this way, instructors could integrate SALL with current coursework by obliging students to visit the self-access centers regularly and thus complemented their in-class learning as well as helped them cultivate a sense of autonomy.

To provide a panoramic view of SALL, Gardner and Miller (1999) further visualized the interaction between learners and the self-access environment to delineate the elements of self-access and the ways in which learners interact with them in a bipartite, circular and recursive way (Figure 1). We can see that diverse elements categorized into people, resources, management systems, autonomous learning and individualization are required to establish an efficient and beneficial context for self-access learning to exercise. Specifically, goal setting, monitoring, reflection and evaluation revealed the core spirit of learner autonomy and understandably pointed out the link between self-access language learning and autonomy development. On the other hand, individualization encompassed learners’

beliefs and attitudes, and showed that individual differences could be taken care of in the self-access environment. With the theoretical support for the evident interplay among autonomy, individual differences, and self-directed language learning, the present study aims to explore the link with empirical data. Before that, empirical studies regarding autonomy and learning style preferences—one major domain in individual differences—in the self-access centers or similar learning contexts would be reviewed as follows.



**Figure 1 Interaction between the Learner and the Self-access Environment**

### 2.2.2 Empirical studies on SALL and autonomy

The concept of learner autonomy and its implementation such as self-access centers originated from and were rooted in the Western education system; however, the vast majority of recent empirical studies investigating the link between self-access language learning and autonomy development were done in non-Western contexts, mainly in Asia including Hong Kong, Mainland China, Taiwan, Pakistan, Turkey and Thailand (Gardner & Miller, 2011; Koyalan, 2009; Lin, 2010; Sanprasert, 2010; Sana & Imtiaz, 2012; Zou, 2006). This might be attributed to the growing advocate of

independent and autonomous learning in Asian countries. Broadly speaking, those studies examined learners' perceptions of SALL (Cheng, 2006; Cheng & Lin, 2010; Lu, 2010; Ning, 2008; Reinders, 2000), their strategy use (Figura & Jarvis, 2007; Gieve & Clark, 2005) and frequency of visit (Lin, 2010; Ning, 2008; Reinders, 2000) in relation to their degree of autonomy and language performance. Based on these findings, researchers came to an agreement that self-access or self-directed learning indeed fostered learner autonomy to some degree either by providing organized learning materials and learner support or by bringing language learning and independent learning together to enhance learners' linguistic proficiency and learning skills (Morrison, 2008). Although all students held positive attitude towards SALL and demonstrated autonomous behavior, some could not sustain their independent learning (Cheng, 2006; Zou, 2006). Accordingly, studies further looked into the issue from teachers' or managers' perspectives (Gardner & Miller, 2011; Miller *et al.*, 2005) and suggested that their guidance and support may help. Appendix B summarized these recent empirical studies concerning SALL and autonomy from 2000 onwards. A final note, the present study aims to examine the relationship between SAC and autonomy in an EFL context with a view to adding more empirical data.

### **2.2.3 Empirical studies on SALL and learning styles**

The correlation between self-access learning and autonomy has been explored by many researchers (Cheng & Lin, 2010; Figura & Jarvis, 2007; Koyalan, 2009; Lin, 2010; Lu, 2010; Morrison, 2008; Ning, 2008; Sana & Imtiaz, 2012) and the factors prompting learners to continue visiting self-access centers were mostly environment-related (Koyalan, 2009; Lin, 2010; Ning, 2008). Students reported that they kept visiting the SAC because the learning materials and programs were well-designed and the environment was silent and cozy. However, few empirical

studies probed into whether individual-difference-related factors like learning styles correlate with self-access and autonomous learning. As mentioned in the previous section, learner autonomy could be attributable to learning style preferences (Cohen, 2002; Yang, 2003) but the extent to which learning styles correlate with autonomous learning, especially in a self-access center, has seldom been discussed with empirical evidence.

Fortunately, Soo and Ngeow (1998) offered an early inquiry into this issue by evaluating the effectiveness of a CALL SAC in Malaysia. In their study, 188 ESL college students were divided into one experimental group who conducted self-access language learning in the CALL SAC (111 students) and one control group who received conventional teacher-dominated lectures (77 students). Namely, the former was a multimedia self-access English proficiency course aiming to return control to learners and cater to their diverse learning styles. After triangulating the data from interviews, ICA learning style questionnaire and TOEFL exams, the researchers found that the experimental group starkly outperformed the control group on the TOEFL tests by achieving 50% higher scores. In addition, participants matured into autonomous learners who could set up personal learning objectives, determine what they need and want to learn, accept responsibility for their whole learning process and become self-motivated without reliance on the teachers' part. Nevertheless, students' different learning styles—35 visual, 98 auditory, 36 kinesthetic—did not differentiate their language achievement in a significant way. That is, the three learning styles did not exert any statistically significant influence on the tests' scores, which meant that learning style preferences did not necessarily correlate with autonomous learning in a self-access center. Contrary to Soo and Ngeow's (1998) findings, Liu and Reed's (1994) study on 63 ESL college students who went through semantic network-based



hypermedia-assisted vocabulary learning revealed statistically significant differences between field-dependent (FD) and field-independent (FI) participants when it comes to their number of times using the courseware. In other words, FD students spent more time using the courseware than their counterparts and they preferred the video format as their learning medium; moreover, FD and FI students employed quite different strategies in the process of vocabulary learning.

More recent studies also tried to uncover the obscure interplay between self-access language learning and individuals' learning styles. For example, Ng and Confessore (2011) recruited 249 English learners from three Malaysian universities to firstly determine their autonomy level in a distance learning program and secondly examine the relationship between their learning styles and autonomy development. The Learner Autonomy Profile, Grasha-Riechmann Student Learning Styles Scale, and Distance Education Learning Environment Survey were adopted to gather data on participants' autonomous behavior, learning style preferences and perceptions of the self-access learning environment respectively. The results showed that learning styles and perceived learning environment were positively related to learner autonomy at the .05 level of significance and that learning styles accounted for 17.4% of the variance of learner autonomy, which indicated that learner autonomy was associated with a great variety of learning styles. Additionally, independent, participative and collaborative learning style preferences were the most influential determinants of a successful autonomous learning. Among the three, participant learning style contributed the highest variance to learner autonomy and this reflected that active engagement was a central principle of autonomous learning. All in all, autonomous and self-regulating learners were flexible, adaptable, and able to choose and utilize the best learning styles to meet certain demands of a particular project or learning

situation. In keeping with Ng and Confessore's (2011) conclusion, Lin (2010) pointed out that learners could easily get access to their preferable materials at a CALL SAC and this simultaneously revealed that students could learn in accordance to their preferable styles in the self-access environment.

These studies mentioned above have contributed to exploring SALL and learning preferences in a rather subtle manner; therefore, Yuan and Lin (2012) tried to tackle the issue in a more direct way. 451 EFL freshmen were recruited from a university in Taiwan and the relationship between their learning style preferences in a SAC and their gender, frequency of visit and proficiency level was investigated. The results indicated that students' frequency of visit and proficiency levels were not correlated with learning styles but a statistically significant difference was found when gender was taken into consideration. That is, male and female learners differed from each other regarding the analog and digital as well as random and sequential learning styles. Concretely, analog learners preferred learning in context whilst digital learners approached surface information; besides, random learners organized their unique learning sequences which might seem random to others whilst sequential learners were good planners who worked step by step. With this brief research as the basis, the present study aims to directly explore the interaction between learning styles and preferences for self-access learning materials as well as frequent and infrequent visitors in a CALL SAC. Specifically, we hypothesize that learning styles will differentiate learners' employment of various modes of learning materials and contribute to their diverse levels of autonomy development and the effectiveness of self-access learning. To sum up, previous studies on self-access language learning have attempted to relate their findings to different variables such as learners' culture and strategy use. However, few probed into the impact of learning style preferences

on self-access English learning in a CALL SAC and this appears to be a topic worth exploring. Variables including learners' achievement test scores, frequency of visits, proficiency levels, gender, field of study, and program choices will be examined to look into the relationship between students' learning styles and autonomous learning. The previous five variables have been investigated in previous studies concerning college students' learning styles and autonomous learning in SACs (Liu & Reed, 1994; Ng & Confessore, 2011; Soo & Ngeow, 1998; Yuan & Lin, 2012); however, their studies revealed conflicting results. Some asserted that significant difference was found between students' learning styles and the number of times they used the courseware in the SAC and that male and female students' learning styles differ from each other while conducting self-access autonomous learning. Some argued that different learning styles did not differentiate SAC visitors' language achievement test scores like TOEFL and that students' frequency of visits and proficiency levels did not correlate with their learning style preferences. Those mixed results clearly indicate that more empirical studies can be done to investigate this issue. Hence, the study takes those variables into account to see if they truly exert any difference on learners' autonomous learning and learning styles.

### **2.3 The Present Study**

This chapter began with a brief review of the complicated definitions of learner autonomy and then moved on to its interaction with culture and individual differences, which aimed to firstly affirm that autonomous learning is a culture-free concept and can be set as a universal goal, and to secondly ascertain that individual differences (ID) like motivation and strategy use are not only correlated with autonomy but also can be taken good care of in the autonomous learning environment. Moreover, learning style preferences, another important ID factor which has seldom been investigated, and its

role in the SLA field were discussed in relation to empirical studies to reveal the link between autonomy and learning styles. After exploring the conceptual interplay between autonomy and learning styles, we further related the issue to self-access language learning (SALL), particularly the learning in a self-access center (SAC), which embodies autonomy beyond the classroom. Empirical studies on SALL and autonomy as well as on SALL and learning styles were discussed to pave way to our current study.

In detail, there have been many researchers exploring the interaction of self-access learning in the SAC and autonomy development through looking into learners' attitude, perception, belief, and strategy use (Cheng & Lin, 2010; Figura & Jarvis, 2007; Koyalan, 2009; Lin, 2010; Lu, 2010; Morrison, 2008; Ning, 2008; Sana & Imtiaz, 2012). They found that the factors prompting learners to continue visiting SACs are mostly environment-related (Koyalan, 2009; Lin, 2010; Ning, 2008), for example, students reported that they kept visiting the SAC because the learning materials and programs were well-designed and the environment was silent and cozy. However, few empirical studies probed into whether individual-difference-related factors like learning styles correlate with self-access and autonomous learning. Some looked into how students' learning styles enhance their independent learning when they received courses to decipher their preferences for learning with certain media or modes (Borg & Al-Busaidi, 2012; Cohen, 2002; Ehrman & Leaver, 2003; Yang, 2003) and some took a step further to observe and document learners' autonomous learning behavior and their learning styles in a hypermedia environment like a CALL SAC (Liu & Reed, 1994; Ng & Confessore, 2011; Soo & Ngeow, 1998; Yuan & Lin, 2012). Their findings were mixed and inconsistent: Soo and Ngeow's (1998) as well as Yuna and Lin's (2012) results indicated that students' learning styles did not differentiate

their autonomous performance while Lin and Reed's (1994) as well as Ng and Confessore's (2011) results revealed significant differences. The present study therefore attempts to examine the hypothesis that autonomous learners may demonstrate certain learning styles while conducting self-access language learning in a CALL SAC.

## **CHAPTER THREE**

### **METHOD**

This chapter encompasses an informative description of the CALL SAC in the current study, participants, research instruments, data collection procedures, and data analyses.

#### **3.1 The CALL SAC in the Study: Pu101**

The self-access classroom established at NTNU was named Pu101 and served as a place for college students to do their self-access learning. By choosing the multimedia learning materials they like from the resourceful programs installed on the computers, students could work on every aspect of their English learning, including listening (e.g. CNN Interactive English), reading (e.g. Studio Classroom), speaking (e.g. Traci Talk), writing (e.g. Super Success: TOEFL), vocabulary (e.g. The Interactive Picture Dictionary), grammar (e.g. Tense Buster), and culture understanding (e.g. Friends DVD). At the same time, students' autonomy development could be promoted in the computer-assisted self-access center because they learned to set their own learning goals, select materials meeting their needs, and adjust their leaning pace in the process of visiting Pu101.

Moreover, all the visitors to Pu101 had to fill in an online end-of-visit survey questionnaire each time when they logged out the learning program which they just used. That is, the database in the SAC would automatically record each visitor's log-in time, the learning program he or she used, and his or her immediate evaluation on the program every time he or she came to the SAC and later email these learning records to the visitor.

### 3.2 Participants

The empirical data involved a large number of non-English-major EFL learners at a university in northern Taiwan; namely, 1,579 freshmen from the fall semester 2010 and 1,265 freshmen from the spring semester 2011 participated in the study. There was an overlap between the two groups of participants who visited Pu101 during the academic year. Some visitors from the spring semester 2011 came from the visitors from the fall semester 2010. Besides, a placement test was administered at the beginning of the 2010-2011 academic year to assign students to Advanced, High-intermediate, Low-intermediate, and Beginning proficiency levels for their Freshman English courses which lasted for two hours per week. In the course, students were encouraged to visit the CALL SAC, Pu101, regularly for self-directed learning. If they did not know where to start or how to operate the learning programs, they could follow the guidance of weekly assigned lessons (see Appendix C) or ask SAC assistants for help.

Among these participants, 38 freshmen from the fall semester 2010 and 32 freshmen from the spring semester 2011 were randomly selected by the SAC assistants for follow-up interviews. The background information of the interviewees including frequency of visit, proficiency level, and department were indexed in Table 3.1 and Table 3.2 respectively. In addition, 440 participants voluntarily took a learning style questionnaire at the end of the spring semester 2011 and they were further divided into four subgroups according to their frequency of visit to the self-access classroom. That is, Group One consisted of 217 students who visited the SAC less than or equal to ten times, Group Two consisted of 175 students who visited the SAC for eleven to twenty times, Group Three consisted of 48 students who visited the SAC more than twenty times, and Group Four included all the 440 students taking

the learning style questionnaire.

**Table 3.1**

**The Background Information of the Interviewees (Fall Semester 2010)**

No.	Department	Frequency of Visit	Proficiency Level
S1	Human Department and Family Studies	25	High-intermediate
S2	Human Department and Family Studies	23	Low-intermediate
S3	Civic Education and Leadership	20	High-intermediate
S4	Civic Education and Leadership	40	Low-intermediate
S5	Civic Education and Leadership	21	High-intermediate
S6	Educational Psychology and Counseling	40	Advanced
S7	Educational Psychology and Counseling	20	Low-intermediate
S8	Educational Psychology and Counseling	38	Advanced
S9	Educational Psychology and Counseling	25	Advanced
S10	Business Administration	33	Advanced
S11	Business Administration	40	Advanced
S12	Geography	10	Beginning
S13	Geography	26	Beginning
S14	Education	40	Low-intermediate
S15	Education	21	High-intermediate
S16	Education	34	Low-intermediate
S17	Education	15	Low-intermediate
S18	Education	40	Advanced
S19	Mechatronic Technology	40	Beginning
S20	Mechatronic Technology	22	Low-intermediate
S21	Mechatronic Technology	40	Advanced
S22	History	14	Advanced
S23	History	19	Advanced
S24	Physical Education	40	Beginning
S25	Physical Education	20	Beginning
S26	Physical Education	40	Beginning
S27	Physical Education	40	Beginning
S28	Physical Education	30	Beginning
S29	Physical Education	5	Beginning
S30	Physical Education	19	Beginning



S31	Health Promotion and Health Education	40	Low-intermediate
S32	Health Promotion and Health Education	40	High-intermediate
S33	Chinese	16	High-intermediate
S34	Industrial Education	30	High-intermediate
S35	Industrial Education	30	High-intermediate
S36	Life Science	5	Low-intermediate
S37	Music	25	Advanced
S38	Applied Electronics Technology	43	Beginning

**Table 3.2**

**The Background Information of the Interviewees (Spring Semester 2011)**

No.	Department	Frequency of Visit	Proficiency Level
S1	Human Department and Family Studies	11	High-intermediate
S2	Civic Education and Leadership	35	High-intermediate
S3	Educational Psychology and Counseling	12	Low-intermediate
S4	Educational Psychology and Counseling	5	Low-intermediate
S5	Educational Psychology and Counseling	39	Advanced
S6	Business Administration	40	Advanced
S7	Business Administration	40	Advanced
S8	Geography	6	Low-intermediate
S9	Education	20	Low-intermediate
S10	Education	40	Low-intermediate
S11	Education	20	High-intermediate
S12	Education	14	Low-intermediate
S13	Education	36	Low-intermediate
S14	Education	16	Low-intermediate
S15	Education	40	Advanced
S16	Education	18	High-intermediate
S17	Mechatronic Technology	35	Beginning
S18	Mechatronic Technology	43	Low-intermediate
S19	History	20	Advanced
S20	History	20	Low-intermediate
S21	Physical Education	35	Beginning
S22	Physical Education	19	Beginning
S23	Physical Education	25	Beginning
S24	Physical Education	9	Low-intermediate

S25	Physical Education	5	Beginning
S26	Health Promotion and Health Education	40	High-intermediate
S27	Chinese	25	Advanced
S28	Industrial Education	56	High-intermediate
S29	Industrial Education	4	Beginning
S30	Life Science	41	Advanced
S31	Music	40	High-intermediate
S32	Computer Science and Information Engineering	16	Low-intermediate

---

### 3.3 Research Instruments

To detect a large number of participants' self-access learning efficiently, four research instruments were utilized. The first one was an end-of-visit online survey questionnaire borrowed from Lin's (2010). This ten-item questionnaire consisted of nine close-ended items on a 4-point Likert scale ranging from "strongly disagree" and "disagree" to "agree" and "strongly agree" as the semantic anchors (4 = strongly agree; 1 = strongly disagree), along with one open-ended question. The first nine items were designed for visitors to evaluate the learning program they just used after each visit while the last item was designed for visitors to briefly write down their immediate reflection of their learning with the program they chose. These ten items are listed below.

1. I enjoy using this learning program to learn English.
2. I think this learning program is well designed.
3. I think the content of this learning program is easy to comprehend.
4. This learning program improves my listening comprehension.
5. This learning program improves my speaking skills.
6. This learning program improves my reading comprehension.
7. This learning program improves my writing skills.

8. I think the operation of this learning program is simple.

9. I will use this learning program again.

10. What I have learned is \_\_\_\_\_.

The second instrument was an end-of-semester survey questionnaire borrowed from Lin's (2010). This 23-item questionnaire on a 4-point Likert scale (see Appendix D and E) can be divided into two sections. That is, the first 19 items covers four categories which are software (Q1-3) and physical environment (Q17-18) of the SAC, the effectiveness of the SAC in improving their language skills (Q4-7), the support provided by the assistant (Q14-16), and the weekly assigned lessons (Q8-13). For example, "In terms of content, I think the SAC provides advanced language learning software." (Q2) aims to gather information about visitors' evaluation on the learning software in Pu101. On the other hand, the second section (Q20-23) asked participants to select their most and least favorite software, areas that Pu101 can make improvement, and advantages of learning English in the SAC.

