

The Relationships between Language Anxiety, Attitudes toward the Learning Situation, and Motivation: The Case of Taiwanese University EFL Learners

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Abstract

This survey study examined the relationships between language anxiety, attitudes toward the learning situation (ALS), and motivation among university English EFL learners in Taiwan. This study was conducted in December 2015; a questionnaire was distributed to all the students registered in the Freshman English course in Fall 2015 in a public university in northern Taiwan. Data from a total of 596 valid questionnaires collected from the voluntary respondents (194 males and 402 females) were analyzed.

Pearson correlation analysis yielded the following results. First, it was found that a significant moderate positive correlation existed between ALS and motivation across genders, academic majors, and proficiency levels. Second, a significant low positive correlation between ALS and language anxiety was found only among science majors and low achievers. Moreover, a significant relationship between motivation and anxiety existed among the full sample of students, the female students, majors in Liberal Arts and Education, with a low and negative correlation. Yet, among the low achievers, a significant relationship between motivation and anxiety revealed a positive correlation. Recommendations were made for teaching and future research.

Keywords: Language Anxiety, Attitudes toward the Learning Situation, Motivation

語言焦慮、對學習情境的態度、動機之關係：以臺灣的大學英語為外語學

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摘要

本研究檢視影響大學英語為外語學習者的語言焦慮、對學習情境的態度、動機之間的關係，使用的資料取自研究者建置的資料庫。研究者以問卷於 2015 年 12 月對臺北市某國立大學大一英文課學生調查。以皮爾遜積差相關分析 596 筆（194 位男學生、402 位女學生）有效樣本的資料。

獲以下結論：不分性別、學院、英語成就高低，對學習情境的態度和動機之間呈顯著、正向關係。對學習情境的態度和語言焦慮之間顯著、正向的關係，只出現在理學院及低成就學生。另外，對整體學生、女學生、人文學院及教育學院學生而言，動機和語言焦慮間的低度相關性具顯著水準、但為負向相關；低成就學生的動機和語言焦慮間相關性亦具顯著水準，但呈正向的關係。最後，提出教學建議及未來研究方向。

關鍵詞：語言焦慮、對學習情境的態度、動機

Introduction

1. Motivation and Background of the Study

Affect refers to “aspects of emotion, feeling, mood or attitude, which condition behavior” (Arnold & Brown, 1999, p. 1). Affective factors play important roles in the process of second language acquisition (SLA) in addition to cognitive variables; SLA researchers point to affective factors as conducive in the process (Ellis, 2012; Kełłowska, 2012). Gardner and Lambert (1972) promoted the concept that affect has an influence on language acquisition; they argued that affective factors operate independently of the cognitive factors like aptitude and intelligence. In Gardner’s socio-educational model of SLA, along with ability (language aptitude), affective factors are supposed to influence second language achievement (Gardner, 2010). Affective learner characteristics thus require to be emphasized in L2 teaching and learning.

In individual difference research, affective factors such as attitudes and motivation have been widely studied in L2 literature (Gardner, 1997). Using motivation, attitudes, and anxiety as the key words, Henter (2014) investigated the number of studies published between year 2002 and 2012 in 7 on-line international data bases (Science Direct, ProQuest, Ebsco, Cambridge Journals, Oxford Journals, Wiley, and Springer-Link). He identified 1311 papers on motivation, 1490 on attitudes and 461 on anxiety in the acquisition of a foreign language. As Gardner (2010) maintained, motivation is one crucial contributor to individual differences in second language achievement. Studies showed that language anxiety could impede second language production and achievement (e.g. Horwitz, Horwitz, & Cope, 1986; MacIntyre & Gardner, 1989; Von Worde, 2003). Both motivation and language anxiety are the two key variables determining whether an individual can succeed in L2 acquisition (Gardner & Smythe, 1975).

Despite the fact that research has revealed that attitudes, motivation, and language anxiety are important factors influencing language learning outcomes, insufficient empirical studies have been undertaken to investigate the link between the three variables (Liu & Huang, 2011; Liu & Cheng, 2014). Thus, the current study aimed to fill in this research gap by examining the relationships between the three factors. Further, the present study recruited university students in learning English as a foreign language in Taiwan as the participants for the following reasons. Anxiety, attitudes, and motivation in learning second language have been widely explored in western countries; however, few studies on language anxiety, attitudes, and motivation in learning English as a second language among the university students have been conducted in Asian countries (Jain & Sidhu, 2013). Few related studies involved non-language major university learners (see, e.g., Masgoret & Gardner, 2003).

Besides, motivation of adult language learners is yet to be investigated in a large-scale manner (Kormos & Csizer, 2008).

2. Purpose of the Study

This study explored the relationships between three variables—“attitudes toward the learning situation,” “motivation,” and “language anxiety.” The present study adopted the constructs explicated in Gardner’s AMTB—Attitude/Motivation Test Battery (2004). AMTB was developed to measure learners’ motivation and affective orientation to the target language and has remained influential in SLA research (Dörnyei, 2005).

It was hoped that the findings from this study could contribute to a better understanding of the affective needs of the learners. Based on this understanding, language instructors could sharpen their awareness of learner affect to better assist their students. This study was guided by the following research questions:

1. Is there a significant relationship between attitudes toward the learning situation, motivation, and language anxiety among the university students as a whole, the males, and the females respectively?
2. Is there a significant relationship between attitudes toward the learning situation, motivation, and language anxiety among majors in Science, Liberal Arts, and Education respectively?
3. Is there a significant relationship between attitudes toward the learning situation, motivation, and language anxiety among the high achievers and low achievers respectively?

