

以改良的 *Wug* 測試再探華語三聲變調的語音變異不全現象

Revisiting Phonetically Incomplete Tone Three Sandhi in Mandarin Chinese: Insights from a Revised *Wug* Test

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摘 要

本文探究華語三聲變調在假字實驗中的語音變異不全現象，是否能歸因於詞彙熟悉度效應所導致的發音執行問題。本研究透過改良後的 *wug* 測試創造了新的物品及顏色名稱以誘發 40 位臺灣華語母語成年人士產出三聲變調字詞。語音聲學分析的結果顯示，連續三聲雙音節詞的組合類別是影響三聲變調語音變異是否完整應用的關鍵。當雙音節詞假字中的第一個音節是臺灣華語真實存在的音節時，三聲變調在語音層面上能完全應用；當雙音節詞假字中的第一個音節不是臺灣華語真實存在的音節時，三聲變調在語音層面上則無法完全應用。實驗的結果支持了華語三聲變調在假字實驗中的語音變異不全現象是由詞彙熟悉度效應所導致的發音執行問題。本文將討論改良後的 *wug* 測試在研究變調議題上的益處，也同時討論變調假字衍生力與其心理表徵之間的關係。

關鍵字：發音執行、語音隱性對比、基礎頻率（基頻）、衍生力、假字、三聲變調

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Abstract

This study explored the possibility that the phonetically incomplete application of Tone Three Sandhi (T3S) among pseudowords in Mandarin Chinese could be reduced to the articulatory implementation factor triggered by lexical familiarity effects. A revised *wug* test with newly-constructed color and objects was used to elicit T3S productions from 40 native Taiwan Mandarin adult speakers. The results from acoustical analysis showed that the nature of the word type of the first T3 syllable in the disyllabic T3 word was the key to the phonetic (in)completeness of T3S. When the first syllable of the pseudo-disyllabic word was an actually-occurring syllable, the application of T3S was phonetically complete. When the first syllable was an accidentally-gapped syllable, the application of T3S was phonetically incomplete. These results support the view that the articulatory implementation, which is triggered by lexical familiarity effects, exerts strong influences on the phonetic completeness of T3S. The benefits of the revised *wug* test used in this study as well as the relationship between the degrees of pseudoword productivity and mental representations of tones are discussed.

Keywords: Articulatory Implementation; Covert Contrast; Fundamental Frequency (f0); Productivity; Pseudoword; Tone Three Sandhi (T3S)

1. Introduction

1.1 Psychological reality and pseudoword experiment

According to Chomsky (1972), a linguistic theory can reach explanatory adequacy only when the theory is universally valid, maximally constrained and psychologically real (c.f. Radford 1988, Chapter 1 for more details). In other words, a theory without psychological reality must fail to reach explanatory adequacy. Chomsky's notion of explanatory adequacy exerts influence on every sub-domain of linguistic studies, including phonology. Since 1970s, many phonologists have shown concerns pertaining to the abstractness of phonological analysis and have proposed that phonological analysis should be based on laboratory methods or experimentation (Kenstowicz & Kisseberth, 1979; Ohala, 1986; Ohala & Jaeger, 1986; Odden, 2005; Hayes, 2009). The trend of phonetically-based phonology also influences studies on Mandarin tone sandhi. For instance, in 1970s, following Berko's (1958) seminal *wug* experiment, Hsieh (1970, 1975, 1976) conducted a series of pseudoword experiments to investigate the psychological reality of Taiwanese tone sandhi rules, where human listeners were invited to judge the surface tone categories. Subsequent studies in this line adopted acoustical analysis, which enabled researchers to understand if there were any covert contrasts, which were hardly perceivable by human ears, between real word and pseudoword productions and if the tone sandhi rules were underlearned (ignorance of generalizable patterns) or overlearned (learning even with the poverty of the stimulus in the lexicon) (Zhang & Liu, 2016; Zhang & Meng, 2016; Zhang, 2016). To date, a large body of tone sandhi rules found in varieties of Mandarin had been acoustically analyzed, including Beijing Chinese (Xu, 1991, 1997; Zhang & Lai, 2010; Zhang & Peng, 2013; Chen & Li, 2021), Taiwanese (Zhang & Lai, 2008; Zhang Lai & Sailor, 2011), Tianjin Chinese (Zhang & Liu, 2016), Wuxi Chinese (Yan & Zhang, 2016), Shanghai Wu (Zhang & Meng, 2016) etc. However, several issues relating to the experimental designs deserved more detailed attention. Before detailing those issues in the section *Some puzzles*, I have to first introduce and review the literature pertaining to the generativity of Tone Three Sandhi (T3S) in Mandarin Chinese below.