The third instrument (see Appendix F and G) was another questionnaire adopted from Ehrman and Leaver's (2003) Learning Style Questionnaire on a 5-point Likert scale ranging from never to always as the semantic anchors (1 = never; 5 = always). Based on Dörnyei's (2005) convincing and concise review, Ehrman and Leaver (2003) devised this 10-dimension, 30-item complex battery to look into learning styles under a comprehensive and parsimonious construct, which has gone through field-testing as well as empirical studies (Ehrman & Leaver, 2003; Yuan & Lin, 2012) and therefore guarantees its validity in the SLA field. In addition, the original questionnaire proposed by Ehrman and Leaver (2003) had two extremes which were designed for questionnaire takers to select one number on a 9-point continuum to represent their preferences for learning, as Table 3.3 shows. However, the two extremes could be

confusing for our participants and the 9-point continuum put greater difficulty for our students to tell the subtle differences between, for example, seven and eight. To collect the data without unnecessary misunderstanding, the present study adopted the statement of only one extreme to represent certain learning style, and adjusted the ratings from the 9-point scale to the 5-point scale. Moreover, the thirty items cover ten learning styles which are field dependent-field independent (Q1, 11, 21), field sensitive-field insensitive (Q2, 12, 22), leveler-sharpener (Q3, 13, 23), global-particular (Q4, 14, 24), impulsive-reflective (Q5, 15, 25), synthetic-analytic (Q6, 16, 26), analogue-digital (Q7, 17, 27), concrete-abstract (Q8, 18, 28), random-sequential (Q9, 19, 29), and inductive-deductive (Q10, 20, 30).

**Table 3.3**

**Sample Items from the Ehrman and Leaver Learning Style Questionnaire**

Item		Two Extremes									
7. I tend to learn things through metaphors.		I like it when people say what they mean directly.									
Most like this	1	2	3	4	5	6	7	8	9	Most like this	
8. To learn, I like to interact with the world.		I like to learn through concepts and ideas.									
Most like this	1	2	3	4	5	6	7	8	9	Most like this	

In addition to collecting the data in a quantitative way, qualitative data was also gathered through the fourth instrument, a semi-structured interview borrowed from Lin's (2010) with new questions brought up based on what interviewees said to further understand their self-access learning experience. These interviews were conducted in Chinese, participants' mother tongue, to avoid unnecessary misunderstanding and all transcripts were documented in English. The following are the semi-structured interview questions:

1. Does your Freshman English instructor stipulate certain number of visits? If yes, how many times are you required to visit the SAC per semester?
2. Why do you keep visiting the SAC?
3. What do you think are the advantages and disadvantages of learning in the SAC?
4. Do you set any linguistic objectives, e.g. improve reading comprehension and polish listening skills, for yourself?
5. How do you think these objectives have been accomplished so far?
6. Do you take any tests to help you evaluate the achievement of these objectives?
7. What do you gain most from your visits of the SAC?
8. What do you usually do in the SAC?
9. Do you prefer certain software? Why?
10. Do you have other extracurricular English learning activities? If yes, what are these activities?
11. Do you have any suggestion for the SAC operation?

### **3.4 Data Collection and Data Analysis**

The study was administered during 2010 fall and 2011 spring in Taiwan. Participants were encouraged to do self-access English learning at the CALL SAC, Pu101, and each time before leaving they had to fill in an online end-of-visit 10-item questionnaire to evaluate the software or program they just used. At the end of the semester, they were required to finish an end-of-semester 23-item questionnaire to assess the effectiveness of the self-access classroom as a whole. Then learning style questionnaires were delivered to around four hundred and fifty volunteers among the participants to gain further information about their preferences for English learning in the CALL SAC. Last, randomly-selected interviewees from the participants went through a semi-structured interview in Chinese, with SAC assistants' help.

After collecting the data, participants' responses to all the three questionnaires were coded and computed into Excel for further analyses. In addition to descriptive statistics like mean and standard deviation of the questionnaires' ratings, correlation analysis and Kruskal-Wallis test were conducted to examine the overall interaction between students' learning style preferences and other different variables such as gender, English proficiency level, field of study, frequency of visit, learning program use, etc. That is, correlations between different variables like learning styles and frequency of visit will be analyzed to answer the research question: To what extent do learning styles correlate with EFL learners' autonomous learning in a computer-assisted self-access center, in terms of their use of learning program, proficiency level, and frequency of visit, etc?

Aside from quantitative data, qualitative data was analyzed along with Lin's (2010) criteria and classification. For example, participants' responses to question ten in the end-of-visit questionnaire were categorized into language learning and autonomous learning. The former covers vocabulary, listening, speaking, culture, grammar, reading and writing while the latter covers common knowledge, evaluation of what has been acquired, critical thinking, selection of materials and strategies, metacognitive awareness, summary skills, and planning. Take metacognitive awareness for example. It involves participants' understanding of their own learning styles, proficiency levels, and areas that need improving. Blank entries and vague responses such as "good," "interesting," and "thank you" were eliminated from further analysis. That is, qualitative data from interviews will be examined and compared to see if they are meaningful enough and if they support the data from the questionnaires.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

This chapter displays the results of the study and further interprets the major findings through triangulating quantitative data from questionnaires and qualitative data from interviews.

#### **4.1 Results**

This section presents results from four research instruments, including end-of-visit online surveys, end-of-semester questionnaires, learning style questionnaires, and semi-structured interviews. Sub-section 4.1.1 summarizes results from end-of-semester questionnaires and interviews. Sub-section 4.1.2 outlines results from end-of-visit online surveys with a focus on participants' responses to the open-ended question "What I have learned." Sub-section 4.1.3 presents results from learning style questionnaires, examining the extent to which leaning style preferences correlate with self-access language learning by looking into the correlation between, for example, frequency of visit to the SAC and learning styles.

##### **4.1.1 End-of-semester questionnaires and interview results**

This part shows both quantitative and qualitative results respectively from end-of-semester surveys and interview in two semesters. Section 4.1.1.1 presents descriptive statistics of the end-of-semester questionnaires, inclusive of SAC visitors' perceived advantages of learning as well as their top and least favorite learning software. Section 4.1.1.2 displays results of interviews which were also conducted at the end of each semester.

###### **4.1.1.1 Questionnaire results**

Table 4.1 shows participants' ratings of the first 19 items in the end-of-semester

questionnaires, which are ranked along with the 4-point Likert scale. Generally speaking, learners got pleasure from acquiring English in the computer-assisted self-access center (Q19, M = 3.28 and 3.22) because of its satisfactory software, hardware, and human resources. They felt satisfied with the readily available language learning software (Q1, M = 3.21 and 3.16) which not only provided them with suitable learning content (Q2, M = 3.24 and 3.18) but also updated itself regularly (Q3, M = 3.20 and 3.16). In fact, learners gave more credit to listening (Q4, M = 3.22 and 3.18) and reading training (Q6, M = 3.18 and 3.15) than to speaking (Q5, M = 3.03 and 3.07) and writing training (Q7, M = 2.99 and 3.02) when it comes to the sufficiency of language learning software. Moreover, those SAC learners also approved of the physical environment (Q17, M = 3.20 and 3.18) as well as the computer equipment (Q18, M = 3.18 and 3.14) of Pu101.

As for the weekly assigned lessons, learners moderately agreed that those lessons fit with their proficiency levels (Q8, M = 3.13 and 3.12), thus complementing the inadequacy of *Freshman English* course (Q11, M = 3.11 and 3.12), boosting their learning interest (Q10, M = 3.19 and 3.15), and improving some aspects of their language ability (Q9, M = 3.20 and 3.15). Most of the time, they would keep visiting the SAC and use other software even though they had finished that week's assigned lessons (Q12, M = 3.10 and 3.10). However, not all the learners employed the weekly assigned lessons as the guided materials when they were learning in the self-access center (Q13, M = 3.00 and 3.05). With respect to the SAC assistants, learners reached an agreement that those assistants were both competent at their job (Q14, M = 3.27 and 3.20) and enthusiastic to help SAC visitors, such as operating language learning software (Q15, M = 3.28 and 3.19) and answering questions (Q16, M = 3.25 and 3.16).



**Table 4.1 Learners' Evaluation of Language Learning in the SAC**

Item	Year	<b>10F</b>	<b>11S</b>
		M (SD)	M (SD)
Q1: I feel satisfied with the language learning software in the SAC.		3.21 (0.54)	3.16 (0.55)
Q2: In terms of content, I think the SAC provides practical language learning software.		3.24 (0.52)	3.18 (0.55)
Q3: In terms of technology, I think the SAC provides advanced language learning software.		3.20 (0.54)	3.16 (0.56)
Q4: In terms of listening training, I think the SAC provides sufficient language learning software.		3.22 (0.54)	3.18 (0.57)
Q5: In terms of speaking training, I think the SAC provides sufficient language learning software.		3.03 (0.62)	3.07 (0.62)
Q6: In terms of reading training, I think the SAC provides sufficient language learning software.		3.18 (0.55)	3.15 (0.55)
Q7: In terms of writing training, I think the SAC provides sufficient language learning software.		2.99 (0.63)	3.02 (0.62)
Q8: I think that the weekly assigned lessons fit with my proficiency.		3.13 (0.53)	3.12 (0.56)
Q9: I think that the weekly assigned lessons improve some aspects of my English ability.		3.20 (0.52)	3.15 (0.54)
Q10: I think that the weekly assigned lessons can boost my interest in English.		3.19 (0.56)	3.15 (0.55)
Q11: I think that the weekly assigned lessons can complement the inadequacy of <i>Freshman English</i> .		3.11 (0.58)	3.12 (0.56)
Q12: Even if I have finished this week's assigned lessons, I would still visit the SAC and use other software.		3.10 (0.58)	3.10 (0.57)
Q13: I used the weekly assigned lessons in the SAC.		3.00 (0.64)	3.05 (0.61)
Q14: I think the assistant is competent for this job.		3.27 (0.53)	3.20 (0.55)
Q15: I think the assistant is enthusiastic to serve for me, for instance, in software operation.		3.28 (0.53)	3.19 (0.54)
Q16: I think the assistant tries his/her best to answer my questions, e.g. English questions.		3.25 (0.53)	3.16 (0.54)

Q17: I think the physical environments of the SAC are suitable for language learning.	3.20 (0.55)	3.18 (0.55)
Q18: I think the computer equipment (including headphone, and microphones) is suitable for the software operation.	3.18 (0.56)	3.14 (0.58)
Q19: Overall, I enjoy learning English in the SAC.	3.28 (0.53)	3.22 (0.54)

*Note:*

1. “10F” stands for the fall semester 2010, and “11S” stands for the spring semester 2011.
2.  $N = 1579$  in the fall semester 2010 and 1265 in the spring semester 2011.

In addition to the above nineteen items, participants were also asked to select advantages when they engaged in the self-directed English learning at the CALL SAC (Q20). Table 4.2 indicates that the freedom of choosing favorable materials (29.90% and 29.48%), the feasibility of learning at individualized pace (27.65% and 28.29%), and the suitable environment boosting concentration (24.30% and 25.55%) serve as the major advantages of learning at the computer-assisted self-access center. By contrast, the opportunity to work with friends to acquire the target language (18.15% and 16.69%) does not have a great impact on whether learners prefer visiting the SAC to learn English or not.

**Table 4.2 Advantages of Learning in the SAC**

<b>Advantages</b>	<b>10F</b>	<b>11S</b>
I can choose learning materials.	1026 (29.90%)	742 (29.48%)
I can set my own learning schedules.	949 (27.65%)	712 (28.29%)
I can concentrate on my learning.	834 (24.30%)	643 (25.55%)
I can learn with my friends.	623 (18.15%)	420 (16.69%)
<b>Total</b>	3432 (100%)	2517 (100%)

After discussing the general advantages SAC entails, the study moved on to

describe the most popular learning programs in it (Q22), as Table 4.3 shows. It was obvious that the majority of learners visited the self-access classroom mainly to watch movies. *Emergency Room*, *Friends*, Old Movies such as *Pride and Prejudice* or Disney cartoons, IMAX DVD, *The Simpsons*, and *Shakespeare Animations* appeared to be their favorite learning programs. Some learners further reported in their questionnaires that they not only enjoyed the fun and close-to-life content of the videos and movies but also picked up lots of vocabulary and colloquial expressions while reading through and listening to both the Chinese and English subtitles. Such dual coding process facilitated their comprehension and therefore enhanced their English listening and reading skills.

**Table 4.3 Top Five Most Favorite Learning Programs**

<b>Rank</b>	<b>10F Number (Percent)</b>	<b>11S Number (Percent)</b>
1	Emergency Room 209 (28.02%)	Emergency Room 338 (37.68%)
2	Friends 141 (18.90%)	Friends 303 (33.78%)
3	Old Movies 139 (18.63%)	Old Movies 84 (9.36%)
4	IMAX DVD 73 (9.79%)	The Simpsons 47 (5.24%)
5	The Simpsons 37 (4.96%)	IMAX DVD 29 (3.23%)

*Note:*  $N = 1579$  in the fall semester 2010 and 1265 in the spring semester 2011.

Combining the results in Table 4.3 with the ones in Table 4.4, we can clearly see

that students voted for movies primarily because those multimedia visual aids amused them with fascinating content (26.25% and 37.73%) and promoted their language ability (23.94% and 23.06%) at the same time, which adds prove to the reports mentioned above.

**Table 4.4 Reasons for Most Favorite Learning Programs**

<b>Reasons</b>	<b>10F</b>	<b>11S</b>
Its learning content is practical and interesting.	1184 (26.25%)	689 (37.73%)
It helps me improve my language ability, such as listening, speaking, reading, and writing skills.	1080 (23.94%)	421 (23.06%)
Its interface design is easy to understand and operate.	998 (22.12%)	208 (11.39%)
Its software operation is simple.	838 (18.58%)	227 (12.43%)
Others	411 (9.11%)	281 (15.39%)
<b>Total</b>	4511 (100%)	1826 (100%)

Although movies were chosen as SAC visitors' top five favorite learning programs, surprisingly movies were seen as their top three least favorite learning programs at the same time, as shown in Table 4.5 (Q23). The majority of learners (97.21% and 97.94%) appreciated all the learning resources and picked nothing for this item while a few of them mentioned that Old Movies including *Shakespeare Animations* and *Friends* were really too old and needed updating. They suggested that the self-access center provide them with trendy films rather than old-fashioned ones all the time. In addition, it was reported that speaking software such as *MyET* was not satisfying enough to scaffold learners' oral training. Some suffered computer lag, some criticized headphones and recording equipment, and some strongly advised that

an individual room be spared for speaking practices to ensure other learners wouldn't be interrupted and those practicing speaking could concentrate.

**Table 4.5 Top Three Least Favorite Learning Programs**

<b>Rank</b>	<b>10F Number (Percent)</b>	<b>11S Number (Percent)</b>
1	None 1535 (97.21%)	None 1239 (97.94%)
2	My ET 9 (0.57%)	Old Movies 5 (0.40%)
3	Old Movies 6 (0.38%)	Friends 5 (0.40%)

*Note:*  $N = 1579$  in the fall semester 2010 and 1265 in the spring semester 2011.

Linking the data in Table 4.5 to the one in Table 4.6, we can see that learning content (24.29% and 5.36%) and computer equipment (22.52% and 5.44%) appeared to be the two main drawbacks of the least favorite learning programs and this corroborated learners' feedback that new movies and better equipment were needed. In actual fact, the majority of participants (78.86%) from the second semester further commented that movies and test items both needed to be updated and SAC computers often broke down, which disturbed and annoyed them. Interestingly, those participants also praised SAC assistants' contribution and the overall learning environment in this item, probably due to their misunderstanding that the last question must be the one for them to fill in their general opinion about the facility. This phenomenon simultaneously explained why all the participants wrote down nothing in Q21 but remarked on the areas SAC can improve in Q23.

**Table 4.6 Reasons for Least Favorite Learning Programs**

<b>Reasons</b>	<b>10F</b>	<b>11S</b>
Its learning content is boring and impractical.	1178 (24.29%)	67 (5.36%)
Its computer equipment often breaks down, such as the recording equipment.	1092 (22.52%)	68 (5.44%)
Its interface design is complicated to understand and follow.	1003 (20.68%)	60 (4.80%)
Its software operation is troublesome.	859 (17.71%)	69 (5.52%)
Others	717 (14.79%)	985 (78.86%)
<b>Total</b>	4849 (100%)	1249 (100%)

To adjust the situation, the study brought the remarks in Q23 and the data in Q21 together as a basis for the self-access classroom to make some improvements. As Table 4.7 shows, visitors from two semesters shared common ideas about the inadequacy of computer equipment (21.54% and 14.87%). Some urged the SAC to purchase new headphones since they couldn't hear the input clearly and their ears hurt when wearing the headphones too long, some complained computers broke down too often, and some couldn't tolerate the computers running so slow. Speaking software was another area requiring improvement (18.97% and 13.06%). It's hard for learners to practice English speaking such as pronunciation correction or short conversation in Pu101 since they could interrupt other SAC visitors' learning. Accordingly, learners hoped that Pu101 can spare one separate room for those wanting to do oral training.

Aside from the two similar issues, learners from the fall semester 2010 were particularly not satisfied with the listening software in the self-access center (19.95%). Some mentioned that the English subtitles often lagged behind the video, and some hoped that they can speed up or slow down the pace while listening to magazines such

as Advanced. On the other hand, a majority of learners from spring semester 2011 (26.41%) suggested that Chinese subtitles be included in the movies to help them match unfamiliar English expressions with their mother tongue, which may benefit their learning to a greater extent. Learners also suggested adding science-related video resources like *Discovery*, *Animal Planet*, and *House MD* to the present multimedia database so as to attract learners from different majors. Last but not least, most visitors (3.38% and 9.93%) hoped the air conditioning can be adjusted because they felt either too hot or too cold in the classroom and this indeed had a negative influence on their learning and the time they wanted to stay in the SAC.

**Table 4.7 Areas the SAC Can Improve**

<b>Areas</b>	<b>10F</b>	<b>11S</b>
Computer equipment	1105 (21.54%)	304 (14.87%)
Software (Listening)	1022 (19.95%)	202 (9.88%)
Software (Speaking)	972 (18.97%)	267 (13.06%)
Software (Reading)	714 (13.93%)	136 (6.65%)
Software (Writing)	289 (5.64%)	225 (11%)
Software (Movies)	629 (12.28%)	540 (26.41%)
Software (Testing)	220 (4.29%)	168 (8.22%)
Others	173 (3.38%)	203 (9.93%)
<b>Total</b>	5124 (100%)	2045 (100%)

*Note:*  $N = 1579$  in the fall semester 2010 and 1265 in the spring semester 2011.