Literature Review

1. Attitudes toward the Learning Situation (hereafter ALS)

As shown in Gardner’s (1997) meta-analysis study of 1247 published articles concerning individual differences since 1985, “attitudes” (40.82%) was the most frequently studied research topic. Attitudinal variables in language learning, including attitudes toward groups and/or individuals who speak the language, attitudes toward languages in general, toward the learning situation, etc., have been investigated (Gardner, *ibid.*). The current study chose to analyze attitudes toward the learning situation, as in an English as a foreign language learning context, such as Taiwan, ALS is one of the practical concerns especially crucial for English learners.

Practical concerns facilitate learning, especially when the language is not frequently experienced in the learners' community or not of social significance in that community, as rightly noted by both Do'nyei (1990) and Oxford (1996). In motivation research, Do'nyei (2001) emphasizes variables that are familiar to teachers (cited in Gardner, Masgoret, Tennant & Mihic, 2004). The learning situation is important in learning a second language and is connected with teachers. Classroom issues and the teacher's contribution to the learning situation have been recognized.

Gardner's socio-educational model takes classroom issues and teacher's contribution into account; as a construct, ALS refers to "attitudes toward any aspect of the situation in which the language is learned" (Gardner, 2010, p. 89). ALS as well as integrativeness support the students' level of motivation (Gardner, 2010). In the AMTB, ALS is measured via the learners' evaluative reactions to the teacher and the course (hereafter "TEACHER" and "CLASS") (ibid., p. 119).

2. Motivation

Motivation is an internal factor that inspires, guides, and sustains the actions (Pintrich, Marx & Boyle, 1993). In foreign language education, Gardner and Lambert (1972) found that L2 achievements were related to both language aptitude and motivation, and they distinguished integrative motivation from instrumental motivation. According to Gardner's (1985) model, developed from his earlier work with Smythe (1975), motivation took two forms--integrative motivation and instrumental motivation. The former refers to a learner's desire to integrate into the L2 community, and instrumental motivation was the desire to learn an L2 to achieve some goal, such as getting a job that required fluency in the L2.

Gardner and Smythe (1975) proposed a strong relationship between motivation and achievement. Because of the importance of motivation, the relations between learning motivation and target language achievements have been studied (e. g. Gardner & MacIntyre, 1991; Liu, 2010a; Masgoret & Gardner, 2003; Schmidt, Boraie, & Kassabgy, 1996). As Tragant (2006) asserts, many other studies have yielded significant correlations between motivation and achievement when motivation was measured using Gardner's AMTB (1985) as well as other instruments.

Integrative motivation is not shown in AMTB but is viewed as "the aggregate of integrativeness, attitudes toward the learning situation, and motivation" (Gardner, 2010, p. 91). Integrativeness is a reflection of "a genuine interest in learning the second language" to communicate with members of the target language community (ibid, p. 88), and in Gardner's AMTB, integrativeness is measured with scales "tapping attitudes toward the target language group, general interest in foreign language, and a set of integrative orientation items

reflecting reasons for language study based on attraction to the target language group” (MacIntyre, 2002, p. 48).

What concerns me the researcher of the study is not whether the participants’ motivation is integrative or instrumental. What really matters is that motivation facilitates learning and factors that motivate an individual to learn will bring out acquisition, as Gardner (1985) pointed out. As a result, whether the learners are motivated, rather than integrativeness, was the researcher’s primary concern.

In Gardner’s socio-educational model, the construct “motivation” is measured via three aspects: “how much effort the individual expends to learn the language,” “how much the individual wants to learn the language,” and “how much the individual enjoys learning the language” (Gardner, 2010). This means effort, desire, and positive affect are the three elements that are supposed to decide whether learners are motivated or not. Three scales are thus used to measure motivation: “Motivational Intensity” (hereafter MI), which refers to “the effort expended to learn the material and skills”; “Desire to learn English” (hereafter DESIRE), which is “the desire to achieve proficiency in the language” (ibid. p. 122); and “Attitudes toward learning English” (hereafter “ALE”), which reflects “the positive affect associated with the activity” (ibid., p. 123).

3. Language Anxiety

That language anxiety can interfere with language learning has long aroused research interest. Anxiety, however, is not a simple construct (Scovel, 1978, p. 137; cited from Horwitz, 2010). Psychologists have used different terms for types of anxiety—trait anxiety, state anxiety, achievement anxiety, and facilitative-debilitative anxiety. As a result, Horwitz (2010) noted that early studies on the relationship between anxiety and achievement yielded “mixed and confusing results” (p. 154).

Language anxiety is a situation-specific anxiety. Foreign Language Anxiety (FLA) or language anxiety was proposed by Horwitz et al. (1986); it is a specific anxiety construct, which was supposed to be responsible for learners' uncomfortable experiences in language classes. It is related with second language achievement (cf. Horwitz & Young, 1991; cited from Gardner, 2010, p. 124). Anxiety was once deemed to have both positive and negative effects on language achievement (e.g. Scovel, 1978), but “it is now generally recognized that its effect is negative” (Gardner, 2010, p. 124). Research findings have been indicating a consistent moderate negative relationship between anxiety and achievement since the term FLA was proposed in 1986 (Horwitz, 2001). An inverse relationship was also found between language anxiety and performance in Liu’s (2010b), and Kao and Craigie’s (2010) studies on language anxiety among undergraduate students in Taiwan.

The relationship of language anxiety with other learner factors is one important topic of later related studies, as Horwitz (2010) illustrated. For instance, Onwuegbuzie, Bailey, and Daley (1999) found that the university language students with the highest levels of FLA tended to be those who were older, high academic achievers and had low expectations of their overall average for their current language course, etc. The findings from Matsuda and Gobel's (2004) study showed that Japanese university English learners who had overseas experiences were less anxious speaking English. Dewaele, Petrides and Furnham (2008) found lower anxiety levels were associated with students who started learning a second language in an earlier age. Gender related language anxiety studies showed mixed findings (Matsuda & Gobel, 2004). Some studies have also been carried out in Taiwan to identify sources of language anxiety among EFL learners (e.g. Chan & Wu, 2004; Chao, 2003; Chen & Chang, 2004; Huang, 2005; Jen, 2003; Liu, 2010b; Wu, 2011). The findings from these studies have shown that language anxiety can be associated with various learner variables.