1.2 Generativity of T3S in Mandarin Chinese

1.2.1 Background of T3S

Based on Chao's (1930, 1948, 1968) five-point scale on tone values, T3S rule in Mandarin

Chinese is shown in (1a) and is exemplified in (1b).¹

(1) a. Tone Three Sandhi (T3S) in Mandarin Chinese

213 → 35 / _ 213

A Tone 3 (T3) syllable becomes Tone 2 (T2) when it is followed by another T3 syllable

b Instance of T3S

小 鳥

xiao niao ‘bird’

T3 T3 underlying tone

T2 T3 surface tone

In (1b), *xiao niao* ‘bird’ is a disyllabic word where both syllables are underlying Tone 3 (T3). As specified in (1a), the first T3 syllable (i.e., *xiao* ‘small’) undergoes tone sandhi and perceptually becomes a T2-like pitch. Although the application or non-application of T3S is subject to factors such as speech rate, syntactic structures, phonological structure etc. (see Chen, 2000; Duanmu, 2007; Lin, 2007; Liu, 2017 and Liu & Chen, 2020 for further discussions), according to the analyses in Chen (2000) and Duanmu (2007), T3S must apply when the two consecutive T3 syllables formulate a disyllabic word.

1.2.2 Literature on the productivity of T3S

Studies probing into the productivity of T3S can be broadly divided into two aspects, including if the rule is psychologically real (Cheng, 1968; Xu, 1991, 1997) and if the application of the rule is phonetically complete (Zhang & Lai, 2010; Zhang & Peng, 2013; Chen & Li, 2021).

Earlier studies investigating the psychological reality of T3S requested the participants to recite non-existing words/phrases and invited human listeners to judge the surface tones of the productions. For instance, Cheng (1968) created sentences where both Chinese and English were available in the same sentence. One example from Cheng (1968) is shown in (2).

(2) Hǎo professor bù duō.

good professor not many

‘There are not many good professors.’

1 There is another view about T3S in the literature. Many authors believe that the sandhi tone in (1a) is not Tone 2 (T2), but a rising pitch. That is, the sandhi rule does not involve a categorical change of the tone. For the sake of simplicity, T2 is used to represent the sandhi tone in the current study. Readers who are interested in this issue are referred to Wee (2019), Yuan & Chen (2014), Zhang & Peng (2013) and the references therein.

The first two syllables in the word *professor* (i.e., *pro* and *fe*) received the quaternary and primary stress, respectively. The combinations of the two syllables resembled a T3 syllable in Mandarin Chinese. If English stresses were interpretable in the same way as Chinese tones among Chinese speakers, the T3 syllable preceding the word *professor* (i.e., *hǎo* ‘good’) should undergo T3S. Experimental results indicated that T3S application rate was the highest when the following English word was a disyllabic word. T3S application rates of Chinese T3 monosyllabic words dropped when the following English word became a trisyllabic or quadrisyllabic syllable. In short, Cheng’s (1968) study indicated that native speakers of Mandarin Chinese could apply T3S even when the linguistic stimuli were new to them, suggesting that the sandhi rule was psychologically real. Similar findings were found in Xu (1991, 1997), who designed both visual perception and production experiments using nonsense T3 disyllabic words (i.e., *shǐdǐng* and *mǎmǎ*). The results indicated that T3S rule could be naturally applied with and without overt productions, showing that T3S is psychologically real.

The studies reviewed above clearly indicated that the phonological rule, T3S, was psychologically real because the rule was applicable to non-existing words in Mandarin Chinese. However, later studies go further by examining if the T3S was *phonetically* complete among pseudowords. The seminal study conducted by Zhang and Lai (2010), and later reduplicated by Chen and Li (2021) with a different statistical method, was particularly informative in this respect. Zhang and Lai (2010) included five types of disyllabic T3 word lists, as shown in (3) below, in two production experiments.