#### 4.1.1.2 Interview results

In addition to the quantitative data, 38 students from fall semester 2010 and 32 students from spring semester 2011 were randomly selected to have the semi-structured interviews at the end of each semester to elaborate on their self-access learning experiences in Pu101, which served as supplementary information to the results from the end-of-semester questionnaires. Those learners' replies fell into five main categories: reasons motivating them to keep visiting the SAC, their initial linguistic goals and their achievement in those objectives, their favorite and least favorite leaning software, other extracurricular English learning activities they did, and their suggestions for the SAC operation. Representative examples were translated from interviewees' comment and quoted below.

First, nearly all the interviewees starkly exceeded the minimum numbers, ranging from five to thirty times per semester, set by their *Freshman English* instructors either as encouragement or requirement to visit the SAC. That is, almost all the *Freshman English* instructors required their students to visit Pu101 to conduct self-access learning, which may complement the inadequacy of the course. Some instructors even gave students bonus points if they visited the SAC more than the required number of times. Most of the interviewees admitted that they visited the SAC due to the requirement or bonus points at first, but later on they got into the habit of learning English there and enjoyed the process. When asked why they kept visiting Pu101, students unanimously praised its cozy environment, abundant resources, various software, and appealing videos, which enabled them to conduct self-paced learning with the aid of enjoyable materials, improve particular skills such as listening and speaking which they self-diagnosed as weakness, work with friends to supervise and encourage each other to form a good habit of exposing themselves to English,



spend their leisure time or lunch break meaningfully, or provide them with a mental shelter to relax. To be precise, many interviewees visiting the SAC constantly were mainly motivated by the two TV series, *Friends* and *Emergency Room*.

I fall in love with *Emergency Room*. Just like TV series, I must watch at least an episode a day or my heart will ache. By doing so, I continually expose myself to English and thus maintain my proficiency level. (S7, 10F) (*videos*)

Watching *Friends* can kill two birds with one stone. It helps me relax and improve my listening ability at the same time. That's why I want to come to Pu101 frequently. (S4, 10F) (*videos*)

It's summer now, so I like to visit the self-access center to enjoy the free cool air and free learning software. For example, *Friends* is so interesting that I can't stop following its plots. (S19, 11S) (*videos & software & learning environment*)

I am preparing for TOEIC and GEPT high intermediate tests now, so I come here to promote my English capacity. Pu101 has lots of different programs for me to practice listening, speaking, reading, and writing; besides, I can see many others work as hard as me to improve English here and hence become more motivated. (S18, 10F) (*resources & learning environment*)

Visiting the center is a great way to make good use of my free time. Instead of playing on computers, I think it's more meaningful to watch movies and learn English in this comfortable and quiet place. (S25, 10F) (*learning environment*)

My friends and I have developed the habit of watching *Friends* together in Pu101. Because the video is fun and relaxing, we can learn happily and share ideas with each other. (S30, 10F) (*videos & learning environment*)

Because I want to minor in English, my instructor advised me to study *Advanced* and collect stamps conveniently in the classroom. Gradually, I get used to

listening to *Advanced* here and collecting stamps becomes a way to supervise myself to study English at a fixed time every day. (S2, 11S) (*software & learning environment*)

Pu101 is like a mental shelter for me to truly relax. I can't relax even at dorm because many people often come to me discuss the activities that we're going to held and make me feel exhausted. So, I love to be here watching *Emergency Room* and take a break alone. (S4, 11S) (*videos & learning environment*)

The advantages are that I can choose the area I want to improve with a great variety of programs available, that I can choose the time slot I feel free to polish English, and that I can learn at my own pace without worrying I can't catch up with others. I feel I can learn independently here. I won't waste my time since I will automatically come here to study English whenever I am available. (S15, 11S) (*individualization & resources & learning environment*)

Second, the primary linguistic objective set by 58 out of 70 interviewees throughout the two semesters was to improve their listening comprehension. Some of them further linked listening to speaking as their ultimate goal and pointed out that practical and real-life communication with foreigners mattered more than reading and writing which had been taught in textbooks for years. Moreover, the principal mode those learners chose to better their listening was watching videos (55 out of 70 interviewees) including *Emergency Room* and *Friends*, which not only demonstrated useful colloquial expressions but also increased students' sensitivity to English pronunciation, accent, tone, intonation, etc. Other learning materials that interviewees employed to train their listening or other English skills included *Advanced*, *Studio Classroom*, GEPT practice tests, *My ET*, *Fun Day*, and CNN news. In addition to significant improvement in listening comprehension and certain awareness of phonology and phonics, vocabulary enlargement, reading speed enhancement, writing

knowledge, as well as qualification in GEPT tests or *Freshman English* exams were also reported to be the self-perceived or observable accomplishment of learners' original linguistic goals.

I aim to watch *Friends* at least two episodes a week to improve my listening comprehension. Last semester, I also watched *Friends* but couldn't even understand the main idea or get the funny points others laughing at. I had to click pause and check up unknown words in the dictionary very often. But now I can clearly and quickly get the gist of the story and what the characters are talking about. When encountered unknown words, I can guess their meaning from the context, except for the American humor. Aside from better listening comprehension, my reading speed also increases. That's because I try to follow up and read through the English subtitles while watching the video. (S8, 11S) (*listening & reading*)

My goal is to improve listening and writing. In the beginning, I felt confused about *Friends*' plots if I didn't read its subtitles. Sometimes I couldn't comprehend what I was listening to even though I read them. But I practiced relying on my listening comprehension to understand the plots instead of reading the subtitles. As a result, I can enjoy *Friends* without the help of subtitles, that is, my listening comprehension has improved a lot. Besides, the vocabulary and grammar notes I take while watching the video can be a great resource for me to refer to when I need to write English compositions. (S13, 11S) (*listening & writing & vocabulary*)

The linguistic objective I set is listening and speaking. I pay close attention to listening to every single word when watching *Friends* and *Simpsons*. The characters speak so fluently that I naturally follow their lines to do shadowing. In this way, I gain an instinct to avoid stammering and Chinese English. At the same time, I also pick up some colloquial expressions in American English. I think listening and speaking are inseparable. If we repeat what we hear from the video, both our listening and speaking will be enhanced. (24, 11S) (*listening & speaking*)

Maintaining and polishing listening is my target, and I have finished a whole season of *Emergency Room* to achieve this goal. I learn some medical terminology and real-life conversation from it, and these expressions are really interesting, fun, and useful. To examine my learning outcome, I took the GEPT high intermediate level test and passed the first round. Next week, I will take the second round. (S6, 10F) (*listening & vocabulary*)

I used to think English was for tests only, thus hating practicing English listening, which was not part of the college entrance exam. But now I realize that English is for communication, not for tests. So I visit Pu101 watching videos and taking GEPT simulation tests to better my terrible listening. In the past, I felt the foreigners in the films talked so fast that I could understand nothing. By contrast, I can catch several phrases and its general idea now. (S14, 10F) (*listening*)

I plan to take GEPT high intermediate level test next year. Among the four skills, listening and speaking is what I need improving when compared to reading and writing, which have been trained a lot in senior high school. I like to speed up the videos and turn off Chinese subtitles while watching films to train listening. I won't get stuck and gain better listening comprehension in the end. For example, my score became higher in the *Freshman English* mid-term exam. (S31, 10F) (*listening*)

The self-access classroom provides us with resourceful software good for our listening training, for instance, *Advanced* and *Studio Classroom*. I have a habit of taking vocabulary notes while using them and this helps me memorize the words effectively. Through these efforts, watching CNN news and National Geography channel is as easy as watching Chinese interview programs for me. Moreover, I have passed the exam and been qualified to minor in English department. (S2, 11S) (*listening*)

Listening is the skill I want to polish, so I choose *Friends* to watch. However, the characters' speaking rate is too high to follow, not to say understanding the plots. Later, I try to slow down the pace and separate one episode into two parts to carefully listen to. I think the key to improve listening doesn't lie in watching

many films, but in absorbing the language to comprehend the content. (S23, 11S)  
(*listening*)

Third, over ninety percent of the interviewees, 65 out of 70 throughout the two semesters, chose video resources as their favorite learning program. In line with the results from the end-of-semester questionnaires, those interviewees enjoyed watching *Emergency Room*, *Friends*, old movies like Disney cartoons or *Pride and Prejudice*, *The Simpsons*, *IMAX DVD*, and *Shakespeare Animations* to acquire English without pressure. The authentic English appearing in American TV series especially aroused students' interest since they were eager to learn the slangs, spoken language, daily expressions and western culture which were seldom taught at exam-oriented classrooms. Aside from entertaining visual stimulus, some interviewees regarded *Advanced*, *Studio Classroom*, *Fun Day*, and GEPT simulation tests as great tools to work directly on the language itself. Becoming conscious of linguistic features, learners were therefore able to monitor and modify the way they approached English.

The sitcom *Friends* leads me to knowing more about American culture through the funny jokes in it. I love it. (S8, 11S) (*culture*)

*Friends* is my favorite, because it's very funny and the dialogues and spoken expressions in it can be readily used whenever I encounter foreign friends. (S16, 10F) (*authentic language*)

Since I visited Pu101, I have immersed myself in *Emergency Room*. Through it, I realize what I learned in textbooks is totally different from the real-life conversation which native speakers use in their daily lives, just as I won't use the Chinese in Chinese textbooks to communicate with others. It dawns on me that my English was for tests only, but now I want to speak the real English. (S4, 11S)  
(*authentic language*)

I like *Advanced* the most because my instructor has taught me how to employ it to train my speaking. When the hosts chat with each other, I will repeat what they say, such as “Advanced Studio Classroom is on the air...” and “Oh, that’s so cool...” to imitate their intonation without clicking pause. It’s a little bit like acting as an interpreter. Every time I finish practicing shadowing in Pu101, I will go to the chat room. Because of this kind of exercise, I can speak extremely fluently in English in the chat room, which brings me a great sense of achievement. Besides, *Advanced* contains many good and beautiful words I can pick up, instead of easy words only. That’s the other reason I recommend this software. (S2, 11S) (*awareness of linguistic features*)

When it comes to the least favorite program, most interviewees didn’t use other programs except for videos, so they gave no answer to it while a few of them pointed out some shortcomings of *My ET* and GEPT practice tests, mainly about their unfriendly operation.

I have tried *My ET* several times, but I still don’t know how to use it. (S3, 10F) (*unfriendly operation*)

The recording equipment of *My ET* sucks. I have to start recording over and over again due to its bad connection. (S5, 10F) (*unfriendly operation*)

I don’t like GEPT simulation tests’ speaking part. It’s inconvenient because I can’t record what I said either to do self-evaluation or ask others to grade it. (S6, 10F) (*unfriendly operation*)

GEPT practice tests didn’t allow me to copy my compositions from the computer. When I want to ask the teachers at writing workshop to grade my compositions, I have to copy them down by hand first. (S14, 10F) (*unfriendly operation*)

Fourth, interviewees shared other extracurricular English learning activities they enjoyed such as reading novels and magazines, doing language exchange, writing compositions with a guidebook, as well as watching movies and TV news, which not only provides us with quick reference to how to expand the present resources in Pu101 but also indicates some learners preferred reading paper books to e-books on screen. This may be attributed to the portability of paper books and that learners can take notes on it easily. *Reader's Digest*, *Times*, *Advanced*, *Tuesdays with Morrie*, and *The Joy Luck Club* are on the book list interviewees mentioning. Clearly, many interviewees were self-motivated to train their reading comprehension and simultaneously took pleasure in it.

I know Pu101 has *Advanced*, but I still buy the paper version myself. I like reading the paper books more since the subtitles on the screen and the speaking speed of the program run too fast to be absorbed into my mind. One ear in and the other ear out, so I'm unable to reflect upon or comprehend the information and language deep enough. (S6, 10F) (*reading paper books*)

I order *Reader's Digest* magazines to read when waiting for the bus or before going to bed. The long articles inside help me become patient while facing more difficult English tasks. (S2, 10F) (*reading paper books*)

Last, interviewees made some suggestions for the SAC to improve its facilities and management. For facilities, more up-to-date movies and learning programs, new headphones and computers, better recording equipment, private rooms for speaking practice, more seats and spacious classrooms, online dictionaries and translation software available while watching movies, and comfortable room temperature were included on the wish list. As for management, they pointed out that clearer

explanation for all software's operation along with promotion of their functions would be beneficial, and that stricter rules forbidding SAC users from chatting inside the classroom or occupying computers using social networking service were needed, too.

#### **4.1.2 End-of-visit survey results**

This part outlines results from the 10-item online questionnaires that visitors had to complete each time they finished using one specific learning program. This part is divided into two sub-sections. Section 4.1.2.1 displays learners' five most frequently used software along with their evaluation of two most frequently used programs, *Emergency Room* and *Friends*. On the other hand, section 4.1.2.2 presents coding results based on visitors' responses to Q10 about what they have learned.

##### **4.1.2.1 Learners' evaluation of specific learning programs**

In the self-access center, visitors' learning records such as software use, log-in time, and their immediate assessment of the program they just used were automatically stored in the database of SAC. After retrieving a great number of these entries, we can identify five most frequently used learning programs throughout the two semesters, as shown in Table 4.8. In detail, those learning programs could be classified into nine categories based on Lin's (2010) classification—reading, speaking, listening plus speaking, reading plus listening, magazines, movies, tests, grammar, and vocabulary (see Appendix H and I). Among them, *Emergency Room* (33.33% and 36.55%), *Friends* (24.87% and 28.30%), *The Simpsons* (8.62% and 5.59%) and old movies (8.47% and 4.29%) belonged to the movie category while chat room (6.16% and 6.32%) belonged to the speaking category. That is, learners spent most of their time in the SAC watching movies (79.53% and 77.50%) and practicing speaking (8.78% and 7.66%), which seemed to reflect college students' interest in absorbing the target-language culture and their practical need for real-life communication.



**Table 4.8 Five Most Frequently Used Learning Programs**

Rank	10F	11S
1	Emergency Room 5153 (33.33%)	Emergency Room 4594 (36.55%)
2	Friends 3845 (24.87%)	Friends 3557 (28.30%)
3	The Simpsons 1333 (8.62%)	Chat Room 749 (6.32%)
4	Old Movies 1309 (8.47%)	The Simpsons 703 (5.59%)
5	Chat Room 952 (6.16%)	Old Movies 539 (4.29%)

To explore learners' perceptions of their top two frequently used learning programs, *Emergency Room* and *Friends*, their responses to the 10-item 4-point-Likert-scale online survey were analyzed in Table 4.9 and Table 4.10.

**Table 4.9 Learners' Evaluation of *Emergency Room***

Items	Year	10F	11S
		M	M
		(SD)	(SD)
1. I enjoy using this learning program to learn English.		3.21 (0.63)	3.17 (0.62)
2. I think this learning program is well designed.		3.21 (0.62)	3.16 (0.62)
3. I think the content of this learning program is easy to comprehend.		3.19 (0.61)	3.16 (0.63)
4. This learning program improves my listening comprehension.		3.22 (0.62)	3.18 (0.61)
5. This learning program improves my speaking skills.		3.12 (0.66)	3.10 (0.65)
6. This learning program improves my reading comprehension.		3.17	3.14

	(0.61)	(0.63)
7. This learning program improves my writing skills.	3.06	3.06
	(0.68)	(0.68)
8. I think the operation of this learning program is simple.	3.18	3.15
	(0.62)	(0.62)
9. I will use this learning program again.	3.25	3.20
	(0.63)	(0.63)

*Note:*  $N = 5153$  in the fall semester 2010 and 4594 in the spring semester 2011.

The above table indicates that learners enjoyed learning English through watching the American medical drama television series *Emergency Room* ( $M = 3.21$  and 3.17) and their curiosity about the following story motivated them to use the same program again and again ( $M = 3.25$  and 3.20). As for the four skills, listening ( $M = 3.22$  and 3.18) was reported to be the area learners improved the most while writing ( $M = 3.06$  and 3.06) was the least. Similar to *Emergency Room*, *Friends* earned great popularity among SAC visitors as well. Learners gained great experience of English learning by watching the American sitcom to acquire trendy colloquial expressions and the culture involved ( $M = 3.22$  and 3.24), as shown in Table 4.10. They were also eager to use the same learning program again since the next episode appeared appealing and interesting ( $M = 3.27$  and 3.26). In accordance with the previous results, learners improved their listening the most ( $M = 3.21$  and 3.25) and their writing ( $M = 3.00$  and 3.10) the least. In other words, watching films help learners polish their perception skills such as listening and reading more effectively than their production skills like speaking and writing.

**Table 4.10 Learners' Evaluation of *Friends***

Items	Year	10F	11S
		M	M
		(SD)	(SD)
1. I enjoy using this learning program to learn English.		3.22 (0.61)	3.24 (0.60)

2. I think this learning program is well designed.	3.21	3.22
	(0.58)	(0.60)
3. I think the content of this learning program is easy to comprehend.	3.19	3.21
	(0.60)	(0.62)
4. This learning program improves my listening comprehension.	3.21	3.25
	(0.59)	(0.61)
5. This learning program improves my speaking skills.	3.08	3.15
	(0.64)	(0.65)
6. This learning program improves my reading comprehension.	3.15	3.19
	(0.58)	(0.61)
7. This learning program improves my writing skills.	3.00	3.10
	(0.67)	(0.67)
8. I think the operation of this learning program is simple.	3.19	3.21
	(0.60)	(0.61)
9. I will use this learning program again.	3.27	3.26
	(0.60)	(0.60)

---

*Note:*  $N = 3845$  in the fall semester 2010 and 3557 in the spring semester 2011.

#### **4.1.2.2 Learners' written responses about what they have learned**

Adopting Lin's (2010) coding system, the study classified learners' responses to Q10 in the end-of-visit questionnaire into two main categories: language learning and autonomous learning. The former included vocabulary, grammar, reading, listening, speaking, writing, and culture while the latter consisted of critical thinking, common knowledge, summary skills, evaluation, awareness, planning, and selection. Some responses were coded into more than one category. For example, "The subject I listen to this time is *Moms to Kids: Can't Wear That*. It talks about Mothers' opinions toward their daughters' dressing style. In the past, I thought foreign parents are liberal. But no." was coded as "summary skills" and "critical thinking." A total of 120 reasoned replies throughout the fall semester 2010 and the spring semester 2011 were coded, as presented in Table 4.11.