In Gardner's (2004) AMTB for English as a foreign language, language anxiety includes two sub-constructs: language class anxiety (hereafter "CLASS") and language use anxiety (hereafter "USE"). The former is associated with the language classroom environment, the latter, the general social environment.

4. The Relationships between ALS, Motivation, and Language Anxiety

As reviewed above, there have been a considerable amount of studies on ALS, motivation, and language anxiety respectively and the relationship of the language learning achievement with these affective variables. A growing body of research on the relationships between the three research variables is discussed below.

4.1 ALS and Motivation

During the 1990s, L2 motivation research expanded the concepts in Gardner's socio-educational model and emphasized the contribution of other cognitive and social factors to second language learning (Melzi & Schick, 2012). For instance, aspects of the learning situation, such as features of the classroom setting, the effects of the teacher, and the curriculum, were explored (Dörnyei, 1994; Williams & Burden, 1997). Students' attitudes toward teachers in the language classroom were examined in studies with French learners in Canada (Gardner, 1979), English learners of French (Noels, Clement, & Pelletier, 1999), and English learners of Spanish (Noels, 2003). In later related research, learners' satisfaction with programme was found to be a good predictor of motivation (Donitsa-Schmidt, Inbar, & Shohamy, 2004; Inbar, Donitsa-Schmidt, & Shohamy, 2001). Crisfield and White (2012) found that a significant relationship existed between student-perceived course usefulness and

the levels of interest and motivation among 615 learners at one Canadian post-secondary institution. In Susandi and Khaerudin's (2013) investigation of 82 Indonesian students in a tertiary institution, a significant positive relationship was found to exist between the learners' attitudes towards their English teachers and their motivation; the two variables were moderately correlated ($r = .57, p < .01$).

These studies have revealed that L2 learners' attitudes toward the classroom learning context and their motivation are positively correlated. Following earlier research, this study investigated the relationship between Taiwanese university English learners' attitudes toward the learning situation (namely, their English teachers and the course) and their motivation.

4.2 ALS and Language Anxiety

Previous studies exploring the relationship between language anxiety and instruction do not seem to have enough focus on the learners' ALS. What those studies concerned are: the situation when language learners are required to communicate orally in the L2 in front of their classmates; whether language anxiety influences classroom participation; and how language anxiety affects learner's processing of input and output (Ellis, 2012, p. 319).

Also, in second language teaching and learning, not enough focus has been on L2 learners' ALS. For example, in *Second Language Learning and Language Teaching*, Cook (2008) does not mention L2 learners' ALS when discussing attitudes and language teaching. In *Principles of Language Learning and Teaching*, Brown's (2007) illustration of "attitudes" centers on learners' attitudes toward the target group and culture. By contrast, L2 learners' attitudes toward the teacher were found to influence the learners' emotional or psychological states. Chapman (2013) found that attitude toward the teacher was a more meaningful predictor of student boredom than were classroom activities in her investigation of instances of boredom in the foreign language (German) classroom.

Apparently, more research is in need in regard to ALS and its relationship with language anxiety. The very few related studies showed significant relationships between the two. For example, learners' perceptions of their relationships with their teachers were related with their language anxiety, as shown in Bailey's (1983) analysis of the diaries of 11 classroom learners. Language anxiety was correlated with the learners' attitudes toward their teachers (Clement, Dörnyei, & Noels, 1994; cited from Susandi & Khaerudin, 2013, p. 82). Therefore, the current study investigated the relationship between ALS and language anxiety.

4.3 Language Anxiety and Motivation

Anxiety and motivation "are opposite ends of the same dimension, there being motivated, confident students and anxious, unmotivated students" (Gardner, Day, &

MacIntyre, 1992, p. 212). Yan and Horwitz (2008) considered “language learning interest and motivation” to be an important factor that can be related with language anxiety (p. 172). Most previous empirical research revealed that motivation was negatively related with anxiety. It was found that motivation was a significant predictor of foreign language anxiety (Huang, 2005; Liu, 2010a; Liu & Chen, 2015; Wei, 2007). Liu and Huang’s (2011) survey study of 980 undergraduate students in China found that language anxiety and English learning motivation were significantly negatively correlated with each other. Similarly, the more anxious students were found to be less motivated to learn English (Hao, Liu, & Hao, 2004; Liu, 2009; Liu & Huang, 2011). Liu and Cheng’s (2014) questionnaire study was conducted in a university in central Taiwan with 150 freshmen participants enrolled in the required English courses; anxiety levels were found to be significantly lower when students had a higher degree of motivation.

Nevertheless, several related studies pointed to the language requirement and fields of study that demand attention. Jain and Sidhu (2013) found that among the Science majors in Malaysia, there were students who desired to learn English despite their low English proficiency and high level of anxiety. The findings from Liu and Huang’s (2011) study revealed that a more anxious student was likely to be motivated by language requirement to learn English, with coefficients ranging from .21 to .31 ($p < .01$). The findings from these two studies echoed the findings from later anxiety related studies revealing that language anxiety can be connected with various learner variables like gender, starting time for learning an L2, and the proficiency levels of L2, etc. These findings also echoed the fact that there can be many possible bases for motivation. For instance, the fact that English is required can be a motivator; a few of Warden and Lin’s (2000) students in Taiwan expressed that “their main motivation for studying was that the class was required” (p. 539).