(3) The Five Sets of Disyllabic T3 Test Words in Zhang and Lai (2010)

- a. **AO-AO (Two actual occurring morphemes)**
展覽, *zhan lan* ‘exhibit’
- b. ***AO-AO (Not actual occurring disyllabic words)**
減也, *jian ye* (meaningless)
- c. **AO-AG (Actual occurring morpheme and accidental gap)**
巧 *hang*, *qiao hang* (meaningless)
- d. **AG-AO (Accidental gap and actual occurring morpheme)**
run 起, *run qi* (meaningless)
- e. **AG-AG (Accidental gap and accidental gap)**
run pan (meaningless)

Based on the phonetic characteristics, morphosyntactic properties and historical origins of T3S, Zhang and Lai (2010) claimed that T3S was less phonetically motivated and therefore,

they hypothesized that T3S would apply less productively among pseudowords. The results from fundamental frequency (f_0) shape, average f_0 value, the turning point (lowest value) of f_0 and rhyme duration showed that T3S applies incompletely among pseudowords, supporting their view that phonetic motivations exerted influences on synchronic phonology. The position was also echoed by Chen and Li (2021).

Although Zhang and Lai (2010) provided compelling evidence for the influence of phonetic motivations on the phonetically incomplete applications of T3S, the study was not left without questions. For instance, Zhang and Peng (2013) noted that the vowels of the critical T3 syllable (i.e., the first T3 in a T3-T3 sequence) were not properly controlled. As it was well established that high vowels would result in higher f_0 (Lehiste, 1970), studies measuring f_0 contours generally normalized the raw f_0 values by using z-scores (Chen, 2011; Li & Chen, 2016; Liu & Chen, 2020 among many others) so that the potential effects contributed from vowels could be erased. However, Zhang and Lai (2010) used raw f_0 values in their study and therefore it can not be excluded that the differences in f_0 values observed in Zhang and Lai (2010) might be the results of differences in vowels of the critical T3 syllable. In order to control for the confounding factor, Zhang and Peng (2013) created minimal pairs for real words (e.g. *er yu*, T2-T3, ‘baby talk’ vs. *er yu*, T3-T3, ‘whisper’) and pseudowords (e.g. *fia sua*, T2-T3 vs. *fia sua*, T3-T3). The experimental results from several acoustical parameters showed that there were no differences between the first syllables of underlying T2 syllables and underlying T3 syllables among real words (i.e., *er yu*, T2-T3, ‘baby talk’ vs. *er yu*, T3-T3, ‘whisper’). However, significant differences in average f_0 values and f_0 contour shapes were found between the first syllables of underlying T2 syllables and underlying T3 syllables among pseudowords (i.e., *fia sua*, T2-T3 vs. *fia sua*, T3-T3). Therefore, Zhang and Peng (2013) claimed that the covert, phonetic contrasts observed between underlying T2 and underlying T3 among pseudowords could be attributed to differences in the articulatory implementation triggered by lexical familiarity effects.

1.2.3 Some puzzles

Several issues in the relevant literature deserve further attention. First, adjacency of two T3 syllables was not the only condition for the application of T3S. It is agreed that tone sandhi is sensitive to morphosyntactic and prosodic constituency (Chen, 2000; Yip, 2002; Duanmu, 2007; Wee, 2008, 2010, 2019; Liu & Chen, 2020). When the semantic contents are absent, the morphosyntactic and/or prosodic structure cannot be properly processed (c.f. Hsieh, 1970, 1975; Wang, 1993; Chuang, Chang & Hsieh, 2011; Wee, 2019) and this in turn would affect the applicability of T3S. Without assigning proper meanings to pseudowords, previous studies (Zhang & Lai, 2010; Zhang & Peng, 2013; Chen & Li, 2021) did not create the felicitous

conditions for the application of T3S. This might contribute to the observed phonetically incomplete applications of T3S. In fact, some studies focusing on tone sandhi phenomena in some Mandarin varieties have noticed the issue and have assigned meanings to pseudowords in their studies (Yan & Zhang, 2016; Zhang & Meng, 2016).

Second, in order to erase the influences of different vowel heights on f0 heights as well as to minimize between-speaker differences, studies focusing on f0 contours generally utilized z-scores so that the relative f0 shapes could be extracted (Chen, 2011; Li & Chen, 2016; Liu & Chen, 2020 among many others). Additionally, differences in the onset consonants of the second syllables also affect the f0 heights of the first syllables (Hombert, 1976; Ohde, 1984). Therefore, the f0 value differences observed in Zhang and Lai (2010) and Chen and Li (2021) might be the results of the materials and/or the data analysis methods they used in their experiments.