**Table 4.11 Learners' written responses to "What I have learned"**

---

Categories	Subcategories	Number	Percent
------------	---------------	--------	---------

---

Language	Listening	19	15.83%
Learning	Vocabulary	15	12.50%
	Culture	5	4.17%
	Reading	5	4.17%
	Speaking	2	1.67%
	Grammar	1	0.83%
	Writing	1	0.83%
Subtotal		48	40%
Autonomous	Critical thinking	33	27.50%
Learning	Evaluation	13	10.83%
	Common knowledge	10	8.33%
	Summary skills	9	7.50%
	Awareness	4	3.33%
	Planning	2	1.67%
	Selection	1	0.83%
Subtotal		72	60%
<b>TOTAL</b>		120	100%

Via the self-access learning in Pu101, students improved their listening (15.83%), vocabulary (12.50%), critical thinking (27.50%), and evaluation (10.83%) the most. Namely, both their language learning (40%) and autonomy development (60%) were enhanced in the process of watching films or using various learning programs in the SAC. Apart from the statistical accounts, students' original written responses were slightly revised to correct their grammatical mistakes and then quoted below to exemplify how students evaluated their own learning.

First of all, the most often cited aspect among the fourteen subcategories was critical thinking skills. After watching movies or reading articles on magazines, learners naturally reflected upon the content and formed their own opinions about it. Sometimes, they summarized what they learned from the video first and then made the judgment, which seemed to combine critical thinking with summary skills and common knowledge.

“*Emergency Room* series let me understand that nothing is certain.” (*critical thinking*)

“After watching *Friends*, I realize love can change a person a lot. Things are not usually the ones we have expected or we first know.” (*critical thinking*)

“I read *Advanced* today. The topic tells me that it's hard to get used to a lifestyle which is different from the one we used to be.” (*critical thinking*)

“I listen to NPR this time. The subject is *Moms to Kids: Can't Wear That*. It talks about Mothers' opinions toward their daughters' dressing style. In the past, I thought foreign parents are liberal. But no.” (*critical thinking & summary skills*)

“Through the video, I appreciate many Maya sculptures and the way Maya people make calculations. It's amazing that Maya is one of the four ancient civilizations creating the number zero. I hope I can visit Maya one day.” (*critical thinking & summary skills & common knowledge*)

Another frequently-cited autonomous-learning aspect was evaluation, which involved learners' assessment of their improvement in comprehension of the learning materials and the difficulties they encountered in understanding slang, vocabulary, and American humor.

“I think the content of *Emergency Room* is easy to comprehend.” (*evaluation*)

“It's still hard for me to understand English slang appearing in *Emergency Room* naturally.” (*evaluation*)

“There are many old English in *Shakespeare Animations*, so I can't understand

the content completely.” (*evaluation*)

“When I was watching *Friends*, there were some jocks that I couldn't understand and laugh with them.” (*evaluation*)

“I major in Chinese, so when I watched this film, I felt fresh. I know about Chin — the first king in China — by reading Chinese books, but now, I watch his data through the English film and find some differences between the two languages.” (*evaluation & critical thinking & awareness*)

In addition to autonomous learning, learners also reported certain improvement in language learning, especially in their listening comprehension and vocabulary acquisition. Via watching movies regularly, students not only took pleasure in following the appealing plots but also acquired new expressions and sharpened aural comprehension at the same time. Some even mentioned that they learned interesting slang and became aware of various tones of real-life conversation.

“*Friends* is fun and the characters’ tones are natural. This helps me improve my listening a lot.” (*listening*)

“The old movie series are good tools to sharpen my listening ability, and they are interesting!” (*listening*)

“I like this way to study English. Watching movies with English subtitles does improve my listening skill and reading skill.” (*listening & reading*)

“I think I have learned lots of native speakers’ colloquial language and daily conversation expressions from *Emergency Room*.” (*vocabulary*)

“I learned a lot of American slang and so many practical phrases from the

*Friends* series.” (vocabulary)

“I will try to use the words I’ve learned from the video, *The Simpsons*.”  
(vocabulary & planning)

According to the written responses, SAC visitors indeed noticed their betterment of English and autonomy development in the process of conducting self-directed learning. Nevertheless, merely 120 valid replies were collected through the end-of-visit online survey while a great number of students misunderstood the tenth question in it and wrote down nothing about what they have learned from the program they used that time. Some of them criticized the deficiency of hardware and software equipment in the self-access center, some of them complimented SAC assistants on their kind and professional help, and some of them approved of the learning materials with vaguely worded statements such as “*Emergency Room* is great!” “*Friends* is funny!” and “*CNN News* is useful.” Those responses reflected neither learners’ language gain in particular aspect nor their autonomous learning behavior or awareness, which indicated that Q10 in the present questionnaire needed modifying. The revised question item is provided below to gather more valid, easy-to-answer, and easy-to-analyze data.

10. Write down the program you used this time, pick up at least one of the following aspects you have improved by using it, and elaborate on the aspect you mark with some examples or a brief description. Thanks for your kind help.

The program I used and evaluated this time is \_\_\_\_\_.

What I have learned from this program is...

- ☐ Vocabulary \_\_\_\_\_
- ☐ Grammar \_\_\_\_\_
- ☐ Culture \_\_\_\_\_
- ☐ Listening \_\_\_\_\_
- ☐ Speaking \_\_\_\_\_

<input type="checkbox"/> Reading	<hr/>
<input type="checkbox"/> Writing	<hr/>
<input type="checkbox"/> Others	<hr/>

Precisely, specific aspects of learners' language gain are provided to avoid misunderstanding about the question and to facilitate data collection as well as data analyses. In this way, students can evaluate their own learning in the desired direction and they will be able to think deeper about what they have learned with the help of those aspects as hints. Second, we can synthesize the valid responses to language learning and then classify them into different aspects of autonomous learning simultaneously. Third, students are asked to fill in the program they evaluate since some participants in the study mentioned that they used more than one learning program during their stay in the SAC. However, their written replies could not match with the program they evaluated because the system recorded only one program instead of all the programs they used. To solve the problem of incorrect record, a blank for the exact learning software students evaluate is therefore included.

#### **4.1.3 Interaction between autonomous learning and learning styles**

After analyzing the data from end-of-visit surveys, end-of-semester questionnaires, and semi-structured interviews, we found out participants' favorite and least favorite learning programs, their most frequently used software, specific reasons for their regular visits, and their general evaluation of the SAC. Based on these pieces of information, the study took a step further to examine the relationships between SAC visitors' learning style preferences and their gender, field of study, program choice, frequency of visit, proficiency level, achievement test performance etc by Minitab 18. Pearson correlation analysis as well as Kruskal-Wallis test in nonparametric statistics was adopted to look into the interplay between ten learning styles and those factors. First of all, the average of each learning style was calculated



from the 30-item 5-point-Likert-scale learning style questionnaires. The thirty items cover ten learning styles which are field dependent-field independent (Q1, 11, 21), field sensitive-field insensitive (Q2, 12, 22), leveler-sharpener (Q3, 13, 23), global-particular (Q4, 14, 24), impulsive-reflective (Q5, 15, 25), synthetic-analytic (Q6, 16, 26), analogue-digital (Q7, 17, 27), concrete-abstract (Q8, 18, 28), random-sequential (Q9, 19, 29), and inductive-deductive (Q10, 20, 30). A total of 440 students' responses to the questionnaire were added up to get the average for each style, and then the averages were used for correlation analysis. If any statistically significant correlation was found, Kruskal-Wallis test was applied to see whether learning styles really exerted differences to the factor (Akplotsyi & Mahdjoubi, 2011; Ali, 2011). For example, we could speculate that learners from different fields of study had different learning style preferences when a significant H-value was found between fields of study and learning styles via Kruskal-Wallis tests. Additionally, the data were classified into interval, ordinal, and nominal ones. For the previous two such as achievement tests scores and frequency of visits, correlation analysis, which is applied when comparing two continuous variables or non-nominal data, was firstly employed and the significant results were further analyzed by Kruskal-Wallis tests. Nominal data like field of study, gender, and program choice, which has no real scale and no higher or lower value, cannot be analyzed through linear correlation analysis; thus we applied Kruskal-Wallis tests to it directly. In fact, Kruskal-Wallis test, which is used for comparing more than two independent or irrelevant samples — 440 students taking the learning style questionnaire, 440 independent and irrelevant samples in the current study — is like ANOVA in nonparametric statistics (Keller & Warrack, 2003; Thyer, 2010). It can be applied to examine whether nominal data — gender, department, college, placement, frequency groups, program choices — is an important factor to

ordinal data — the ten learning styles. If any significance is found between nominal-data factor and ordinal samples, it indicates that the difference of the ordinal samples is related to the nominal-data factor. That is, the difference of the nominal-data factor influences the difference of ordinal samples. Kruskal-Wallis test can also be applied to analyze interval, ordinal, and nominal data all together, hence probing into the impact of each factor on each learning style respectively in a valid way.

To see if students' language achievement accumulating from visiting Pu101 correlated with their learning style preferences, we analyzed their scores of *Freshman English* exam which consisted of listening and reading parts in Table 4.12. The coefficients show that learners' learning styles were not significantly related to their listening, reading, and total scores of the achievement test. However, statistically significant relationships between the three test scores and students' frequency of visits were found. Although the correlation coefficient was low, which might be due to the great number of participants' diluting effect, it still revealed that learners' frequency of visits to the SAC instead of learning styles made a major difference to their test performance. In other words, the more frequently learners visited the SAC, the better they performed on their *Freshman English* tests, inclusive of both reading and listening aspects.

**Table 4.12 Correlation between Achievement Test Scores and Learning Styles**

	FD & FI	FS & FI	Lev. & Sha.	Glo. & Par.	Imp. & Ref.	Syn. & Ana.	Ana. & Dig.	Con. & Abs.	Ran. & Seq.	Ind. & Ded.	Freq.
Listening	-.054	-.009	-.039	-.058	-.002	-.013	.063	.080	-.033	.065	.113*
Reading	-.072	-.045	-.038	-.071	-.021	-.000	.051	.054	-.075	.081	.109*
Total	-.075	-.025	-.045	-.068	-.005	-.004	.064	.071	-.054	.076	.118**

*Note: \*p-value < 0.05 and \*\*p-value < 0.01*

Since frequency of visit had been proven to play an important role in learners' test performance, the second phase aimed to ascertain whether frequent visitors tended to possess certain learning styles, that is, whether specific learning styles correlated with students' frequency of visits in a positive way. Accordingly, participants who voluntarily took the learning style questionnaires at the end of spring semester 2011 were divided into four subgroups. Group one was composed of 217 students who visited the SAC less than or equal to ten times. Group two consisted of 175 students who had visited the SAC for eleven to twenty times. Group three was made up of 48 students who visited the SAC more than twenty times, and group four comprised 440 students as a whole. Learners were hence grouped into low, medium, and high frequency classes, which enabled us to compare the possible differences emerging from different frequency of visits along with learning styles. Surprisingly, only inductive-deductive learning style positively correlated with group four at a statistically significant level, as Table 4.13 reveals. Unlike our initial hypothesis that learners with particular learning styles may visit Pu101 to conduct self-access learning more often or less often than their counterparts, learning style preferences actually did not exert any difference in our participants' frequency of visits to the SAC, except for inductive-deductive learning style at a low correlation coefficient.

**Table 4.13 Correlation between Frequency of Visits and Learning Styles**

<b>Groups (N)</b>	FD & FI	FS & FI	Lev. & Sha.	Glo. & Par.	Imp. & Ref.	Syn. & Ana.	Ana. & Dig.	Con. & Abs.	Ran. & Seq.	Ind. & Ded.
One (217)	.034	-.010	.022	.027	.068	.035	.096	.059	.031	.103
Two (175)	-.040	-.007	-.052	.015	-.017	-.047	-.111	-.075	-.072	-.105
Three	.028	.010	-.129	-.128	-.105	.052	.034	-.101	-.044	-.075

(48)										
Four (440)	.030	-.005	-.003	-.008	-.018	.080	.073	.089	.001	.136**

Note: \*  $p$ -value < 0.05 and \*\*  $p$ -value < 0.01

Although frequency of visit and learning styles were not generally related, a significant correlation coefficient was found between placement and it, as shown in Table 4.14. Placement refers to students' varied proficiency levels at the time when they were divided into different *Freshman English* classes, including advanced, intermediate high, intermediate low, and basic levels. Another two significant correlations with field dependent-independent and global-particular learning styles were identified as well. Namely, field dependent-independent and global-particular learning styles negatively correlated with students' placement at a low correlation coefficient while frequency of visits positively correlated with it at a low correlation coefficient. This implies that students who were grouped into higher proficiency levels visited the SAC more often, while students who were grouped into lower proficiency levels visited the SAC less frequently.

**Table 4.14 Correlation between Placement and Learning Styles**

	FD & FI	FS & FI	Lev. & Sha.	Glo. & Par.	Imp. & Ref.	Syn. & Ana.	Ana. & Dig.	Con. & Abs.	Ran. & Seq.	Ind. & Ded.	Freq.
Pla.	-.097*	-.028	-.059	-.094*	-.027	-.030	.025	.065	-.061	.056	.160**

Note: \*  $p$ -value < 0.05 and \*\*  $p$ -value < 0.01

After dealing with interval and ordinal data via Pearson correlation analysis, the study applied Kruskal-Wallis tests not only to ascertain those significant correlation items in frequency and placement factors but also to examine the relationships between learning styles and nominal data like gender, department, college, and program choice. In addition, one of the factors, frequency of visit, was changed from interval data into nominal data. That is, the number students visited the SAC was

classified into low, medium, and high frequency groups to gain more valid results through Kruskal-Wallis test. Table 4.15 displays the H-value and degree of freedom.

As we can see, there were statistically significant differences in random-sequential learning style between different genders, in concrete-abstract learning style between various colleges, and in inductive-deductive learning style between frequency groups. The finding reveals that preferences for particular learning modes differed profoundly between different genders, colleges, and frequency groups when it comes to random-sequential, concrete-abstract, and inductive-deductive learning styles respectively. In detail, departments and colleges represented students' fields of study, but interestingly the significant coefficient simply appeared in the college category rather than the department one. This may be due to college is more characteristic of learners' specific learning preferences than department; after all, several similar departments belonged to the same college. Furthermore, inductive-deductive learning style not only positively correlated with students' frequency of visits but also reached statistical significance in Kruskal-Wallis test. This indicates that both a linear relationship and a causal relationship to some degree existed between them. Learners' different frequency of visits seemed to be influenced by their inductive-deductive learning style notably.

Nevertheless, no significant difference was observed among the rest of learning style pairs. Although field dependent-independent and global-particular learning styles significantly correlated with students' placement, those two learning styles did not function as influential factors to exert differences among the four placement groups as the results of K-W tests showed. This means a linear relationship indeed existed between placement and the two learning styles; however, we cannot determine whether they had an effect on students' varied proficiency levels, and vice versa.

Furthermore, to clarify the relationship among the ten learning styles and the SAC visitors' program choices, the study classified participants' learning software records into nine categories which comprise grammar, reading, listening, speaking (chat room), simulated tests, videos, magazines, and other versatile programs. As we can see, those visitors' program choices did not correspond to their learning style preferences at a statistically significant level.

**Table 4.15 Kruskal-Wallis Tests: Gender, Field of Study, Placement, Frequency, Program Choice versus Learning Styles**

<b>Factors</b>	FD & FI	FS & FI	Lev. & Sha.	Glo. & Par.	Imp. & Ref.	Syn. & Ana.	Ana. & Dig.	Con. & Abs.	Ran. & Seq.	Ind. & Ded.	<i>df</i>
Gender	0.00	0.12	0.73	0.35	0.45	0.78	0.99	0.04	7.83**	0.08	1
Department	25.25	24.57	25.93	30.20	23.60	24.30	24.06	23.97	31.40	26.08	27
College	2.64	7.15	4.05	8.89	4.74	6.88	11.88	14.07*	6.98	9.47	7
Placement	4.00	1.25	3.33	5.08	4.26	1.14	1.11	3.36	1.38	1.78	3
Frequency	1.45	0.09	2.19	1.29	0.86	2.82	2.45	3.34	2.07	8.70**	2
Program	12.62	9.08	13.71	5.90	5.09	6.54	8.08	9.23	5.92	9.45	8

*Note:* \*  $p\text{-value} < 0.05$  and \*\*  $p\text{-value} < 0.01$

However, the H-value between participants' program choices and their frequency of visits as well as achievement test scores reached statistic significance in the Kruskal-Wallis tests with  $p\text{-value}$  .05 and .01 respectively. In other words, college students' improvement on language and the time they spent utilizing the self-access center indeed differentiated their choices of certain learning software, as Table 4.16 indicates.

**Table 4.16 Kruskal-Wallis Tests: Placement, Frequency, Achievement Test Scores versus Program Choice**

	Frequency	Listening	Reading	Total	Placement
Program	19.20**	14.98	13.68	15.72*	13.19

*Note:* \*  $p\text{-value} < 0.05$  and \*\*  $p\text{-value} < 0.01$

## **4.2 Discussion**

Since empirical data on self-access learning in an EFL environment like Taiwan is rather scarce, the present study tried to suffice for its longitudinal observation and offer deeper interpretation of adult EFL learners' autonomous learning in the computer-assisted SAC with an emphasis on their learning styles' influence. By triangulating both the quantitative and qualitative data collected from different instruments, major findings to the research question were summarized. The first section will generally describe learners' autonomous learning in Pu101 while the second part will focus on the extent to which learners' learning styles correlate with their autonomous learning, in terms of their proficiency level, frequency of visit, etc.

### **4.2.1 General description of EFL learners' autonomous learning in the SAC**

On the whole, adult Taiwanese EFL learners from fall semester 2010 and spring semester 2011 expressed positive attitude towards acquiring English through visiting the computer-assisted self-access center, owing to the cozy environment, abundant resources, and feasibility of individualization it entails (Chan & Kim, 2004; Figura & Jarvis, 2007; Lin, 2010; Ning, 2008; Palfreyman, 2001; Reinders, 2000; Reinders, 2007; Wang, 2006). Interviewees further elaborated that free air conditioning, quietness and motivating atmosphere made the classroom a comfortable and productive learning environment. Versatile learning programs designed for all four skills were also highlighted since learners appreciated the convenient access to improving their self-diagnosis weakness in English acquisition. With these efficient instruments, self-paced independent learning with favorable materials at preferable time slot was therefore achieved. Pursuant to Chan and Kim's (2004) research, students at the national university of Singapore attended a virtual self-access center named "e-daf" to learn German, hence developing learner autonomy and becoming

aware of their own preferences in language learning with the assistance of interactive language exercises on the Internet. More recent studies done by Ning (2008) and Lin (2010) also accredit college students' autonomous learning behavior to a resourceful computer-assisted self-access center. The current study reveals similar results that learners' frequent visits to the SAC and their conscious behavior to select specific time and material for improving English embody autonomous and individualized learning, which augment previous claims.