The current study thus examined the relationship between language anxiety and motivation with participants from different fields of study enrolled in the required Freshman English course. As described above, even though most previous empirical work indicated that language anxiety and motivation were negatively related, some found that the two variables were not necessarily negatively associated with each other when language requirement and the learners’ fields of study were taken into account.

What can be concluded with this review of the relationships between ALS, motivation, and language anxiety was that the three research affective variables can function together and perhaps interact with other factors in the process of L2 acquisition. This can be an explanation why more and more studies “examine affective variables as they are intertwined with each other and with other variables,” as Young (2014) observed (p. 379). Based on the literature reviewed above, this survey study explored the relationships between language

anxiety, ALS and motivation among the university students in learning English as a foreign language in Taiwan with regard to their gender, college, and level of English achievement.

Method

1. Participants

Students in different fields of studies enrolled in the required Freshman English course at a public university of education in northern Taiwan in 2015 school year were recruited to participate in this study. Although most of the students were freshmen, some sophomores, juniors, and seniors who had failed the program and had to repeat a year were also asked to respond to the questionnaire. The profile of respondents is shown in Table 1.

Table 1
Profile of Participants (*n*=596)

		Number of Respondents	Percentage
Gender	Male	194	32.55
	Female	402	67.45
College	Sciences	183	30.70
	Liberal Arts	216	36.24
	Education	197	33.05
Self-rated English Achievement	Low Proficiency	160	26.85
	High Proficiency	160	26.85

Totally, in the pilot study, 361 valid questionnaires were gained from voluntary students. In the formal study, 750 questionnaires were distributed to the students in Mid-December of 2015, and 679 valid questionnaires were obtained with a response rate of 90.53 percent. Then, 38 questionnaires responded by students from other countries and 39 questionnaires with incomplete information concerning the constructs analyzed in the study were deleted, so 602 questionnaires were available for analysis. Another 6 with outlier values were also deleted; thus a total of 596 questionnaires were analyzed. Among them, 194 were male and 402 female; 183 majored in Sciences, 216 in Liberal Arts, and 197 in Education. Students whose self-rated achievements ranked at the top 26.85% and bottom 26.85% of the full sample were

taken as high and low achievers respectively.

2. Survey Instrument and the Scoring System

The questionnaire was composed of three sections. Section A asked the background variables of the respondents. Section B consisted of items rating on 1 to 6 Likert scale with the starting point of “1—Strongly Disagree” and the end point of “6—Strongly Agree.” These represented 1 point to 6 points. Items in Section B were adapted from Gardner's (2004) International Attitude and Motivational Test Battery (AMTB) for English as a foreign language. This adapted version of the questionnaire with six-level Likert scale eliminated all the negatively keyed items of AMTB to prevent students' confusion, according to Brown and Rodgers (2002). Section C were items adapted from “The Can-do Scale” (Clark, 1984; cited in Gardner, 2010) for the participants to self-rate their English achievement. The items rated on 1 to 6 Likert scale with the starting point of “1—Very Difficult” and the end point of “6—Very Easy.” These indicated 1 point to 6 points.

After the questionnaire items were translated into Chinese, two professors of English whose native language is Chinese examined the renditions to make sure the translations were appropriate. A pilot test was then conducted to improve the validity and reliability of the questionnaire.

As ALS, “motivation,” and “anxiety” were the research variables of the present study, the items used to assess these three constructs in the formal study are illustrated below. ALS was measured by two factors: “TEACHER” with 5 items and “COURSE” with 3 items. These items assessed the degree of positive attitude toward the language teacher and the English course. “Motivation” was assessed by two variables--“MI” (4 items) and “DESIRE+ALE” (6 items). These items were used to assess--the intensity with which the learner approached English language learning; and the learner's desire to learn the language along with the learner's positive affect associated with the activity. In the original AMTB, “DESIRE” AND “ALE” were two separate components, but in the current study these two formed a factor according to the result of factor analysis. Two variables-- “CLASS” (5 items) and “USE” (5 items)—were used to measure the learner's “Anxiety” experienced in the English class and outside of class. Additionally, items from “The Can-do Scale” asked the participants to self-evaluate their own English ability, 6 for listening and reading (the receptive skills) and 5 for speaking and writing (the productive skills). As a result, totally there were 8 items to measure “attitudes,” 10 items to assess “motivation,” 10 items for the assessment of “language anxiety,” and 11 items for the self-rated English achievement.

3. The Validity and Reliability of the Factors

Data collected from the pilot study were analyzed. Kaiser-Meyer-Olkin (KMO) for attitudes, motivation, language anxiety, and “The Can-do Scale” were .91, .92, .94, and .91 respectively. This indicates that the constructs and items were suitable for factor analysis (Kaiser, 1974). Cronbach’s alpha (α) was run on the collected data with Statistical Package for the Social Science 20.0 (SPSS 20.0) to check the consistency of the instrument. The Cronbach coefficients were .93 for ALS, .92 for “motivation,” .94 “language anxiety,” and .92 “The Can-do Scale,” which were in the very acceptable range of reliability. Factor analyses were performed for the four constructs respectively; rotation method was Varimax with Kaiser Normalization. The results along with the items used in the formal study are shown in Appendixes A, B, C, and D.