Finally, if the phonetically incomplete applications of T3S were the results of the differences in articulatory implementation triggered by differences in lexical familiarity, as proposed by Zhang and Peng (2013), it was expected that phonetic differences would be observed between the first sandhi syllables of T3-T3 real words and T3-T3 pseudowords (i.e., the first T3 in T3-T3 real words and pseudowords). However, such comparisons were not made in Zhang and Peng's (2013) study. Similarly, Zhang and Lai (2010) did not compare AO-AO (i.e., (3a)) with the other four types of pseudowords (i.e., (3b) to (3e)) individually. Instead, they compared AO-AO (i.e., (3a)) with the average values of other types of pseudowords (i.e., (3b) to (3e)) as well as compared the average values of (3a) to (3c) with the average values of (3d) and (3e). In short, in order to strengthen the claim proposed by Zhang & Peng (2013), a direct comparison among the first T3 syllables in AO-AO and other types of pseudowords individually would be informative in this respect.

1.3 The present study

The purpose of this study is to critically examine the applicability of T3S among pseudowords, with special attention to the phonetic completeness of T3S application. This study is significant in the following aspects. Methodologically, a revised *wug* test is proposed so that the confounding factors contributed by vowels of the real and pseudo-word minimal pairs as well as the onset consonants of the second syllable could be excluded. Additionally, the revised *wug* test enables proper meanings to be assigned to those pseudowords so that the felicitous condition for T3S could be satisfied. Furthermore, the claim proposed by Zhang and Peng (2013) could be directly assessed. That is, by comparing the differences among the first syllables of AO-AO with those from various types of T3-T3 pseudowords, the experimental results could verify if the phonetically incomplete applications of T3S could be attributed to differences in the articulatory

implementation triggered by lexical familiarity effects. Finally, the current study could shed some light on the issue pertaining to the connections between the degrees of pseudoword productivity and mental representations of tones.

2. Methods

2.1 Participants

A total of 40 adult speakers of Taiwan Mandarin (20 males and 20 females) were included in a production experiment. According to their self-reports, none of them had any medical history in language-related disorders.

2.2 A revised wug test for tone sandhi: Design, materials & procedure

The experimental procedure is summarized in **Figure 1**.

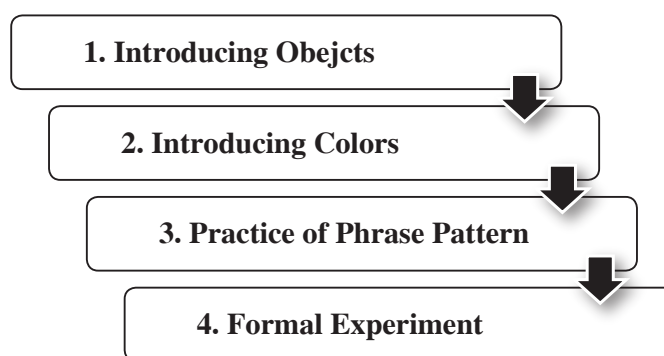


Figure 1. The Experimental Procedure of the Study

At the first stage, six items were introduced, including four monosyllabic actually-occurring (AO) words and two monosyllabic accidentally-gapped (AG) words, as shown in **Figures 2** to **7**. Among the four AO monosyllabic words, two were T3 syllables and the others were Tone 1 (T1). The inclusion of these two T1 words were to mask the real purpose of the experiment. According to NCCU Corpus of Spoken Taiwan Mandarin (Chui & Lai, 2008), the character frequencies of the two T3 AO syllables *wǎn* ‘bowl’ and *sǎn* ‘umbrella’ ranked 1,110 and 1,893 in the corpus, respectively. Therefore, the participants must be familiar with these syllables. Specifically, they must be much more familiar with the AO monosyllabic words than the AG monosyllabic words to be introduced to them later. The two AG monosyllabic words were presented with *Zhuyin*, the phonetic symbols used in Taiwan, so that the participants could easily understand and acquire the pronunciations of those pseudowords. These AO words were

found based on the online dictionary provided by the Ministry of Education in Taiwan. When the experimenter showed **Figures 6** and **7** to the participants, they were told that the objects were a newly-designed container and a newly-designed shed, respectively. The participants were required to recite the objects to the experimenter one by one at this stage. The experimenter would correct the participants' pronunciations once they mispronounced any of the items or assimilated the pronunciations of the AG words into other phonetically similar AO words. A test was administrated to ensure that the participants had successfully associated the pronunciations with the objects.