Positive attitude towards self-access learning not simply boosts learner autonomy but also nourishes language achievement, as Mahmoudi *et al.* (2012) confirmed in the eighth International Language for Specific Purposes (LSP) seminar. Thirty Iranian postgraduate students attending an intensive English course in Malaysia were recruited in the research; attitude questionnaires along with pre- and post-vocabulary tests were implemented to examine the relationship between attitude and linguistic gain. Findings showed that learners with positive attitude towards computer-assisted self-access learning tended to perform better on vocabulary tests than their counterparts. In line with this, Lin's (2010) study pointed out the most significant difference between frequent and infrequent visitors to the SAC lay in their attitudes towards the facility. The former possessed positive attitudes while the latter held negative ones, which impacted on their frequency of visits and linguistic improvement afterwards. Since our participants enjoyed their learning in the self-access center, improvements in listening, speaking, reading, writing, vocabulary, critical thinking, evaluation skills, and western culture enhancement were reported. Among them, listening comprehension appeared to be the most-cited language gain; to be specific, around 80% of the interviewees and 16% of the participants felt their betterment of English listening after visiting the SAC either through self perception or



end-of-semester *Freshman English* exams and other proficiency tests like GEPT, which echoes many others' results (Cheng, 2006; Koyalan, 2009; Lin, 2010; Lu & Zhang, 2012; Wang, 2006; Zou, 2006). Take the most recent Lu and Zhang's (2012) study for example. To investigate whether EFL learners' use of the computer-based self-access language center helps improve their English learning, the researchers invited 117 Chinese sophomores from a technology university in Hubei to evaluate the effectiveness of the center as well as their learning outcome. Over ninety percent of those students, who received two-year-long SAC learning, apparently showed much more confidence in their listening ability, which was proved true via the significant correlations existing between participants' satisfaction of the SAC and their self-perceived improvement in listening comprehension.

Furthermore, watching movies in the SAC served as the major mode for most learners, for example, 55 out of 70 interviewees, to improve their English listening in a rather relaxing and entertaining way. Without a doubt, the most-frequently-used and also most favorite learning program selected by those visitors was accordingly the multimedia resources like *Friends*, *Emergency Room*, and old movies. This has been unanimously proven correct throughout different sources of data from end-of-semester questionnaires (66% in fall semester 2010 and 81% in spring semester 2011), online surveys (80% in fall semester 2010 and 78% in spring semester 2011), and semi-structured interviews (65 out of 70 interviewees). Many of them further pointed out that both English and Chinese subtitles efficiently facilitated their listening comprehension of the content and their acquisition of the language, in consonance with the prevalent SLA theory which has been examined in a number of empirical studies (Chen, 2011; Diao *et al.*, 2007; Hayati & Mohmedi, 2011; Tsai, 2010). Those researchers agree that videos and films are motivational visual and aural

stimuli especially to foreign language learners, and that synchronized subtitles can be great supporting tools to help students reduce their cognitive loads, lower their anxiety levels, and elevate their listening comprehension while they are tackling authentic video clips. The experimental design of those classic examples consisted of two experimental groups and one control group. The previous two received videos with either L1 or L2 subtitles while the latter contained aural input only. Results indicated that participants in experimental groups with either L1 or L2 subtitle treatments significantly outperformed the control group in listening comprehension, sometimes even along with vocabulary gain and reading improvement. Such phenomenon highlights the importance of visual aids—subtitles when EFL learners receive aural input from movies produced in the target language. Briefly speaking, the present study continues adding evidence to the belief that EFL learners acquire colloquial expressions, daily conversation, slangs, useful vocabulary, and western culture more successfully in the interesting and authentic contexts of video series, and simultaneously promote their listening comprehension without pressure. If online dictionaries and notes documenting spoken English can be included, video watching can be even beneficial to learners' listening enhancement as well as vocabulary enlargement, as participants stated in the interviews and questionnaires. As for culture infiltration, participants stated that they enjoyed knowing more about the target culture by watching subtitled American sitcoms, as reported by Lin (2010), Ning (2008), and Wang (2006).

After discussing the link between self-access learning and autonomy development, the area students making notable improvement in English, and the main approach they adopted to sharpen their listening, it is high time to talk about the inadequacy of the SAC so as to expand the current resources and ameliorate the

present weaknesses. Although it is obvious that self-access learning benefits learners' listening capacity, the influence it exerts on other language skills seems to be rather insignificant. Basically, EFL students tend to gain more confidence in their perception than their production performance via acquiring English in the center (Hsieh, 2010; Koyalan, 2009; McDonough & Sunitham, 2009; Zou, 2006). According to Hsieh (2010), both beginning users and non-beginning users of a SAC in Taiwan judged their improvement in English listening to be greater than in writing while the latter appeared to beware of and acquire appropriate English usage more often. Additionally, McDonough and Sunitham (2009) investigated whether EFL undergraduates in Thailand remembered language forms via learning with self-access computer activities. Results indicated that collaboration created opportunities for participants to use English talking about English, and that their language-related episodes included lexical items more often than grammatical forms. Nevertheless, those Thai learners' test performance showed they only remembered less than half of the lexical items and one-third of the grammatical forms, which meant learners' production performance on tests did not correspond to their perception performance. The researchers thus pointed out that the low retention rate might result from inconsistency between self-access and in-class learning materials. Being lacking in repetition and reinforcement of the self-access materials in class diminished the effectiveness of self-access learning activities. For the lack of teachers' instruction that Taiwanese students have long relied on to absorb knowledge, which shows Asian students' passive disposition to accept teachers as the authority figure proving knowledge (Cheng, 2000; Littlewood, 1999), self-study materials thus pose greater difficulty for them to utilize effectively, just as Cheng and Lin (2010) said. In their study, 350 Taiwanese college students with varied proficiency levels received extensive English reading in a self-access learning

environment to actively participate in their own learning instead of being passive recipients of information. Regardless of overall positive attitude towards the innovative learning mode, those students lacked confidence in their comprehension of both the content and the language forms. A call for teachers' guidance and soft requirements such as regular quizzes was hence proposed to achieve better learning outcomes. The same issue was discussed in Adnan and Zamari's (2012), Mazzon-McPherson's (2007), and Zamari *et al.*'s (2012) studies as well. Take Zamari *et al.*'s (2012) study for example. 97 college students in Indonesia were involved in web-based self-access language learning and required to take questionnaires recording their feedback. Their feedback was then categorized into six main aspects: frequency of website visits, learning material choices, recommendation for future improvement, challenges they encountered, opinions about the task's effectiveness, and their initiatives to access these websites. Major findings showed that online self-access learning motivated and facilitated adult English learners' learning through allowing them to tackle language tasks at their own pace. Nonetheless, lousy internet connection along with inconsistent and inappropriate choices of web-based learning materials hindered students' progress. That is, stable connection and standardized selection of materials must be available for students to maximize the use of online self-access resources. Relating to the present study, our participants also called for more advanced equipment and more informative explanations for software operation to acknowledge and guide the SAC visitors in choosing suitable materials. To sum up, a self-access center is supposed to meet five basic criteria, as stated in Adnan and Zamari's (2012) theoretical paper. First, the e-learning self-access English materials must cater to learners' needs. Second, technical issues concerning design and operation can be resolved by experts with computer programming background.

Feasibility of achieving learner autonomy, in-built assessment component, and potential of sustainability are among the rest of three criteria. In other words, the suggestions we obtained from the end-of-semester questionnaires and interviews gave Pu101 channels to know more about visitors' needs and the technical problems necessary to be solved without delay. In this way, the self-access classroom can always change with time and facilitate different learners' English learning effectively.

#### **4.2.2 Relationships between autonomous learning and learning style preferences**

The present study applied correlation analyses and Kruskal-Wallis tests to examine the relationships between these two factors by looking into participants' ten learning styles along with their achievement test scores, frequency of visits to the self-access center, *Freshmen English* placement, gender, fields of study, and program choices. On the whole, college EFL learners' learning style preferences did not exercise significant influence on their autonomous learning in the SAC, which echoes Yuan and Lin's (2012) findings that EFL freshmen's preferences for learning have no impact on their varied proficiency levels and frequency of visits to the self-access classroom. Similarly, no generally significant correlation was observed between learning styles and proficiency levels as well as frequency of visits in the current study, except for a few pairs concerning placement and field dependent-independent, global-particular learning styles, or frequency and inductive-deductive learning style. To be specific, a negative correlation exists between placement and those preferring selecting and prioritizing information or those treating the whole context as the same. Another negatively correlated relationship appears between placement and those processing information either in a top-down or bottom-up way. A starkly positive correlation was also found between frequency and those starting with details and facts to form hypotheses or those following principles and theories to apply them to

examples when they absorb new knowledge. However, the three pairs all belonged to low correlation, indicating that learners' diverse proficiency levels correlate with their learning styles and frequency of visits at a low level.

In regard to participants' varied proficiency levels, the study examined this domain by looking into their achievement test scores and *Freshman English* placement. The former consists of listening, reading and total scores while the latter includes advanced, intermediate high, intermediate low, and basic levels so as to discriminate learners' autonomous learning behavior based on their preferable learning styles. Although previous studies suggested that beginning-intermediate learners favored aural learning styles more than the advanced ones (Lincoln & Rademacher, 2006) and that students with higher English background knowledge tended to adopt more strategy-orientation and process-orientation learning styles than their counterparts (Srichanyachon, 2011), there seems to be no statistical evidence proving that high language achievers possess certain learning styles or outperform their peers on autonomy development and achievement tests in the present study. Ghapanchi and Dashti's (2011) investigation added evidence to our claim by outlining that varied levels of impulsive learning styles did not influence Iranian sophomores' reading comprehension performance. An early inquiry into the same issue done by Soo and Ngeow (1998) also pointed out that ESL undergraduates' different learning styles—visual, auditory, kinesthetic—exercised no difference on their TOEFL scores. As for the frequency participants visited the SAC, the study classified the number of visits into four categories—low, medium, high, and overall—to investigate whether frequent visitors acquire English in a different way from the infrequent ones. Apparently, students' learning style preferences did not differentiate their frequency of visits to the SAC, but frequency of visits positively correlated with learners'

placement and test performance. That is, the more often students visited the SAC, the higher their proficiency levels were in the *Freshman English* courses and the higher scores they gained on the follow-up achievement tests. Nevertheless, both pairs belongs to low correlation and this indicates that frequency correlates with placement and test scores to a rather less extent.

Aside from deciphering the complex relationship between learning styles as well as proficiency levels and frequency of visits via correlation analyses, gender, field of study, and program choices were also taken into consideration in the follow-up Kruskal-Wallis tests. The results primarily show that these three elements of SAC visitors do not identify with specific learning styles, except for two pairs — gender and random-sequential learning style, field of study and concrete-abstract learning style. Several researchers asserted that male students differed significantly from female students over their favorable modes of learning (Lincoln & Rademacher, 2006; Srichanyachon, 2011; Yuan & Lin, 2012) such as that females preferred auditory and multimodal learning styles whereas males favored note-taking learning style, that females employed more learning styles than males, or that difference existed between gender and analogue-digital as well as random-sequential learning styles; nonetheless, the present study do not reveal similar results. Though a statistical difference was found between gender and random-sequential learning style, the rest of nine learning styles did not distinguish male learners from the female ones. This indicates that female and male students tend to process information in different ways; one extreme is to follow their internal order whereas the other is to adopt externally provided steps. However, there is not enough evidence to infer that a difference in learning styles exists between different genders. Males and females generally acquire English without recognizable differences throughout the most of learning styles, in keeping

with Lu and Zhang's (2012) findings that no significant gender differences were observed in Chinese college students' perceptions and preferences of learning software and its content design in a self-access center.

Secondly, participants' major departments and colleges were analyzed to examine whether their fields of study interacted with certain learning styles. A significant pair—field of study and concrete-abstract learning style—were highlighted, but the other nine learning styles did not reach any statistical significance with the factor. There is not enough evidence to infer that a difference in learning styles exists between different fields of study. Namely, EFL learners majoring in different subjects are not necessarily in favor of particular modes of learning, only when those who prefer using English in real communication directly or studying the language's underlying system are involved. According to Srichanyachon (2011), field of study has no impact on EFL Thai undergraduates' preferable learning styles. Nevertheless, Psalyou-Joycey and Kantaridou (2011) argued that Greek undergraduates across eight fields of study inclined to possess distinct preferences for handling English tasks. Such is the divergence between the two standpoints that more studies are needed to verify which commentary is rather solid. In addition to further investigation, the way data is analyzed can be advanced as well. That the study adopted Kruskal-Wallis tests to analyze the nominal data may account for the opposite results.

Thirdly, participants' learning software records were classified into nine categories—grammar, reading, listening, speaking, simulated tests, videos, magazines, and other versatile programs—to see whether SAC visitors with certain learning styles tend to choose certain learning programs more often. According to Liu and Reed (1994), field-dependent learners favored watching videos to conduct language learning when compared with their field-independent counterparts. Surprisingly, our



SAC visitors' program choices did not correspond to their learning style preferences at a statistically significant level. There is not enough evidence to infer that a difference in learning styles exists between different program choices, which violates the pervasive belief that multimedia resources serve as tailored materials for individual learners and accommodate their different learning styles (Brett, 1997; Liu & Reed, 1994). The result may seem to be disappointing; however, it implies an exhilarating possibility that self-access learning and various software available in Pu101 suits a broad variety of language learners, as stated in Nilsson *et al.*'s (2012) study. Since all sorts of learners can benefit from learning English with diverse software in the SAC, no statistical difference was shown among learning style preferences and program choices. Last but not least, significant p-value between program choices and frequency of visits as well as achievement test scores was found, revealing that college students' choices of learning software indeed differentiate their test performance and the number of times they visited the self-access center.

## **CHAPTER FIVE**

### **CONCLUSION**

This chapter encompasses a brief summary of major findings, pedagogical implications for language teachers and SAC managers, limitations of the current study, and directions for future research.

#### **5.1 Summary of Major Findings**

The study suffices to document adult EFL learners' autonomous learning via long-term observation with an aim of examining the extent to which learning style preferences correlate with their autonomy development in the self-access center. Both quantitative and qualitative data from end-of-visit online survey, end-of-semester questionnaire, learning style questionnaire, and semi-structured interview were analyzed to gain comprehensive results.

Generally speaking, those undergraduates visited the SAC on a frequent basis owing to its cozy environment, abundant resources, and feasibility of individualization. That is to say, the quietness and motivating atmosphere make the self-access classroom a productive learning environment; versatile learning programs covering four language skills facilitate students' improvement on their self-diagnosis weakness in English acquisition. Self-paced independent learning with favorable materials at preferable time slot is therefore achieved, which augments previous researchers' claims (Chan & Kim, 2004; Figura & Jarvis, 2007; Lin, 2010; Ning, 2008; Palfreyman, 2001; Reinders, 2000; Reinders, 2007; Wang, 2006).

In addition to fostering learner autonomy, self-access learning also contributes to substantial language gains in listening, speaking, reading, writing, vocabulary, critical thinking, evaluation skills, and western culture enhancement. Among them, betterment of listening comprehension reported by 80% of the interviewees and 16%

of all the participants is most cited, which echoes Lu and Zhang's (2012) and Lin's (2010) findings. The secret to their improvement lies in regularly watching movies with synchronized English and Chinese subtitles, which reduce EFL learners' cognitive loads and elevate their listening comprehension (Chen, 2011; Diao *et al.*, 2007; Hayati & Mohmedi, 2011; Tsai, 2010). Multimedia resources such as *Friends*, *Emergency Room*, and old movies hence serve as motivational visual and aural stimuli, helping EFL learners acquire English in a relaxing and entertaining way.

After describing Taiwanese college students' self-access autonomous English learning as a whole, the study took a step further to look into the relationships between autonomous learning and learning style preferences. Different from previous assertion that individuals with varied proficiency levels adopt different modes of learning (Lincoln & Rademacher, 2006; Srichanyachon, 2011), no statistically significant correlation coefficient was found between the two elements in the present study. High language achievers do not necessarily possess specific learning styles or outperform their peers on autonomy development and achievement tests, which is in line with Ghapanchi and Dashti's (2011), Soo and Ngeow's (1998), and Yuan and Lin's (2012) results. Aside from proficiency levels, participants' frequency of visits did not correlate with their learning styles either. No distinct preferences for learning were observed to distinguish frequent visitors to the SAC from their infrequent counterparts. Interestingly, frequency of visits positively correlated with students' placement and test performance at a statistically significant level. The more often students visited the SAC, the higher their proficiency levels were in the *Freshman English* courses and the higher scores they gained on the follow-up achievement tests.

As for nominal data like gender, field of study, and program choices, Kruskal-Wallis tests were implemented to probe into their interaction with learning

style preferences. In fact, these three elements do not identify with particular learning styles, except for two pairs—gender and random-sequential learning style, field of study and concrete-abstract learning style. Although it is believed males differed starkly from females over their favorable modes of learning (Lincoln & Rademacher, 2006; Srichanyachon, 2011; Yuan & Lin, 2012), no similar result was revealed in our study. Nine out of ten learning styles did not differentiate male and female EFL learners' autonomous learning in the SAC. Second, whether field of study functions as an influential factor in EFL learners' language learning remains controversial—some contended a positive link (Psalyou-Joycey & Kantaridou, 2011) whereas some disapproved it (Srichanyachon, 2011). Our participants from different fields of study, which consist of their major departments and colleges, do not prefer certain styles of learning, except for concrete-abstract learning style. Finally, the study related SAC visitors' program choices ranging from reading, listening, speaking, grammar, to simulated tests, magazines, and videos to their learning style preferences, but no statistical significance was found. In contrast to previous belief that multimedia resources elicited and accommodated individuals' different styles of learning (Brett, 1997; Liu & Reed, 1994), our participants with diverse learning styles seem not to employ particular learning programs more frequently. However, the unexpected result implies that all sorts of language learners benefit from self-access learning and that various software suits individual needs without noticeable difference, as Nilsson *et al.* (2012) stated. Despite the fact that no significant p-value was shown between program choices and learning styles, significant ones were observed with frequency of visits and achievement test scores. Put another way, students' choices of learning software differentiate their test performance and the number of times they visited the self-access center.

## 5.2 Pedagogical Implications

In recent years, research concerning self-access learning has gradually gained popularity in Taiwan, especially at university level (Cheng, 2006; Cheng & Lin, 2010; Lin, 2010; Ning, 2008; Wang, 2006; Yang, 2003). The trend can be attributed to the general call for independent and autonomous learning during education reforms. Students can no longer rely on teachers as their only channel for knowledge; they must take responsibility for their own learning to survive in such an information-explosion era. Thus, the present study not only provides constructive suggestions for SAC managers to better operate the institution, Pu101, but also serves as a stepping stone to introduce self-access centers to high schools in the near future.