As for the constructive validity, the results of the factor analysis elicited two main components for ALS, which conform to the two sublevels of the original AMTB; the two main components account for 83.48% (50.64% + 32.84%) of the total cumulative variance. Two items from “COURSE” component of the AMTB were removed. The results of the factor analysis elicited two main components for “Motivation,” in which “DESIRE” and “ALE” of the original AMTB were forced to form a component; the two main components “DESIRE+ALE” and “MI” account for 70.78% (41.70% + 29.08%) of the total cumulative variance. One item in the original “MI” was removed; and 4 items in the original “DESIRE” and “ALE” were removed. “Language Anxiety,” the results of the factor analysis elicited two main components, which conform to the two sublevels of the original AMTB; the two main components account for 78.41% (37.54% + 40.87%) of the total cumulative variance. The results of the factor analysis elicited two main components for the self-rated English achievement; the two main components account for 75.65% (34.97% + 30.68%) of the total cumulative variance. Note that the component loading of the two items--“Understand a

Table 2
Validity and Reliability of the Variables

construct	dimensions	Eigenvalue	% of variance explained	Reliability
ALS				.93
	Teacher	4.05	50.64	.95
	Course	2.63	32.84	.89
Motivation				.92
	DESIRE+ALE	4.17	41.7	.93
	MI	2.91	29.08	.80
language anxiety				.94
	Class	3.75	37.54	.91
	Use	4.09	40.87	.94
Self-rated English achievement				.92
	Reception (listening & reading)	3.38	30.68	.87
	Production (speaking & writing)	3.85	34.97	.89

conversation in English on a cd/voice file” and “Understand the teacher when he or she speaks in English in class”—is higher than .50 in both of the main components; see Appendix D for more information. After weighing, the two items were kept, as the content of the two items belongs to component 2 (language receptive skills) instead of component 1 (language productive skills). One item from “productive” component of Clark’s (1984) “The Can-do Scale” was removed. Validity and reliability of the dimensions of the four constructs are shown in Table 2 and Appendixes E, F, G, and H.

4. Data Analysis

SPSS 20.0 was used to quantitatively analyze the data, which aimed to answer the research questions presented earlier. The data analysis procedure mainly went through the following phases. First, the validity of the measures was examined using factor analysis, and the analyses of reliability were performed using Cronbach’s alpha to test the internal consistency of the measures. The descriptive statistics was used to get the mean scores (M) and standard deviation (SD). Then, to examine the relationships between anxiety, ALS, and motivation, Pearson correlations between the three research variables were obtained separately for the full sample, the males, the females, each of the three colleges that the participants belonged to, the high achievers and low achievers.

Results and Discussion

1. Mean Rating

The overall mean scores for the variables are shown in Table 3. The mean rating for language anxiety was 3.67 (SD = .97), which showed that the respondents only had medium level of English anxiety. The mean rating for self-rated English achievement was 3.87 (SD = .70). Motivation reported mean rating was 4.23 (SD = .78), followed by the mean score for ALS (mean = 4.00, SD = .84). The participants had high English learning motivation and positive attitudes towards the learning situation. There was no skewness above an absolute value of 3.0 and no kurtosis above an absolute value of 10.0. As a result, according to Kline (1998), data in the variables conformed to normal distribution.

Table 3
Mean Rating for ALS, Motivation, Anxiety, and Self-Rated English Achievement

Variable	<i>n</i>	Mean	SD	Skewness	kurtosis
ALS	596	4.00	.84	-.17	.63
Motivation	596	4.23	.78	-.26	.04
Anxiety	596	3.67	.97	-.13	.24
Self-Rated English Achievement	596	3.87	.70	-.04	.84

2. Correlations

2.1 Correlations between ALS, Motivation, and Anxiety among the University Students

Correlational analyses revealed the relationships between the students' ALS, motivation, and language anxiety (see Table 4). A significant relationship existed between ALS and motivation. A moderate and positive correlation was found among all the respondents ($r = 0.54, p < .01$), among the males ($r = .57, p < .01$) and among the females ($r = .52, p < .01$).

Table 4
Correlations between ALS, Motivation, and Anxiety among the University Students
(n = 596)

		ALS	Motivation	Anxiety
ALS	The Full Sample/Male/Female	1/1/1		
Motivation	The Full Sample/Male/Female	.54**/.57**/.52**	1/1/1	
Anxiety	The Full Sample/Male/Female	.03/-.03/.05	-.12**/-.11/-.15*	1/1/1

Note 1: * $p < .05$; ** $p < .01$

Note 2: $n_1 = 596$, $n_2 = 194$, $n_3 = 402$

Note 3: $n_1 =$ The Full Sample, $n_2 =$ Male, $n_3 =$ Female

Moreover, a significant relationship existed between anxiety and motivation among all the respondents and among the females, with a low and negative correlation with coefficients $-.12$ ($p < .01$) and $-.15$ ($p < .05$) respectively. Nevertheless, the r of $-.12$ (for all the students) and $-.15$ (for females) are not very different, when the sample sizes (402 females and 194 males) are taken into consideration.

It is noteworthy that the correlation between motivation and ALS was stronger than correlation between motivation and anxiety; however, the two correlations were in different directions, one positive and the other negative. The students' motivation was more related with their attitudes toward the classroom learning situation, rather than with their language anxiety.

2.2 Correlations between ALS, Motivation, and Anxiety among Majors in Different Fields

Table 5 shows that a significant relationship existed between ALS and motivation regardless of the types of colleges. A moderate positive correlation between the two variables was found among majors in Science ($r = .59$, $p < .01$), Liberal Arts ($r = .59$, $p < .01$), and Education ($r = .47$, $p < .01$). A significant relationship was found between ALS and anxiety among Science majors, with a low and positive correlation ($r = .20$, $p < .01$). A significant relationship also existed between anxiety and motivation. The low correlation between the two variables was negative among majors in Liberal Arts ($r = -.23$, $p < .01$) and Education majors ($r = -.16$, $p < .05$); the more anxiety these students had, the less motivated they were.

Table 5
Correlations between ALS, Motivation, and Anxiety among Majors in Different Fields

		ALS	Motivation	Anxiety
ALS	Science/LA/Educ.	1/1/1		
Motivation	Science/LA/Educ.	.59**/.59**/.47**	1/1/1	1/1/1
Anxiety	Science/LA/Educ.	.20**/.09/-0.00	.03/-0.23**/-0.16*	

Note 1: * $p < .05$; ** $p < .01$

Note 2: $n_1 = 183$, $n_2 = 216$, $n_3 = 197$

Note 3: $n_1 =$ Science, $n_2 =$ LA = Liberal Arts, $n_3 =$ Educ. = Education

Noteworthy was that regardless of the fields of study, the correlation between ALS and motivation was again stronger than that between anxiety and motivation. However, the two correlations were in different directions, one positive and the other negative.