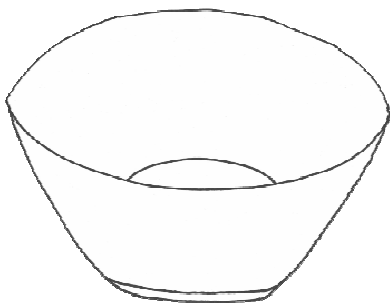


Figure 2. Monosyllabic T3 word *wǎn* 'bowl'

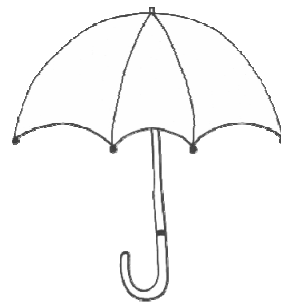


Figure 3. Monosyllabic T3 word *sǎn* 'umbrella'

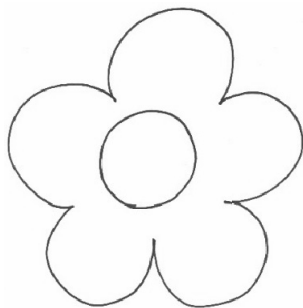


Figure 4. Monosyllabic T1 word *huā* 'flower'

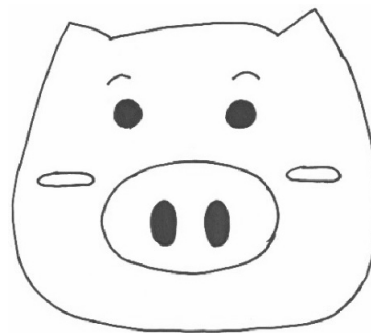


Figure 5. Monosyllabic T1 word *zhū* 'pig'

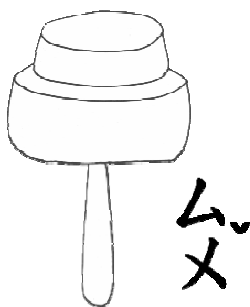


Figure 6. Monosyllabic T3 accidentally-gapped word *wǎi* (a newly-designed container)

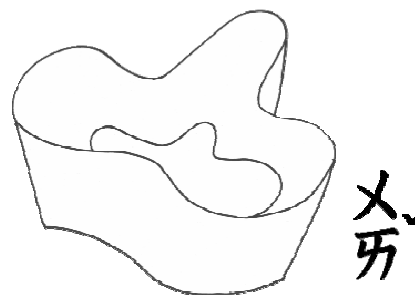


Figure 7. Monosyllabic T3 accidentally-gapped word *sū* (a newly-designed shed)

At the second stage, four colors were introduced, including three monosyllabic AO words and one monosyllabic AG word, as shown in **Figures 8 to 11**. The three AO monosyllabic words were T1, T3 and Tone 4 (T4). The only AG monosyllabic T3 word at this stage was also presented with *Zhuyin*. The R(ed), G(reen), and B(lue) of the newly-created color was set as 102, 102, and 51, respectively. Similarly, the experimenter paid special attention to the participants' pronunciations and corrected them once they mispronounced the words or assimilated the AG word into other phonetically similar AO words. An additional test was also administrated to ensure that the participants had successfully associated the pronunciations with the colors.

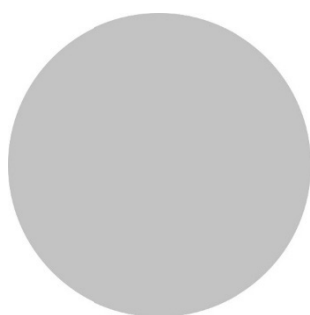


Figure 8. Monosyllabic T1 real word *huī* 'grey'

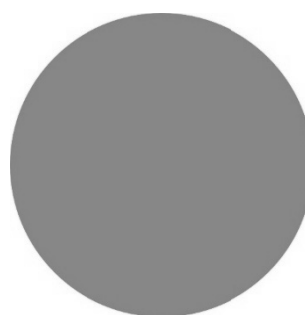


Figure 9. Monosyllabic T4 real word *lǜ* 'green'

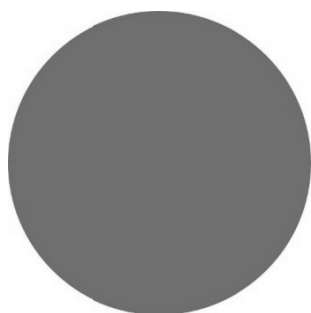


Figure 10. Monosyllabic T3 real word *zǐ* 'purple'