First of all, participants' perception skills like listening and reading apparently outperformed their production skills like writing and speaking after visiting the SAC, which indicates the inadequacy of both training and evaluating resources available for students to take advantage of. More learning programs oriented towards English composition and communication, counseling services such as grading SAC visitors' writing online, and private rooms for oral practice need expanding to offer learners instant feedback or avoid unnecessary embarrassment while speaking the unfamiliar target language. Another software-related requirement is updating multimedia materials including films and videos for students to acquire ongoing real-life expressions and tackle trendy issues in authentic English.

The second concern centers on equipment and management of the SAC. To better utilize the learning resources in it, learners suggest facilities be repaired or replaced on a regular basis. Our interviewees reported that they encountered obstacles and felt annoyed when headphones, recording gadgets, or computers broke down. In addition, explicit instructions on how to use learning programs along with its main

topic, difficulty level, and skills involved should be labeled to maximize visitors' learning efficacy.

Last but not least, participants' learning styles exert no statistically significant influence on their autonomous learning in the SAC, revealing that different learners with diverse needs and preferences all benefit from the self-access learning in Pu101. Our findings conform to Gardner and Miller's (1999) as well as Miller *et al.*'s (2007) affirmation that self-access center is so flexible that it can be applied to all learning levels, inclusive of the teacher-directed context. In order to narrow the gap between high and low language achievers and take good care of individual learner's needs such as their learning styles when twelve-year compulsory education administered, we recommend secondary school teachers adopt self-access learning to facilitate and augment their students' individualized English learning.

### **5.3 Limitations and Directions for Future Research**

Both quantitative and qualitative data were collected longitudinally in the current study to decipher adult EFL learners' autonomous learning in a CALL SAC; nevertheless, the information is largely self-reported and lacking in convincing support from standard proficiency tests like *TOEFL* and *GEPT*. The overall administration of standard proficiency tests at the beginning and the end of each semester to objectively gauge students' growth in language skills can elicit even more valid and reliable results.

In agreement with Lin's (2010) and Ning's (2008) criticism that students' responses to the open-ended questions were largely null and void, a great number of our participants' written replies to the question "What I have learned" were also invalid. Accordingly, a modified rubric for the item was proposed to elicit more meaningful and easy-to-analyze data from learners and to guide them reflect deeper

upon what they have learned with the assistance of explicit aspects as hints. Further investigation via adopting the new instrument to evaluate SAC visitors' learning outcomes is therefore encouraged to verify its promising effect.

Another limitation mainly concerns the data collection process. Since this is a long-term documentation by a few SAC assistants' help, information was recorded in an inconsistent way. In the process of classifying and analyzing the data, the researchers were often faced with difficulties matching numerous items which were filed in totally different formats or orders. As a result, it is inevitable to avoid data missing or discrepancy. Future researches can establish a unified coding system so that data can be saved in a rather consistent way.

Finally, participants involved in the study were all freshmen. Future studies can recruit students from different age groups to see if self-access learning's efficiency increases or decreases as learners grow older. Moreover, comparing senior high students and undergraduates' varied autonomy development in the SAC may provide teachers with inspiring ideas to enlighten their students in a different way.

## REFERENCES

- Adnan, A. H. M., & Zamari, Z. M. (2012). Computer-aided self-access language learning: Views of Indonesian, Malaysian & New Zealand Practitioners. *Social and Behavioral Sciences*, 67, 49-60.
- Akplotsyi, R. & Mahdjoubi, L. (2011). Effects of learning styles on engaging children in school projects. In: Egbu, C. & Lou, E.C.W. (Eds.) *Procs 27th Annual ARCOM Conference*, 5-7 September 2011, Bristol, UK, Association of Researchers in Construction Management, 331-339.
- Ali, S. (2011). Investigating students' main learning style preferences. *Arab World English Journal*, 2(2), 71-90.
- Allwright, D. (1990). Autonomy in language pedagogy. CRILE Working Paper 6. University of Lancaster: Centre for Research in Language Education.
- Bailey, K. M. (1980). An introspective analysis of an individual's language learning experience. In Scarcella, R. and Krashen, S. (Eds.), *Research in Second Language Acquisition: Selected Papers of the Los Angeles Second Language Acquisition Research Forum* (pp. 58-65). Rowley, MA: Newbury House.
- Barnett, L., & Jordan, G. (1991). Self-access facilities: What are they for? *ELT Journal*, 45(4), 305-313.
- Benson, P. (2001). *Teaching and researching autonomy in language learning*. London: Longman.
- Benson, P. (2005). (Auto)biography and learner diversity. In Benson & Nunan (eds.), 4-21.
- Benson, P. (2006). Autonomy in language teaching and learning. *Language Teaching*, 40, 21-40.
- Biggs, J 1996. Western misperceptions of the Confucian-heritage learning culture in Watkins D and J Biggs (Eds) *The Chinese learner: cultural, psychological and contextual influences* (45-67). Hong Kong and Melbourne: CERC & ACER
- Blin, F. (2005). CALL and the development of learner autonomy: An activity theoretical study. Unpublished doctoral dissertation, The Open University, U.K.
- Borg, S., & Al-Busaidi, S. (2011). Teachers' beliefs and practices regarding learner autonomy. *ELT Journal*, 66, 283-292.
- Brett, P. (1997). A comparative study of the effects of the use of multimedia on listening comprehension. *System*, 25(1), 39-53.
- Brown, H. D. (2000). *Principles of Language Learning and Teaching* (4th ed.). New York: Longman.
- Carson, J. G., & Longhini, A. (2002). Focusing on learning styles and strategies: A



- diary study in an immersion setting. *Language Learning*, 52(2), 401-438.
- Chan, W. M., & Kim, D.-H. (2004). Towards greater individualization and process-oriented learning through electronic self-access: Project "e-daf." *Computer Assisted Language Learning*, 17(1), 83-108.
- Chanock, K. (2004). Autonomy and responsibility: same or different? Proceedings of the Independent Learning Conference 2003.
- Chapelle, C. A., & Heift, T. (2009). Individual learner differences in CALL: The field independence/dependence construct. *CALICO Journal*, 26(2).
- Chen, H. J. H. (2011). Developing and evaluating SynctoLearn, a fully automatic video and transcript synchronization tool for EFL learners. *Computer Assisted Language Learning*, 24(2), 117-130.
- Cheng, H.-f., & Lin, N. C. (2010). Exploring students' perceptions of self-access English learning. *Procedia - Social and Behavioral Sciences*, 2(2), 2676–2680.
- Cheng, W.-w. (2006). *Learner perspectives of self-access to the multimedia English learning center at NKFUST*. Unpublished master's thesis, National Kaohsiung First University of Science and Technology, Kaohsiung, Taiwan.
- Cheng, X. (2000). Asian students' reticence revisited. *System*, 28(3), 435–446.
- Cohen, A. D. (2002). Preparing teachers for styles- and strategies-based instruction. In Crew, V., Davison, C., & Mak, B. (eds.), *Reflecting on Language in Education*. Hong Kong: Hong Kong Institute of Education, 49-69.
- Cohen, A. D., Oxford, R. L., & Chi, J. C. (2001). *Learning Style Survey*. Online: <http://carla.acad.umn.edu/profiles/Cohen-profile.html>.
- Cotterall, S., & Reinders, H. (2001). Fortress or bridge? Learners' perceptions and practice in self-access language learning. *Tesolanz*, 8, 23-38.
- Deci, E. L., & Ryan R. M. (2002). *Handbook of Self-determination Research*. University of Rochester Press.
- Diao, Y., Chandler, P., & Sweller, J. (2007). The effect of written text on comprehension of spoken English as a foreign language. *American Journal of Psychology*, 120 (2), 237-261.
- Dickinson, L. (1987). *Self-instruction in language learning*. Cambridge: Cambridge University Press.
- Dörnyei, Z. (2005). *The Psychology of the Language Learner: Individual Differences in Second Language Acquisition*. Mahwah, NY: Lawrence Erlbaum.
- Dörnyei, Z. (2009). *The Psychology of Second Language Acquisition*. Oxford University Press.
- Ehrman, M. E., & Leaver, B. L. (2003). Cognitive styles in the service of language learning. *System*, 31, 393–415.

- Figura, K., & Jarvis, H. (2007). Computer-based materials: A study of learner autonomy and strategies. *System*, 35(4), 448–468.
- Gardner, D., & Miller, L. (1999). *Establishing self-access: From theory to practice*. Cambridge: Cambridge University Press.
- Gardner, D., & Miller, L. (2011). Managing self-access language learning: Principles and practice. *System*, 39(1), 78-89.
- Ghapanchi, Z., & Dashti, Z. (2011). The relationship between cognitive style of impulsivity and display, referential, and inferential reading comprehension questions among Iranian EFL university students. *Canadian Social Science*, 7(6), 227-233.
- Gieve, S., & Clark, R. (2005). The Chinese approach to learning: Cultural trait or situated response? The case of a self-directed learning program. *System*, 33(2), 261–276.
- Hart, N. (2002). Intra-group autonomy and authentic materials: a different approach to ELT in Japanese colleges and universities. *System*, 30, 33-46.
- Hayati, A., & Mohmedi, F. (2011). The effect of films with and without subtitles on listening comprehension of EFL learners. *British Journal of Educational Technology*, 42(1), 181-192.
- Hayes, D. (2008). Centres and Perspectives: Soliciting Learner Feedback in Japan. *Innovation in Language Learning and Teaching*, 2(2), 152-173.
- Ho, J., & Crookall, D. (1995). Breaking with Chinese cultural traditions: Learner autonomy in English language teaching. *System*, 23(2), 235-243.
- Holec, H. (1981). *Autonomy in foreign language learning*. Oxford: Programon.
- Hsieh, H.-C. (2010). Self-access center and autonomous learning: EFL college students' motivations, activities and perceptions of learning effectiveness. Indiana University dissertation 3439291.
- Hua, W. (2001). Self-access language learning center—a new language learning environment. *Foreign Language World*.
- Hurd, S., Beaven, T., & Ortega, A. (2001). Developing autonomy in a distance language learning context: issues and dilemmas for course writers. *System*, 29, 341–355.
- Johnson, K. E. (2006). The sociocultural turn and its challenges for second language teacher education. *TESOL Quarterly*, 40(1), 235-257.
- Jones, L. C. (2009). Supporting student differences in listening comprehension and vocabulary learning with multimedia annotations. *CALICO Journal*, 26(2).
- Jones, N. B. (1998). Action research, learning styles, and EFL/ESL writing. Revision of a paper presented at the Trends in Second Language Teaching and

- Learning Conference (Ottawa, Ontario, Canada, May 22, 1998).
- Keller, G., & Warrack, B. (2003). Statistics for Management and Economics. *Nonparametric Statistics* (pp. 585-590). Thomson Learning, Inc.
- Kinsella, K. (1995). Understanding and empowering diverse learners in ESL classrooms. In Reid, J. (Ed.), *Learning Styles in the ESL/EFL Classroom* (pp.170–194). Boston: Heinle & Heinle.
- Koyalan, A. (2009). The evaluation of a self-access center: A useful addition to class-based teaching? *System*, 37(4), 731-740.
- Kumaravadivelu, B. (2003). *Beyond methods: Macrostrategies for language teaching*. New Haven: Yale University Press.
- Lam, W. S. E. (2000). L2 literacy and the design of the self: A case study of a teenager writing on the Internet. *TESOL Quarterly*, 34(3), 457-482.
- Lamb, M. (2004). It depends on the students themselves: Independent language learning at an Indonesian state school. *Language, Culture and Curriculum*, 17(3), 229-245.
- Lin, C.-C. (2010). *A study on EFL college students' autonomous learning in a CALL self-access classroom*. Unpublished master's thesis, National Taiwan Normal University, Taipei, Taiwan.
- Lincoln, F., & Rademacher, B. (2006). Learning styles of ESL students in community colleges. *Community College Journal of Research and Practice*, 30, 485-500.
- Little, D. (1991). *Learner autonomy 1: Definitions, issues and problems*. Dublin: Authentik.
- Little, D. (1995). Learning as dialogue: The dependence of learner autonomy on teacher autonomy. *System*, 23(2), 175-182.
- Little, D. (2000). Strategies, counselling and cultural difference: Why we need an anthropological understanding of learner autonomy. In Ribe. R. (ed.), *Developing Learner Autonomy in Foreign Language Learning*. Barcelona: University of Barcelona, 17-33.
- Little, D. (2002). Learner autonomy and second/foreign language learning. Centre for languages, linguistics and area studies. Retrieved 12 July 2012, from [http://www.llas.ac.uk/resources/gpg/1409 #toc\\_0](http://www.llas.ac.uk/resources/gpg/1409 #toc_0)
- Littlewood, W. (1997). Self-access: Why do we want it and what can it do? In Benson & Voller (eds.), 79-92.
- Littlewood, W. (1999). Defining and developing autonomy in East Asian contexts. *Applied Linguistics*, 20(1), 71-94.
- Littlewood, W. (2000). Do Asian students really want to listen and obey? *ELT Journal*, 54(1), 31-35.

- Liu, M., & Reed, W. M. (1994). The relationship between the learning strategies and learning styles in a hypermedia environment. Paper presented at the Annual Conference of Association for Educational Communications and Technology (AECT) and Association for the Development of Computer-Based Instructional Systems (ADCIS), Nashville, TN, February 16-20.
- Lu, D. (2010). A salutary lesson from a computer-based self-access language learning project. *Computer Assisted Language Learning*, 23(4), 343-359.
- Lu, X., & Zhang, J. (2012). College students' use of the computer and network-based self-access centre and their English learning achievement. *IERE Procedia*, 2, 149-154.
- Lüftenegger, M., Schober, B., Schoot, R. v. d., Wagner, P., Finsterwald, M., & Spiel, C. (2012). Lifelong learning as a goal – Do autonomy and self-regulation in school result in well prepared pupils? *Learning and Instruction*, 22(1), 27–36.
- Mahmoudi, E., Samad, A. b. A., & Razak, N. Z. B. A. (2012). Attitude and students' performance in computer assisted English language learning for learning vocabulary. *Social and Behavioral Sciences*, 66, 489-498.
- Mararo, E. (1997). *Target language, collaborative learning and autonomy*. Clevedon: Multilingual Matters.
- Mcdonough, K., & Sunitham, W. (2009). Collaborative dialogue between Thai EFL learners during self-access computer activities. *TESOL Quarterly*, 43(2), 231-254.
- Miller, L., & Rogerson-Revell, P. (1993). Self-access systems. *ELT Journal*, 43(3), 228-233.
- Miller, L., Hopkins, M., & Tsang, E. (2005). Self-access language learning in Hong Kong secondary schools. Supporting Independent English Language Learning in the 21st Century: Proceedings of the Independent Learning Association Conference Inaugural. Manukau Institute of Technology, Auckland.
- Miller, L., Shuk-Ching, E. T., & Hopkins, M. (2007). Establishing a self-access centre in a secondary school. *ELT Journal*, 61(3).
- Mori, S. (2007). Language learning strategy use for learners of Japanese in different levels. ERIC online submission ED496990.
- Morrison, B. (2005). Evaluating learning gain in a self-access language learning center. *Language Teaching Research*, 9(3), 267-293.
- Morrison, B. (2008). The role of the self-access centre in the tertiary language learning process. *System*, 36(2), 123–140.
- Mozzon-McPherson, M. (2007). Supporting independent learning environments: An analysis of structures and roles of language learning advisers. *System*, 35(1),

66-92.

- Nakata, Y. (2011). Teachers' readiness for promoting learner autonomy: A study of Japanese EFL high school teachers. *Teaching and Teacher Education*, 27(5), 900-910.
- Navarro, D., & Thornton, K. (2011). Investigating the relationship between belief and action in self-directed language learning. *System*, 39(3), 290-301.
- Ng, S. F., & Confessore, G. J. (2011). Assessing the capacity for success in distance learning in Malaysia. *Procedia Social and Behavioral Sciences*, 15, 1742-1750.
- Nilsson, M., Ostergren, J., Fors, O., Rickenlund, A., Jorfeldt, L., Caidahl, K., & Bolinder, G. (2012). Does individual learning styles influence the choice to use a web-based ECG learning programme in a blended learning setting? *BMC Medical Education*, 12(5).
- Ning, S.-j. (2008). *EFL college students' perceptions of self-access language learning at a CALL center*. Unpublished master's thesis, National Taiwan Normal University, Taipei, Taiwan.
- Noels, K. A. (2005). Orientations to Learning German: Heritage Language Learning and Motivational Substrates. *Canadian Modern Language Review*, 62(2), 285-312.
- Norton, B. (2001). Non-participation, imagined communities and the language classroom. In Breen (ed.), 159-171.
- Nunan, D. (1997). Designing and adapting materials to encourage learner autonomy. In Benson & Voller (eds.), 192-203.
- Oxford, R. L. (1993). *Style Analysis Survey (SAS)*. Tuscaloosa: University of Alabama. [Reprinted in Oxford, 1999]
- Palfreyman, D. (2001). The socio-cultural construction of learner autonomy and learner independence in a tertiary EFL institution. Unpublished doctoral dissertation, Canterbury Christ Church University College.
- Palfreyman, D., & Smith, R. C. (2003). *Learner autonomy across cultures: Language education perspectives*. Basingstoke: Palgrave Macmillan.
- Psaltou-Joycey, A., & Kantaridou, Z. (2011). Major, minor, and negative learning style preferences of university students. *System*, 39, 103-112.
- Rahimi, M., & Katal, M. (2012). Metacognitive strategies awareness and success in learning English as a foreign language: an overview. *Procedia - Social and Behavioral Sciences*, 31, 73-81.
- Rayner, S. G. (2000). Reconstructing style differences in thinking and learning: Profiling learning performance. In Riding, R. J., & Rayner, S. G. (Eds.), *Interpersonal Perspectives on Individual Differences* (Vol. 1: Cognitive styles,

- pp. 115–177). Stamford, CT: Ablex.
- Reid, J. M. (1987). The learning style preferences of ESL students. *TESOL Quarterly*, 21(1), 87-111.
- Reid, J. M. (1995). *Learning Styles in the ESL/EFL Classroom*. Boston: Heinle and Heinle.
- Reinders, H. (2000). Do it yourself? A learners' perspective on learner autonomy and self-access language learning in an English proficiency program. Master's thesis, University of Groningen, the Netherlands.
- Reinders, H. (2007). Big brother is helping you: Supporting self-access language learning with a student monitoring system. *System*, 35(1), 93-111.
- Reinders, H., & Lewis, M. (2005). How well do self-access CALL materials support self-directed learning? *The JALT CALL Journal*, 1(2), 41-49.
- Ribe, R. (2003). Tramas in the foreign language classroom: Autopoietic networks for learner growth. In Little et al. (eds.), 11-28.
- Riding, R. (2000). Cognitive style: A review. In Riding, R., & Rayner, S. G. (Eds.), *Interpersonal Perspectives on Individual Differences* (Vol. 1, Cognitive styles, pp. 315–344). Stamford, CT: Ablex.
- Sadler-Smith, E. (2001). The relationship between learning style and cognitive style. *Personality and Individual Differences*, 30, 609-616.
- Sana, I., & Imtiaz, A. S. (2012). "I almost learnt to learn": Promoting learner's autonomy through project based learning in access classrooms. *Language in India*, 12(1), 24-45.
- Sanprasert, N. (2010). The application of a course management system to enhance autonomy in learning English as a foreign language. *System*, 38(1), 109–123.
- Scharle, A., & Szabo, A. (2000). *Learner autonomy: A guide to developing learner responsibility*. Cambridge: Cambridge University Press.
- Schmenk, B. (2005). Globalizing Learner Autonomy. *TESOL Quarterly*, 39(1), 107-118.
- Smith, R. C. (2001). Group work for autonomy in Asia. *The AILA Review*, 15, 70-81.
- Smith, R. C. (2003). Pedagogy for autonomy as (becoming-) appropriate methodology. In Palfreyman & Smith (eds.), 129-146.
- Snow, R. E., Corno, L., & Jackson, D. N. (1996). Individual differences in affective and cognitive functions. In Berliner, D. C., & Calfee, R. C. (Eds.), *Handbook of Educational Psychology* (pp. 243–310). New York: Macmillan.
- Socket, G., & Toffoli, D. (2012). Beyond learner autonomy: A dynamic systems view of the informal learning of English in virtual online communities. *Procedia - Social and Behavioral Sciences*, 34, 212–215.