2.3 Correlations between ALS, Motivation, and Anxiety: High Achievers vs. Low Achievers

As Table 6 shows, among high achievers, a significant relationship existed only between ALS and motivation; the two variables were moderately and positively correlated ($r = .43$, $p < .01$). Among the low achievers, the relationships between ALS and motivation; ALS and anxiety; and anxiety and motivation were all significant and positive, with coefficients .60 ($p < .01$), .29 ($p < .05$), and .33 ($p < .05$), respectively.

Note that the correlation between ALS and motivation among the low achievers was stronger than that among the high achievers. Strikingly, among the low achievers, both the correlation between ALS and anxiety and that between anxiety and motivation were positive even though the correlation was low.

Table 6
Correlations between ALS, Motivation, and Anxiety: High Achievers ($n = 160$) vs. Low Achievers ($n = 160$)

		ALS	Motivation	Anxiety
ALS	High Achievers/Low Achievers	1/1		
Motivation	High Achievers/Low Achievers	.43**/.60**	1/1	
Anxiety	High Achievers/Low Achievers	.09/.29*	-.15/.33*	1/1

* $p < .05$; ** $p < .01$

3. Discussion

3.1 The Significant Moderate Positive Relationship between ALS and Motivation

Table 7 presents a summary of the relationships among the three variables investigated in this study. Table 7 shows that ALS and motivation were significantly and positively correlated with each other regardless of the students' genders, the colleges that they belonged to, and the levels of their English achievement, with coefficients ranging from .43 to .60 ($p < .01$). This is a critical finding, highlighting the important role that the classroom context can

Table 7
Summary of Correlations between ALS, Motivation, and Anxiety

	All participants ($n = 596$)	Male ($n = 194$)	Female ($n = 402$)	Sciences Majors ($n = 183$)
ALS & Motivation	.54**	.57**	.52**	.59**
ALS & Anxiety	.03	-.03	.05	.20**
Motivation & Anxiety	-.12**	-.11	-.15*	.03

	Majors in Liberal Arts ($n = 216$)	Majors in Educ. ($n = 197$)	High Achievers ($n = 160$)	Low Achievers ($n = 160$)
ALS & Motivation	.59**	.47**	.43**	.60**
ALS & Anxiety	.09	-.00	.09	.29*
Motivation & Anxiety	-.23**	-.16*	-.15	.33*

* $p < .05$; ** $p < .01$

play in L2 motivation, which leads to L2 acquisition. This finding echoes Gardner's socio-educational model of second language acquisition, in which the learner's attitudes toward the learning situation play a crucial role and are supposed to support motivation (Gardner, 2010). Moreover, this moderate correlation found in the present study confirmed the findings from previous research by Crisfield and White (2012), and Susandi and Khaerudin (2013). All in all, this finding was also in accord with previous related studies (e. g. Donitsa-Schmidt, Inbar, & Shohamy, 2004; Gardner, 1979; Inbar, Donitsa-Schmidt, & Shohamy, 2001; Noels, Clement, & Pelletier, 1999; Noels, 2003).

Note that the correlation between motivation and ALS was higher among the low achievers ($r = .60$) than among the high achievers ($r = .43$). Perhaps this result was due to the fact that Freshman English course was required; consequently, the low achievers were motivated to learn. This was similar to what Warden and Lin (2000) found--the fact that Freshman English course was required could be the motivator for learning.

3.2 The Relationship between ALS and Language Anxiety

A significant low positive correlation between ALS and anxiety existed only among Science majors ($r = .20, p < .01$) and low achievers ($r = .29, p < .05$). This finding was similar to what Clement, Dörnyei and Noels (1994) found: L2 learners' language anxiety and their attitudes toward their teachers were correlated. However, as to why the relationship between the two variables was positive among Science majors and the low achievers is yet to be found in future research.

3.3 The Relationship between Motivation and Language Anxiety

A low level of negative correlation existed between language anxiety and motivation among the full sample of students ($r = -.12, p < .01$), the females ($r = -.15, p < .05$), Liberal Arts majors ($r = -.23, p < .01$), and Education majors ($r = -.16, p < .05$). This finding that anxiety and motivation were negatively correlated confirmed what most previous research found (e.g. Hao, Liu, & Hao, 2004; Liu, 2009; Liu & Cheng, 2014; Liu & Huang, 2011).

Among the low achievers of the study, a low and positive correlation existed not only between ALS and language anxiety but also between language anxiety and motivation ($r = .33, p < .05$). This highlighted the fact that attitudes toward the teacher and the course were practical concerns for the low achievers to acquire a passing grade. Anxiety and motivation did not have an inverse relationship among the low achievers. This finding was congruent with what Warden and Lin (2000) and Liu and Huang (2011) pointed to; language requirement can function as a motivator for students to learn English. In other words, the low

achiever's anxiety was positively related with his/her attitudes toward the learning situation as well as motivation. For the low achievers of the current study, language anxiety did not impede their motivation.

Conclusions and Implications

1. Conclusions

Several conclusions derived from the current study of the relationships between the three research variables are described below. First, ALS and motivation were significantly related to each other; the moderate and positive correlation between the two was found across genders, colleges, and the levels of English achievement. Second, the significant relationship between ALS and anxiety existed only among Science majors and low achievers, with a low and positive correlation. Third, the significant relationship between motivation and anxiety existed among all the students as a whole, among the females, majors in Liberal Arts and majors in Education, with a low and negative correlation. Exceptionally, among the low achievers, motivation and anxiety were significantly related, with a low and positive correlation.