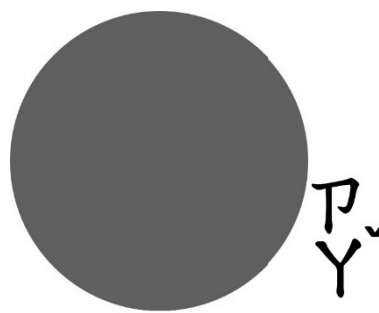


Figure 11. Monosyllabic T3 accidentally-gapped word *zǎ* (a newly-created color)

At the third stage, the participants were guided to recite the phrase *X se de Y* 'Y in the color of X', and then recited the abbreviated form of the phrase *X-Y* (i.e., color-item) after three seconds. For instance, when they saw **Figure 12**, they were required to produce the phrase *lǜ sè de huā* 'flower in the color of green'. After that, they were required to silently recite the abbreviated form of the phrase *lǜ-huā* 'green flower' for three seconds before they finally produced it. The three-second silence between the production of the complete phrase and the abbreviated form was essential as the participants could parse the morphosyntactic structure, rehearse the pronunciation silently and reduce the possibility of mispronunciations. All the six

items presented at the first stage (i.e., **Figures 2 to 7**) were colored in green and presented to the participants one after another so that they had chances to practice generating the required phrase patterns.

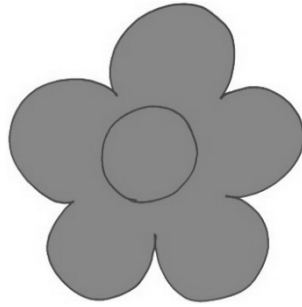


Figure 12. One of the items used for practicing the phrase pattern

When the participants finished practicing at the third stage, the formal experiment started right away. All the three remaining colors (i.e., *huĩ* ‘grey’, *zĩ* ‘purple’, and *zǎ* (a newly-created color)) were combined with those six items, generating the four types of words in (4).

(4) The Four Sets of Disyllabic T3 Test Words in Present Study

a. AO-AO

zĩ -sǎn ‘purple umbrella’, *zĩ -wǎn* ‘purple bowl’

b. AO-AG

zĩ -wǎi ‘purple newly-created container’, *zĩ -sǔ* ‘purple newly-created shed’

c. AG-AO

zǎ-sǎn ‘newly-created color umbrella’, *zǎ-wǎn* ‘newly-created color bowl’

d. AG-AG

zǎ-wǎi ‘newly-created color & container’, *zǎ-sǔ* ‘newly-created color & shed’

The order and the contents of the stimuli presented to the participants were the same. In the formal experiment, at least one filler was inserted between any two word types in (4). A total of eight critical items were collected from each participant along with 10 fillers (e.g., *huĩ-huâ* ‘grey flower’). The experimenter invited the participants to re-recite the item once they mispronounced the words or assimilated the AG words into other phonetically similar AO words.

As proper meanings were assigned to the disyllabic words in (4), the felicitous condition for T3S was met. Additionally, the consonants preceding the vowels in the first syllable (i.e., [z]) and the onset consonants of the second syllable (i.e., [s] and [w]) could be properly controlled.

2.3 Equipment, software and recording

A RODE unidirectional microphone (NTG3B), with RME Babyface Pro as the interface and Praat (Boersma & Weenink, 2020) as the software, was used to record the speech productions from the participants. The sampling rate was set at 44.1 kHz. A DELL laptop (model: Inspiron 15-5570) and the software PowerPoint were used to display the experimental stimuli described in the previous section. All the recordings took place in the same quiet room on campus. The recorded audio files were 16 bit and were stored as waveform audio file format (i.e., wav).

2.4 Acoustical analysis

Two major acoustical parameters, including the f_0 contour and the percentage of the f_0 turning point (the lowest point of f_0), were included in the study. One major coder (the author) analyzed all the data and one additional coder coded 15% of the data to establish the inter-rater reliability. Detailed descriptions regarding how those parameters were measured are shown below.