- Sonaiya, R. (2002). Autonomous language learning in Africa: A mismatch of cultural assumptions. *Language, Culture and Curriculum*, 15(2), 106-116.
- Soo, K.-s., & Ngeow, Y.-h. (1998). Effective English as a second language (ESL) instruction with interactive multimedia: the MCALL project. *Journal of Educational Multimedia and Hypermedia*, 7(1), 71-89.
- Srichanyachon, N. (2011). Cognitive learning styles of EFL students. *Journal of College Teaching and Learning*, 8(2), 15-23.
- Sternberg, R. J., & Grigorenko, E. L. (2001). A capsule history of theory and research on styles. In Sternberg, R. J., & Zhang, L.-F. (Eds.), *Perspectives on Thinking, Learning, and Cognitive Styles* (pp. 1-21). Mahwah, NJ: Lawrence Erlbaum Associates.
- Thyer, B. A. (2010). The Handbook of Social Work Research Methods. *Statistics for Social Workers* (pp. 75-118). SAGE Publications, Inc.
- Tsai, F.-H. (2010). Integrating feature films with subtitles to enhance the listening comprehension of students attending college in Taiwan. Doctoral Dissertation in Alliant International University, San Diego.
- Wang, L. (2006). EFL college students' perceptions of culture learning at a CALL center. Unpublished master's thesis, National Taiwan Normal University, Taipei, Taiwan.
- Wenden, A. L. (2002). Learner development in language learning. *Applied Linguistics*, 23(1), 32-55.
- Wijnia, L., & Loyens, S. M. M., & Derous, E. (2011). Investigating effects of problem-based versus lecture-based learning environments on student motivation. *Contemporary Educational Psychology*, 36(2), 101-113.
- Wintergerst, A. C., DeCapua, A., & Verna, M. A. (2003). Conceptualizing learning style modalities for ESL/EFL students. *System*, 31(1), 85-106.
- Wu, X. (2003). Intrinsic motivation and young language learners: the impact of the classroom environment. *System*, 31(4), 501-517.
- Xhaferi, B., & Xhaferi, G. (2011). Teachers for the knowledge society: Developing learner autonomy in higher education in Macedonia. *Procedia Social and Behavioral Sciences*, 11, 150-154.
- Yang, N.-D. (2003). Integrating portfolios into learning strategy-based instruction for EFL college students. *IRAL: International Review of Applied Linguistics in Language Teaching*, 41(4), 293-317.
- Yuan, H.-C., & Lin, C.-C. (2012). Learner styles in a self-access centre. The 15th International CALL Research Conference 2012.

- Zamari, Z. M., Adnan, A. H. M., Idris, S. L., & Yusof, J. (2012). Students' perception of using online language learning materials. *Social and Behavioral Sciences*, 67, 611-620.
- Zangari, L. (1999). Conversation Partners: Work in Progress. Action Research Monograph. ERIC online submission ED440238.
- Zou, X. (2006). Learners' autonomy in self-access centers—An exploration of the SAC in Chongqing University. *Sino-US English Teaching*, 3(9), 1-7.



## Appendix A

### List of Recent Quantitative Empirical Studies on Learning Styles

Srichanyachon (2011)	<b>Purpose</b>	- investigate the relationship between learners' English background knowledge and their language learning styles
	<b>Method</b>	- 210 EFL undergraduates enrolled in fundamental English course at Bangkok university - cognitive style survey adopted from Ichikawa (2001, cited in Shwalb, Nakazawa, & Shwalb, 2005)
	<b>Result</b>	- Gender makes a significant difference in participants' language learning styles; female students seem to have more styles than their male counterparts. - Participants' field of study has no impact on their language learning styles only when failure-resilience is taken into consideration. - A positive relationship exists between participants' English background knowledge and learning styles. That is, students with high English background knowledge like to apply more language learning styles, especially strategy-orientation and process-orientation ones, than those with low English background knowledge.
Psaltou-Joycey & Kantaridou (2011)	<b>Purpose</b>	- illustrate the learning style preferences, categorized into major, minor and negative domains, of students across eight fields of study
	<b>Method</b>	- 1616 undergraduates learning foreign languages for academic purposes in two Greek universities - Style Analysis Survey (SAS, Oxford, 1995)
	<b>Result</b>	- Visual, intuitive-random, and global styles constitute major preferences in all eight fields. - Closure-oriented, extroverted, and concrete-sequential styles vary between major or minor preferences. - Hands-on, open, and analytic styles show a variation between minor and negative preferences.

		<ul style="list-style-type: none"> <li>- Auditory and introverted styles are negative in all fields.</li> </ul>
Ghapanchi & Dashti (2011)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- study the relationship between cognitive styles and EFL learners' reading comprehension performance</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 100 English-major sophomores from two universities in Iran</li> <li>- six passages with nine reading comprehending questions for each: three display, three referential and three inferential</li> <li>- Eysenck's (1990) impulsiveness questionnaire</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- There was no significant difference between low, medium and high impulsives with respect to their performance in display, referential and inferential reading comprehension questions. However, a trend in favor of low impulsives to outperform other groups when answering referential questions and a trend in favor of medium impulsives when answering inferential questions were outlined.</li> </ul>
Lincoln & Rademacher (2006)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- investigate the extent to which the learning styles of adult ESL students differ by age, gender, country of origin, and English proficiency level</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 69 adult ESL students from 17 countries attending adult ESL centers in northwest Arkansas</li> <li>- VARK Learning Styles Questionnaire (Fleming, 1995 )</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- Note taking is the most preferred method of learning while visual learning is the least favored method of assimilating new knowledge and experience for all subgroups.</li> <li>- Females favor auditory and multimodal learning styles whereas males favor note taking across all the participants.</li> <li>- Hispanic males and females both prefer note taking and kinesthetic learning styles; however, Hispanic females choose aural learning styles significantly more often than their male counterparts.</li> </ul>

		<ul style="list-style-type: none"> <li>- Asian students are the most aural and read-write but the least kinesthetic among the participants; besides, Asian males favor note taking and aural learning in particular.</li> <li>- Participants differ by their level of English proficiency; explicitly, beginning- intermediate students favor aural learning styles more than advanced ones.</li> <li>- Participants choose kinesthetic learning less as they grow older, while males tend to choose note taking more as they age.</li> </ul>
	<b>Purpose</b>	- test a newly developed learning style instrument on three groups of ESL/EFL language learners to determine their learning style preferences
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 166 students from three different universities in Russia and New York were grouped into three populations: 67 Russian EFL students, 53 Russian ESL students, and 46 Asian (Chinese, Korean, Japanese) ESL students</li> <li>- Learner Styles Indicator (LSI, Wintergerst et al., 2001)</li> </ul>
Wintergerst <i>et al.</i> (2003)	<b>Result</b>	<ul style="list-style-type: none"> <li>- LSI is a valid and reliable tool for assessing learning styles of ESL/EFL students</li> <li>- Participants learn English under three modalities: project orientation, group activity orientation, and individual activity orientation.</li> <li>- These three groups of language learners clearly prefer group activity to individual work, with the Russian EFL and Asian ESL students favoring group work and project work.</li> </ul>
	<b>Purpose</b>	- establish a learner style profile schema for diagnosis and illustrate it with two student cases
Ehrman & Leaver (2003)	<b>Method</b>	<ul style="list-style-type: none"> <li>- 2 adult second language learners from a foreign service institute</li> <li>- their own Learning Style Questionnaire</li> </ul>
	<b>Result</b>	- These two cases are not clear-cut examples of

---

synoptic and ectenic learners. Instead, they reveal ambiguous or apparently contradictory information, which can be well presented and interpreted with the ten-scale learner style profile assessment.

---

## Appendix B

### List of Recent Empirical Studies on SALL and Autonomy

Sana & Imtiaz (2012)	<b>Purpose</b>	- explore the impact of project based learning (PBL) in English access classrooms on ESL learners
	<b>Method</b>	- 52 female students at a public school in Pakistan - questionnaire, interview and focus group discussion
	<b>Result</b>	- Results indicated that PBL not only improved students' language skills but also made them autonomous and independent learners who picked up skills in self-regulation, self- motivation, time management, etc.
Gardner & Miller (2011)	<b>Purpose</b>	- look into the management of self-access language learning from the perspective of managers of self-access centers by examining five themes, and the one relating to autonomy is how managers interpret key concepts related to SALL and learner autonomy
	<b>Method</b>	- 7 managers (all qualified and practicing language teachers) of self-access centers in Hong Kong tertiary institutions - an email questionnaire collecting descriptive data about managers' beliefs about SALL and learner autonomy - a follow-up, face-to-face, semi-structured interview exploring relevant issues emerging from the questionnaire
	<b>Result</b>	- Participants reached unanimous agreement on the definitions of self-access and independent learning, seeing the distinction primarily as provision of resources versus the students' attitude to learning. - All managers placed high importance on the concept of autonomy and independence. However, they thought their institutions placed a lower level of importance on it. - Managing self-access language learning is a complex

		process and unique to each context, but there are underlying principles for effective management of SALL.
Lin (2010)	<b>Purpose</b>	- investigate the factors motivating EFL learners to continue visiting a SAC and the differences between frequent and infrequent visitors' autonomous learning
	<b>Method</b>	- 912 (first academic year) and 1086 (second academic year) college students from a university in Taiwan - online end-of-visit survey questionnaires, end-of-semester survey questionnaires, and semi-structured interviews
	<b>Result</b>	- The results support that the SAC provides learners with a great opportunity to learn at their own pace and in accordance to their preferable materials. - Participants found exposure to audio and visual inputs beneficial for their English listening and reading performance. - Participants reported that by visiting the self-access center, they developed strategic awareness and demonstrated autonomous learning behavior such as planning, monitoring and evaluating. - Compared to infrequent visitors, frequent visitors showed more positive attitude towards their learning in the SAC and the assistants' help and competence.
Cheng & Lin (2010)	<b>Purpose</b>	- explore EFL learners' perceptions of doing outside reading and self-access counseling
	<b>Method</b>	- 350 freshmen from a university in Taiwan (further divided into three groups based on their English proficiency level: intermediate 125, pre-intermediate 120, high-beginning 105) - four assessment tests based on the self-study materials and a survey investigating participants' perceptions of self-directed learning
	<b>Result</b>	- Participants held positive attitudes toward self-access language learning and believed it helped them participate actively, set priorities, determine learning

Lu (2010)		<p>pace, evaluate outcomes and generate autonomy.</p> <ul style="list-style-type: none"> <li>- More than 70% of the participants thought that they could do the outside reading independently. However, they agreed that certain degree of monitoring or soft requirement from teachers might help.</li> <li>- Most intermediate-level and pre-intermediate-level participants visited the self-access center doing self-access counseling while few high-beginning-level participants did so, which implies that high achievers are better motivated and autonomous whereas low achievers tend to be rather passive.</li> </ul>
	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- investigate the effectiveness of a computer-mediated self-access project</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- ESL college students</li> <li>- individual portfolio recording participants' perception of SALL</li> <li>- anonymous questionnaire probing into participants' perception of SALL</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- Results from individual portfolios indicate that participants hold a positive attitude towards SALL activities. Students reported that, as an integration of regular English courses, self-access learning mode indeed aroused their language learning interest and promoted their autonomy development in the process of improving their English performance.</li> <li>- Data from anonymous questionnaires revealed surprisingly opposite results. Participants reported that they did not gain much from the self-access project which was treated as a mandatory task.</li> <li>- The discrepancy between the two channels of data resulted from the different nature of the instruments. The former was treated as an assignment which would be graded by the instructors while the latter uncovered participants' true feelings in an anonymous way.</li> </ul>

Sanprasert (2010)		<ul style="list-style-type: none"> <li>- Teachers' guidance is indispensable to make SALL work effectively and previous learner training is also required.</li> </ul>
	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- find out how a self-access course management system effects changes in learners' perception and practice regarding their autonomous learning</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 55 college students enrolled on a foundation English course at a university in Thailand (divided into one control group and one experimental group)</li> <li>- a questionnaire adapted from Cotterall's (1995) and fifteen pieces of students' weekly learning journals</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- A significant difference within the experimental group between the pre- and the post-intervention in terms of participants' perceptions towards their independence and experience of language learning was found.</li> <li>- With the assistance of the self-directed course management system, students became more independent and confident. Moreover, they developed certain types of autonomous behavior: for instance, making contributions to the course materials online, setting their own learning goals and planning for more practice outside class to achieve these goals, and developing skills to monitor and evaluate the progress of their learning.</li> </ul>
Koyalan (2009)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- evaluate the effectiveness of a SAC in terms of learners' attitudes, behaviors and practices</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 60 ESL college students and 5 staff members at a Turkish university</li> <li>- student questionnaire, staff questionnaire and observation sheet</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- 85 % of the students found SAC a silent place with various learning materials, and the environment helps them improve English through studying with the teachers there or with the help of different activities.</li> <li>- 97% of the students visited the SAC voluntarily</li> </ul>



		<p>instead of being forced by their instructors and this indicates the development of learner autonomy.</p> <ul style="list-style-type: none"> <li>- Around half of the students got better grades in formal classroom contexts after visiting the SAC.</li> <li>- 70 % of the students said that SAC encouraged them to change their learning approach into a more autonomous one.</li> <li>- The self-access center facilitates college students' development in reactive autonomy.</li> <li>- Staff members all agreed that students used different learning resources such as old exams, grammar exercises or listening software to improve English.</li> <li>- The SAC offers opportunities for effective language learning and is being valued both by the staff members/teachers and the students.</li> </ul>
Ning (2008)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- examine EFL learners' perceptions of their self-access language learning at a CALL SAC and to what extent learner autonomy would be promoted through it</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 1613 college students enrolled in freshmen English courses at a university in Taiwan</li> <li>- online survey questionnaires and semi-structured interviews</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- Results from the questionnaire showed that participants found working in the SAC beneficial to their English learning, owing to the well-designed programs and cozy environment.</li> <li>- Students, especially frequent visitors, felt motivated and empowered to take control over what and how they learnt; they set future learning goals, monitored and evaluated learning processes and outcomes after experiencing the learning in the self-access center.</li> </ul>
Morrison (2008)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- develop a theory-based framework for the evaluation of self-access centers in the tertiary language learning process</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 16 participants including learners, teachers,</li> </ul>

Figura & Jarvis (2007)		<p>coordinators, staff and researchers at a language centre in a Hong Kong tertiary institution</p> <ul style="list-style-type: none"> <li>- semi-structured interviews and a follow-up email questionnaire</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- Analysis of the data identifies four main roles of SACs: bringing together language learning and independent learning, enabling the learner to improve both linguistic proficiency and independent learning skills and strategies, providing the necessary resources, and providing learner support. Among the four functions, the first two are the most appealing since it is hard for teachers to achieve them in a formal or conventional classroom setting.</li> </ul>
	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- examine the relationship between strategies and autonomy, that is, to what extent cognitive, metacognitive and social strategies are used by learners when they work with computer-based materials (CBMs) in a self-access centre (SAC)</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 26 non-native students in an English for academic purposes (EAP) program at a British university</li> <li>- questionnaire, interview and snap-shot observation</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- All participants reported using CBMs in the SAC and 62% spent 1-2 hours a day on it. In addition, 73% reported that CBMs were very useful or useful for their language learning after class.</li> <li>- Participants' most frequently used metacognitive strategies were saving good Internet sites for studying English (84.6%), evaluating learning (73.1%), searching on the Web for listening or reading materials at or near their level (69%), and setting learning goals before studying on a computer (50%).</li> <li>- Students applied a range of cognitive strategies while listening, watching and reading on the screen.</li> <li>- Compared to cognitive strategies, social strategies were less adopted by the participants: 46% never used CBMs with others and 50% never asked for others'</li> </ul>