2. Limitations of the Study

The current study contributed to research pertinent to learner differences by looking into the three affective variables among the Taiwanese non-English major university students. As pointed out above, former studies seldom investigated the three research variables simultaneously in the same language learning setting (Liu & Huang, 2011; Liu & Cheng, 2014), and only few previous related studies involved non-language major university students (see, e.g., Masgoret & Gardner, 2003). Still, the current study had several limitations.

First, the current study was conducted only on one university campus, so no information concerning how learners in different schools differed could be found. Related with this was the difference in terms of the numbers of the male ($n = 194$) and female ($n = 402$) participants of the current study, which might have affected the results of analysis. Second, the study did not survey the learners' views at different periods of time during the semester. As Gardner, Masgoret, Tennant, and Mihic's (2004) study found, attitudes toward the learning situation, motivation, and language anxiety assessed by the AMTB can change over the duration of the semester. The findings from the current study thus could not provide information about whether the subjects changed their perceptions at different periods of the semester. Third, the current study only asked the learners to self-rate what they can achieve concerning their English proficiency as shown in their receptive and productive skills. The

results might have been different if a standardized proficiency test had been administered.

3. Implications for English Teaching

The recommendations for English instructors are illustrated below. The first suggestion for English teachers is to pay close attention to what they do in class and the course requirements, the current study found that motivation and attitudes toward the learning situation moderately and positively correlated with each other. Both what an English teacher does in class and the course are connected with the students' attitudes toward the learning situation, which could be further correlated with their motivation to learn English. The learners' affective reactions to the learning context strongly demand English teachers' attention.

Second, it is suggested that English teachers be more aware of learner affective factors and their potential influences. In the current study, a low but negative correlation between anxiety and motivation was found among female students instead of male students. The low but negative correlation between anxiety and motivation was also found among majors in Liberal Arts and in Education rather than among Science majors; however, correlation between anxiety and motivation was positive among low achievers. Thus, English teachers are supposed to take gender, the college, and proficiency levels of the learners into serious consideration to enhance teaching effectiveness and to benefit the students' English learning.

4. Implications for Future Research

Three suggestions are provided for future studies. First, future research is recommended to further examine the three research variables, and qualitative methods (such as interviews) can be used for data collection to enrich the findings. ALS, its relationships with other learner variables, and its influence on L2 outcome deserve to be investigated. The current study found a significant moderate positive relationship between ALS and motivation, indicating the important role of ALS in the process of L2 acquisition. In the present study, ALS was also found to have a significant relationship with anxiety among Science majors rather than students in other fields of study. Likewise, the construct "anxiety" demands further research. The finding from this study showed that language anxiety positively correlated with ALS among the Science majors and low achievers, and that it was positively correlated with motivation among low achievers. Thus, the relationships between language anxiety and other factors require further investigations.

The second suggestion for future research is to study how the learners' perceptions change at different periods of the semester or the school year. The current study did not explore the participants' views at different periods of time during the semester. Future

research providing information regarding change in learner perceptions can provide more nuanced information for English teachers.

Third, future studies can be conducted on more campuses with standardized tests to more objectively measure the learners' English proficiency. The current study was conducted in one public university and asked the learners to self-rate their English receptive and productive skills. Factors related with the school level can be crucial too, given the fact that the related survey studies collect data based on the learners' views. Learner perceptions can actually be affected by the different requirements in the English programs because of different school policies.

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Appendix A
Result of Factor Analysis for “Attitudes to Learning Situation”

Factor	Item	Component 1 loading	Component 2 loading	Commo- nalities	Eigen- value	% of variance explained
Teacher					4.05	50.64
	I look forward to going to class because my English teacher is so good.	.86	.32	.84		
	My English teacher is better than any of my other teachers.	.90	.25	.87		
	My English teacher has a dynamic and interesting teaching style.	.89	.22	.83		
	My English teacher is a great source of inspiration to me.	.81	.34	.78		
	I really like my English teacher.	.91	.25	.90		
Course					2.63	32.84
	I would rather spend more time in my English class and less in other classes.	.20	.90	.85		
	I enjoy the activities of our English class much more than those of my other classes.	.28	.89	.87		
	I like my English class so much, I look forward to studying more English in the future.	.33	.80	.75		

Note. Exploratory factor analysis used principal component extraction with oblique rotation, forcing a two-factor solution. Rotation method was Varimax with Kaiser Normalization.

Appendix B
Result of Factor Analysis for “Motivation”

Factor	Item	Component 1 loading	Component 2 loading	Commo- nalities	Eigen- value	% of variance explained
DESIRE					4.17	41.7
+ALE	I have a strong desire to know all aspects of English.	.66	.50	.68		
	I want to learn English so well that it will become natural to me.	.88	.20	.82		
	I would like to learn as much English as possible.	.87	.27	.84		
	I wish I were fluent in English.	.89	.15	.82		
	Learning English is really great.	.78	.34	.72		
	I plan to learn as much English as possible.	.70	.43	.68		
MI					2.91	29.08
	I make a point of trying to understand all the English I see and hear.	.30	.70	.59		
	When I have a problem understanding something in my English class, I always ask my teacher for help.		.79	.64		
	I really work hard to learn English.		.76	.66		
	When I am studying English, I ignore distractions and pay attention to my task.	.33	.73	.64		

Note. Exploratory factor analysis used principal component extraction with oblique rotation, forcing a two-factor solution. Rotation method was Varimax with Kaiser Normalization.

Appendix C
Result of Factor Analysis for “Language Anxiety”

Factor	Item	Component 1 loading	Component 2 loading	Commonalities	Eigen- value	% of variance explained
CLASS					3.75	37.54
	I never feel quite sure of myself when I am speaking in our English class.	.33	.83	.79		
	It embarrasses me to volunteer answers in our English class.	.20	.87	.80		
	It worries me that other students in my class seem to speak English better than I do.	.38	.68	.61		
	I get nervous when I am speaking in my English class.	.35	.84	.82		
	I am sometimes anxious that the other students in class will laugh at me when I speak English.	.39	.75	.72		
USE					4.09	40.87
	I would get nervous if I had to speak English to a tourist.	.83	.32	.79		
	Speaking English anywhere makes me feel worried.	.83	.40	.85		
	It would bother me if I had to speak English on the telephone.	.79	.41	.80		
	I would feel uncomfortable speaking English anywhere outside the classroom.	.84	.30	.80		
	I feel anxious if someone asks me something in English.	.89	.27	.87		

Note. Exploratory factor analysis used principal component extraction with oblique rotation, forcing a two-factor solution. Rotation method was Varimax with Kaiser Normalization.

Appendix D
Result of Factor Analysis for “The Can Do Scale”/The Self-Rated English Achievement

Factor	Item	Component 1 loading	Component 2 loading	Commonalities	Eigen- value	% of variance explained
Receptive					3.38	30.68
	Understand a conversation in English on a cd/voice file.	.52	.54	.57		
	Understand the teacher when he or she speaks in English in class.	.58	.53	.62		
	Understand the lyrics of a song in English on the radio.	.40	.52	.43		
	Understand the title of a book written in English.	.33	.74	.65		
	Read a book in English without using a dictionary.	.20	.83	.73		
	Read comics in English.	.23	.82	.72		
Productive					3.85	34.97
	Explain in English something funny that happened to a friend of mine.	.80	.30	.73		
	In English, say things about a photo or a picture while I'm looking at it.	.89	.26	.86		
	Explain in English why I am late for class.	.88	.21	.82		
	Write a composition about the summer holidays in English.	.55	.49	.55		
	Make a list in English of things I want for my birthday.	.60	.43	.55		

Note. Exploratory factor analysis used principal component extraction with oblique rotation, forcing a two-factor solution. Rotation method was Varimax with Kaiser Normalization.

APPENDIX E

Validity and Reliability of the Two Dimensions of “Attitudes to Learning Situation”

Factor	Item	Loading	Commonalities	Eigen- value	% of variance explaine d	Reliability
Teacher				4.05	50.64	.95
	I look forward to going to class because my English teacher is so good.	.86	.84			
	My English teacher is better than any of my other teachers.	.90	.87			
	My English teacher has a dynamic and interesting teaching style.	.89	.83			
	My English teacher is a great source of inspiration to me.	.81	.78			
	I really like my English teacher.	.91	.90			
Course				2.63	32.84	.89
	I would rather spend more time in my English class and less in other classes.	.90	.85			
	I enjoy the activities of our English class much more than those of my other classes.	.89	.87			
	I like my English class so much, I look forward to studying more English in the future.	.80	.75			

Appendix F
Validity and Reliability of the Two Dimensions of “Motivation”

Factor	Item	Loading	Commonalities	Eigen- value	% of variance explained	Reliability
DESIRE+ALE				4.17	41.7	.93
	I have a strong desire to know all aspects of English.	.66	.68			
	I want to learn English so well that it will become natural to me.	.88	.82			
	I would like to learn as much English as possible.	.87	.84			
	I wish I were fluent in English.	.89	.82			
	Learning English is really great.	.78	.72			
	I plan to learn as much English as possible.	.70	.68			
MI				2.91	29.08	.80
	I make a point of trying to understand all the English I see and hear.	.70	.59			
	When I have a problem understanding something in my English class, I always ask my teacher for help.	.79	.64			
	I really work hard to learn English.	.76	.66			
	When I am studying English, I ignore distractions and pay attention to my task.	.73	.64			

Appendix G
Validity and Reliability of the Two Dimensions of “Language Anxiety”

Factor	Item	Loading	Commonalities	Eigen- value	% of variance explained	Reliability
CLASS				3.75	37.54	.91
	I never feel quite sure of myself when I am speaking in our English class.	.83	.79			
	It embarasses me to volunteer answers in our English class.	.87	.80			
	It worries me that other students in my class seem to speak English better than I do.	.68	.61			
	I get nervous when I am speaking in my English class.	.84	.82			
	I am sometimes anxious that the other students in class will laugh at me when I speak English.	.75	.72			
USE				4.09	40.87	.94
	I would get nervous if I had to speak English to a tourist.	.83	.79			
	Speaking English anywhere makes me feel worried.	.83	.85			
	It would bother me if I had to speak English on the telephone.	.79	.80			
	I would feel uncomfortable speaking English anywhere outside the classroom.	.84	.80			
	I feel anxious if someone asks me something in English.	.89	.87			

Appendix H
Validity and Reliability of the Two Dimensions of “The Can Do Scale”/The Self-Rated English Achievement

Factor	Item	Loading	Commonalities	Eigen- value	% of variance explained	Reliability
Receptive				3.38	30.68	.87
	Understand a conversation in English on a cd/voice file.	.54	.57			
	Understand the teacher when he or she speaks in English in class.	.53	.62			
	Understand the lyrics of a song in English on the radio.	.52	.43			
	Understand the title of a book written in English.	.74	.65			
	Read a book in English without using a dictionary.	.83	.73			
	Read comics in English.	.82	.72			
Productive				3.85	34.97	.89
	Explain in English something funny that happened to a friend of mine.	.80	.73			
	In English, say things about a photo or a picture while I’m looking at it.	.89	.86			
	Explain in English why I am late for class.	.88	.82			
	Write a composition about the summer holidays in English.	.55	.55			
	Make a list in English of things I want for my birthday.	.60	.55			

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