		<p>feedback.</p> <ul style="list-style-type: none"> <li>- Questionnaires &amp; interviews: Participants generally demonstrated reasonable levels of autonomy, good metacognitive awareness and appropriate use of cognitive strategies.</li> <li>- Snap-shots: Many L1-based strategies, which indicate that L2-based strategies are not fully developed, were used in the SAC.</li> </ul>
Zou (2006)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- look into EFL learners' language learning and autonomy development in a CALL SAC</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 123 college students in Chongqing university (divided into one experimental and one control group)</li> <li>- listening proficiency test</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- The experimental group outperformed the control one on the listening proficiency test and demonstrated autonomous learning behavior such as designing their own study plans, monitoring their learning process, and reflecting upon their learning outcomes.</li> <li>- Students' online learning time in the SAC was highly correlated with their online learning grades.</li> <li>- Some participants could not sustain their autonomous learning due to lack of motivation and heavy reliance on teachers.</li> </ul>
Cheng (2006)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- explore EFL learners' beliefs and attitudes towards self-access language learning in a self-access center</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 217 college students at a university in Taiwan</li> <li>- questionnaires</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- Participants held positive attitude towards self-directed language learning and regarded it as an important ability; however, less than 30% of the students really developed independent learning after the training.</li> <li>- Most participants reported that their listening and speaking improved through employing the SAC.</li> </ul>
Gieve & Clark (2005)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- investigate ESL learners' attitude, strategy use and autonomous behavior in a program requiring</li> </ul>

		self-directed and tandem learning, with an emphasis on the comparison between Chinese and European students
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 36 Chinese and 24 European ESL undergraduates at a British university</li> <li>- students' diaries and reflections</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- 67% of the European students and 65% of the Chinese students made positive evaluations of the outcome of the self-directed learning program. 83% of the European students and 84% of the Chinese students took positive attitude towards tandem learning.</li> <li>- 16% of the European students and 65% of the Chinese students positively declared that they learnt and adopted new study habits as a result of the program.</li> <li>- 71% of the European and 68% the Chinese students reported adopting particular learning strategies, and Chinese students adopted a wider range of strategies than their counterparts. Although the European students used a narrower range of strategies, they employed those strategies more often.</li> <li>- 75% of the European students and 97% of the Chinese students made explicit statements that at least one of their language skills had improved as a result of the program.</li> <li>- 18% of the European students and 27% of the Chinese students made declarations that they would make efforts to continue their independent learning.</li> </ul>
Miller <i>et al.</i> (2005)	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- investigate 3 Hong Kong secondary schools' interpretation and implementation of self-access language learning and the development of learner autonomy to disseminate SALL among all secondary schools in Hong Kong</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 35 teachers and 954 students in the 3 schools (later 6 teachers and 35 students were interviewed)</li> </ul>

Reinders (2000)		<ul style="list-style-type: none"> <li>- questionnaire survey on the participants' perceptions of SALL and in-depth interviews and discussion</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- Three participating schools took quite different approaches to implementing SALL, including through setting up a SAC, integrating it into school curriculum, and through project work.</li> <li>- Through SALL, students felt that: they had more opportunities and physical or cognitive space for language learning; the SALL activities increased their engagement in language learning both inside and outside school; they were encouraged to assume an active learner role through developing learner autonomy; they enhanced their self-motivation and confidence which led to an improvement in using English.</li> <li>- Teachers also took a positive view of implementing SALL into the curriculum. They gained better understanding of SALL and the new language curriculum guidelines, became more committed to developing their own school-based SALL programs, and create space for teacher-student and teacher-teacher collaboration.</li> <li>- Those findings indicate that integrating SALL into secondary schools curricula is achievable.</li> </ul>
	<b>Purpose</b>	<ul style="list-style-type: none"> <li>- explore learners' perspectives on learner autonomy and their self-access language learning in an English proficiency program</li> </ul>
	<b>Method</b>	<ul style="list-style-type: none"> <li>- 124 international students (mainly from China and Japan) at Victoria University in New Zealand</li> <li>- questionnaire and interview (16 students)</li> </ul>
	<b>Result</b>	<ul style="list-style-type: none"> <li>- Around 90% of the participants reported that learning in the SAC inspired them to take responsibility for their own English learning.</li> <li>- Students who used more learning resources in the SAC tended to be more positive about the effect of SALL.</li> </ul>

- 
- Participants' perception of the effectiveness of SAC influenced their frequency of use, and vice versa.
  - Because some students were found having difficulty in selecting the right learning materials by themselves and preferring teacher-dominated learning mode based on the interview data, teachers needed to increase students' awareness about what autonomous learning is and about the potential of SAC.
-

## Appendix C

### Weekly Assigned Schedules in the SAC

Week	Learning Program/Unit
1	Orientation
2	Orientation
3	Orientation
4	MyET—Let's Talkin English—Saving for College
5	MyET—Let's Talkin English—Josie's Money Problems
6	SMILE English Learning Web—English Conversations — A Summer Trip
7	SMILE English Learning Web—English Conversations — Basket of Bargains
8	Connected Speech Level 1—Mary Michaels
9	Connected Speech Level 1—Becky
10	Old Movies—The Old Man and The Sea
11	Old Movies—The Old Man and The Sea
12	SMILE English Learning Web—Congratulations
13	SMILE English Learning Web—An Apology
14	Tense Buster-Intermediate—Conditionals
15	Tense Buster-Intermediate—Relative Clauses
16	GEPT High-Intermediate Level—Unit I
17	GEPT High-Intermediate Level—Unit II
18	Final Exam

## Appendix D

### End-of-semester Survey Questionnaire (English version)

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I feel satisfied with the language learning software in the SAC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. In terms of content, I think the SAC provides practical language learning software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. In terms of technology, I think the SAC provides advanced language learning software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. In terms of listening training, I think the SAC provides sufficient language learning software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. In terms of speaking training, I think the SAC provides sufficient language learning software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. In terms of reading training, I think the SAC provides sufficient language learning software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. In terms of writing training, I think the SAC provides sufficient language learning software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I think that the weekly assigned lessons fit with my proficiency.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I think that the weekly assigned lessons improve some aspects of my English ability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I think that the weekly assigned lessons can boost my interest in English.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I think that the weekly assigned lessons can complement the inadequacy of <i>Freshman English</i> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Even if I have finished this week's assigned lessons, I would still visit the SAC and use other software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I used the weekly assigned lessons in the SAC.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I think the assistant is competent for this job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I think the assistant is enthusiastic to serve for me, for	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



- instance, in software operation.
16. I think the assistant tries his/her best to answer my questions, e.g. English questions. ☐ ☐ ☐ ☐
17. I think the physical environments of the SAC are suitable for language learning. ☐ ☐ ☐ ☐
18. I think the computer equipment (including headphone, and microphones) is suitable for the software operation. ☐ ☐ ☐ ☐
19. Overall, I enjoy learning English in the SAC. ☐ ☐ ☐ ☐
20. I think learning English in the SAC has the following advantages:  
☐ I can choose learning materials. ☐ I can set my own learning schedules.  
☐ I can concentrate on my learning. ☐ I can learn with my friends.  
☐ Others: \_\_\_\_\_
21. In what areas do you think the SAC can improve?  
☐ Computer equipment ☐ Software (Listening) ☐ Software (Speaking)  
☐ Software (Reading) ☐ Software (Writing) ☐ Software (Movies)  
☐ Software (Testing) ☐ Others: \_\_\_\_\_
22. The software that I like the most: \_\_\_\_\_  
Reasons: ☐ Learning content ☐ Language ability ☐ Interface design  
☐ Software operation ☐ Others: \_\_\_\_\_
23. The software that I dislike the most: \_\_\_\_\_  
Reasons: ☐ Learning content ☐ Computer equipment  
☐ Interface design ☐ Software operation  
☐ Others: \_\_\_\_\_

## Appendix E

### End-of-semester Survey Questionnaire (Chinese version)

你好。爲了讓我們瞭解你使用自學教室（樸 101）的情形，請填寫以下問卷。

謝謝。

姓名：\_\_\_\_\_

學號：\_\_\_\_\_

	非常同意	同意	不同意	非常不同意
1. 我對自學教室所提供的語言學習軟體感到滿意。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 就內容而言，我認爲自學教室提供實用的語言學習軟體。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. 就科技而言，我認爲自學教室提供先進的語言學習軟體。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. 就聽力的訓練而言，我認爲自學教室提供足夠的語言學習軟體。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. 就說話的訓練而言，我認爲自學教室提供足夠的語言學習軟體。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. 就閱讀的訓練而言，我認爲自學教室提供足夠的語言學習軟體。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. 就寫作的訓練而言，我認爲自學教室提供足夠的語言學習軟體。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. 我認爲在自學教室每個星期做的指定課程適合我的程度。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. 我認爲在自學教室每個星期做的指定課程提昇了我某方面的英文能力。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. 我認爲在自學教室每個星期做的指定課程提高了我學習英語文的興趣。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. 我認爲在自學教室每個星期做的指定課程能夠補足大一英文課程的不足。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. 即使這個星期的指定課程做完了，我也會到自學教室去使用其他軟體。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. 我曾經在自學教室使用之前所指定的課程。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. 我認爲自學教室的助理，工作稱職。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. 我認爲自學教室的助理，熱心爲我服務（如：軟體操作）。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. 我認爲自學教室的助理，盡心解答我所問的問題（如：英文問題）。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. 我認爲自學教室的硬體環境（空調等）適合語言學習。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. 我認爲自學教室的電腦設備（耳機、麥克風等）符合軟體操作。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. 大體而言，我在自學教室學習英語，還蠻愉快的。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. 我認爲到自學教室來學習英語有以下優點（可複選）：	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 我可以選擇學習的教材 <input type="checkbox"/> 我可以安排學習的時間				

☐我可以專心一致地學習 ☐我可以跟朋友一起學習

☐其他，請說明：\_\_\_\_\_

21. 你覺得自學教室還有什麼可以改進或增加的地方？

☐電腦設備

☐軟體資源（聽） ☐軟體資源（說）

☐軟體資源（讀）

☐軟體資源（寫） ☐軟體資源（影片）

☐軟體資源（測驗軟體） ☐其他，請說\_\_\_\_\_

22. 我最喜歡的語言學習軟體名稱是：\_\_\_\_\_

原因（可複選）：☐學習內容（實用、有趣） ☐語言能力（增強聽說讀寫等）

☐介面設計（清楚、明瞭） ☐軟體操作（容易不複雜）

☐其他，請說\_\_\_\_\_

23. 我最不喜歡的語言學習軟體名稱是：\_\_\_\_\_

原因（可複選）：☐學習內容（無聊不實用） ☐電腦設備（常常當機、收音常出狀況）

☐介面設計（複雜不清楚） ☐軟體操作（麻煩且繁複）

☐其他，請說\_\_\_\_\_

## Appendix F

### Learning Styles Questionnaire (English version)

	Never	Seldom	Sometimes	Often	Always
1. I can better comprehend what I learn when teachers explain it orally.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I like to learn English through hands-on activities. For example, teachers ask us to “stand up” and “sit down” when teaching these movements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I can work on English assignments more efficiently when cooperating with a group of classmates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. My learning effectiveness would improve when I study English with my classmates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I learn the best when doing English learning activities with my classmates in class.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I learn better when “seeing” the key points that English teachers write down on the blackboard.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I can learn better if being orally instructed how to do the English learning activities in class.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I learn better in class when getting involved in learning activities like role play, game and drama.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I memorize what I learn more effectively when listening to teachers’ instruction, CD player, and classmates’ oral report than reading the book by myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I tend to memorize the learning content better by reading the written instruction or explanation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I learn better when I DIY something related to what I learn in the English class, for instance, vocabulary cards or Christmas cards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. While learning English, I can better comprehend the content by reading written instruction or explanation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I memorize things better when studying English alone than studying with my classmates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I learn better when DIY something related to what I learn in the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

English class, including making English birthday cards and drawing English family trees.

- |     |  |                          |                          |                          |                          |                          |
|-----|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 15. | I like to learn English by practicing it in simulated contexts. For example, teachers ask us to order a meal in English when teaching us how to order. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. | When studying English, I learn better by taking notes or writing down what I read.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. | I learn better when listening to teachers' oral instruction in class.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. | My learning effectiveness improves when I write English assignments by myself.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. | I can better understand the content of learning materials if I participate in activities like role-play in class.                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. | I learn better when listening to teachers' or classmates' oral explanation in class.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. | I like to cooperate with my classmates to finish English assignments.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. | I can memorize what I learn better by making hands-on products, such as making Jack-o'-lanterns when studying Halloween in English.                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. | I prefer studying English with others.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. | To me, reading written materials helps me learn better than listening to others' instructions.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. | I like the kind of English assignments which ask us to DIY something.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. | I learn better when joining physical activities, for instance, asking for direction in English.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. | I can do my homework better when working alone than working with my classmates.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. | I like to finish English assignments or reports by myself instead of working with my classmates.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. | I prefer reading written materials to listening to English teachers' instructions when the same target learning content involved.                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. | I like to learn English alone.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## Appendix G

### Learning Styles Questionnaire (Chinese version)

	從來沒有	很少如此	偶爾如此	經常如此	總是如此
1. 學英語時，如果有老師口頭講解，我會比較了解。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. 我喜歡透過某些實際的演練或活動來學英語；例如：老師教到 stand up, sit down 時，叫我們演示這些動作。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. 和一群同學一起做英文功課，我會做得較有效率。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. 和一群同學一起讀英文，我的學習效果比較好。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. 在英文課堂上，如果能和同學一起做英語學習活動，我學得最好。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. 英文老師如果把講述的重點寫在黑板上，藉由「看」到講述的重點，我的學習效果會比較好。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. 上英文課時，如果有人口頭指導我如何做英語課堂活動，我會學得更好。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. 上英文課時，如果有動態的學習活動，如：角色扮演、玩遊戲、演話劇，我的學習效果會比較好。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. 學英文時，我比較記得住課堂上聽到的內容。例如：老師的講解、CD 播放的內容、同學的報告等，比較記不住自己閱讀書本的部份。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. 學英文時，透過閱讀書面的說明或解釋，我比較能記得住學習的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. 透過動手製作一個和英文課內容相關的東西，如：生字卡、耶誕卡等，我的學習效果會比較好。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. 學英文時，透過閱讀書面的說明或解釋，我比較能了解學習的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. 比起和一群同學一起讀，我自己一個人讀英語，東西記得比較牢。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. 透過動手製作與英文課內容相關的實物作品，例如：製作英文生日卡、畫英文族譜等，我會學得比較好。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. 在課堂上，我喜歡經由實際操練的方式來學習英文，例如：老師教如何點餐時，叫我們試著用英文來模擬點餐。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. 讀英文時，隨手動筆邊寫或邊畫，我會學得比較好。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- |  |                          |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 17. 上英文課時，聽老師以口頭方式講解，我會學得比較好。                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. 獨自一人做英文作業時，我的學習效果比較好。                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. 上英文課時，若能參與角色扮演之類的活動，我較能了解教材內容。                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. 課堂上，聽別人(老師或同學)口頭講解，我的學習效果較好。                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. 我喜歡和兩三個同學一起完成英文作業。                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. 透過動手製作與英文課相關的東西，如：上萬聖節時製作南瓜燈，我對所學的東西會記得比較牢。    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. 我比較喜歡和別人一起研讀英文。                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. 對我而言，閱讀書面教材比聽別人講述的學習效果較好。                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. 我喜歡屬於動手製作東西的英文功課。                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. 上英文課時，透過參與一些和學習內容相關的肢體活動，例如：實際演練問路過程，我的學習效果最好。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. 在英文課，我獨自一人做功課的效果會比和同學一起做來得好。                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. 我喜歡自己一個人完成英文作業或報告，而不是和同學一起做。                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. 對我而言，學習相同的內容時，透過閱讀書面教材的學習效果，比聽英文老師在台上講述來得好。    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. 我喜歡獨自進行學習活動。                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## Appendix H

### Frequency of Use of Learning Software in the Fall Semester 2010

Software	No.	Name	Frequency	Percent
English Tests (1.76%)	1	Dr. Eye GEPT Practice Tests	112	0.72%
	2	GEPT Practice Tests	56	0.36%
	3	Longman TOEFL Test	100	0.65%
	4	Study Skills Success: IELTS	4	0.03%
Grammar (0.27%)	5	Mind Lines	28	0.18%
	6	Tense Buster	14	0.09%
Listening + Speaking (0.03%)	7	Planet English	4	0.03%
Magazines (5.94%)	8	Advanced	317	2.05%
	9	ALL+ Interactive English	52	0.34%
	10	CNN Interactive English	116	0.75%
	11	Let's Talk In English	39	0.25%
	12	Live Interactive English	17	0.11%
	13	Studio Classroom	377	2.44%
Movies (79.53%)	14	BBC Classics	89	0.58%
	15	Emergency Room	5,153	33.33%
	16	Friends	3,845	24.87%
	17	IMAX DVD	324	2.10%
	18	Old Movies	1,309	8.47%
	19	Shakespeare Animations	242	1.57%
Reading + Listening (3.46%)	20	The Simpsons	1,333	8.62%
	21	Fun Day	524	3.39%
Reading (0.08%)	22	Tales from Shakespeare	11	0.07%
	23	Read It	9	0.06%
Speaking (8.78%)	24	English Novel	3	0.02%
	25	Chat Room	952	6.16%
	26	Connected Speech	7	0.05%
	27	My ET	311	2.01%
	28	Pronunciation Power	11	0.07%
	29	Tell Me More	17	0.11%



	30	Traci Talk	19	0.12%
	31	WTO American English Conversation	40	0.26%
Vocabulary (0.16%)	32	The Interactive Picture Dictionary	24	0.16%
<b>TOTAL</b>			<b>15,459</b>	<b>100%</b>

## Appendix I

### Frequency of Use of Learning Software in the Spring Semester 2011

Software	No.	Name	Frequency	Percent
English Tests (2.04%)	1	Dr. Eye GEPT Practice Tests	110	0.88%
	2	GEPT Practice Tests	88	0.70%
	3	Longman TOEFL Test	53	0.42%
	4	Study Skills Success: IELTS	5	0.04%
Grammar (0.27%)	5	Mind Lines	19	0.15%
	6	Tense Buster	15	0.12%
Listening + Speaking (0.09%)	7	Planet English	11	0.09%
Magazines (8.58%)	8	Advanced	459	3.65%
	9	ALL+ Interactive English	52	0.41%
	10	CNN Interactive English	151	1.20%
	11	Let's Talk In English	57	0.45%
	12	Live Interactive English	30	0.24%
	13	Studio Classroom	329	2.62%
Movies (77.50%)	14	BBC Classics	48	0.38%
	15	Emergency Room	4,594	36.55%
	16	Friends	3,557	28.30%
	17	IMAX DVD	162	1.29%
	18	Old Movies	539	4.29%
	19	Shakespeare Animations	137	1.09%
Reading + Listening (3.72%)	20	The Simpsons	703	5.59%
	21	Fun Day	458	3.64%
Reading (0.08%)	22	Tales from Shakespeare	10	0.08%
	23	Read It	9	0.07%
Speaking (7.66%)	24	English Novel	1	0.01%
	25	Chat Room	794	6.32%
	26	Connected Speech	13	0.10%
	27	My ET	66	0.53%
	28	Pronunciation Power	10	0.08%
	29	Tell Me More	14	0.11%

	30	Traci Talk	18	0.14%
	31	WTO American English Conversation	48	0.38%
Vocabulary (0.06%)	32	The Interactive Picture Dictionary	8	0.06%
<b>TOTAL</b>			<b>12,568</b>	<b>100%</b>