2.4.1 F0 contour

The f_0 contours were extracted based on the vowels of the first syllables of the disyllabic T3 words. The onset and offset of a vowel were defined as the first and last uprising zero-crossing in the waveform. When the onset of the second syllable started with /s/, the offset of the vowel in the first syllable was solely determined by the last uprising zero-crossing in the waveform. However, spectrogram was used to assist the judgement of the offset of a vowel when the approximant /w/ was the onset of the second syllable (e.g. *zǐ -wǎn* 'purple bowl'). One defining acoustic characteristics of /w/ was that it lowered all the formants (Stevens, 2000; Ladefoged & Johnson, 2011) and the second formant (F2) was particularly indicative (Ladefoged & Johnson, 2011; Wiener & Shih, 2011). Therefore, the onset of /w/, and hence the offset of the vowel in the preceding syllable, was defined as the nearest uprising zero-crossing around the lowest F2 at the syllable boundary.

Each extracted f_0 contour was evenly divided into 10 portions, giving rise to a total of 11 time points. The time-normalized contours enabled researchers to make graphical and statistical comparisons. Additionally, in order to exclude the potential influence of different vowels on the f_0 contours, the 11 raw f_0 values of a participant were normalized on a word-type basis by using z-scores (Liu & Chen, 2020). Specifically, a speaker's f_0 raw values from (4a), (4b), (4c) and (4d) were normalized independently so that the relative f_0 contours of each word type could be preserved. In this way, although the average f_0 values of high vowels (e.g. (4a) and (4b)) would be higher than those of low vowels (e.g. (4c) and (4d)), the data treatment methods described

above could erase the confounding effects and preserve the relative f0 shape in each word type (and vowel) by calculating the z-scores of each word type separately.

2.4.2 Percentage of f0 turning point

The percentage of the f0 turning point was calculated based on the following formula: millisecond of the lowest f0 point / the length of the f0 contour * 100%. For instance, for an f0 contour where the length of the f0 contour was 160 milliseconds and the lowest f0 occurred at the 20 milliseconds, the resulting percentage of the f0 turning point was 12.5% (i.e., $20 / 160 * 100\%$). A higher number of percentage would show that the application of T3S was less phonetically complete because the f0 contour would be similar to that of a T3 syllable.

2.5 Statistical analysis

2.5.1 Inter-rater reliability

In order to maintain that the extracted acoustical values analyzed by the major coder were objective, an additional trained assistant coded 15% (six out of 40 participants) of the total data. Pearson's product-moment correlations were used to compute the inter-rater reliabilities of the acoustical parameters included in the study.

2.5.2 Comparing differences

Growth curve analysis, by using the Linear Mixed Models in SPSS version 26, was the statistical method used to examine if there were any differences in f0 contour shapes among the first syllables of the four word types. (c.f. Li & Chen, 2016; Zhang & Meng, 2016; Xu Rattanasone, Tang, Yuen, Gao & Demuth, 2018; Chen et al., 2019; Chen, Wiltshire, Li & Wayland, 2019; Chen & Li, 2021). The intercept (the average), linear (slope) and quadratic (U-shape curve) terms were included in the statistical analysis. The 11 time points and the four word types were the independent variables and the f0 was the dependent variable. The f0 values of the first syllable in the AO-AO condition was set as the baseline for the comparisons.

In order to investigate if there were differences in the percentages of the lowest f0 contour across different word types, a one-way repeated-measures ANOVA was performed. The Huynh-Feldt correction was adopted when the sphericity assumption was violated. When there was a main effect, three paired-samples t-tests were performed to explore if there were any differences between AO-AO vs. AO-AG, AO-AO vs. AG-AO, and AO-AO vs. AG-AG.

2 Repeated-measures ANOVA was also frequently used as the statistical method to compare the differences among f0 contours (c.f., Peng, 2000; Myers & Tsay, 2003; Zhang & Lai, 2010; Zhang & Peng, 2013; Yan & Zhang, 2016; Zhang & Liu, 2011, 2016; Huang, Zuo & Zhang, 2019). Based on the obtained data, the resulting f0 patterns were the same for both ANOVA and growth curve analysis.

As two major acoustical parameters (the f0 contour and the percentage of the lowest f0 point) were collectively used to determine if there were any differences among different f0 shapes, the significance values were set at .025 (i.e., .05/2). As the intercept (the average), linear (slope) and quadratic (U-shape curve) terms were included, the significance values for the contour differences were further divided into three, giving rise to the value of .083 (i.e., .025/3). Finally, for the three post-hoc comparisons of the one-way repeated-measures ANOVA (i.e., the percentage of the f0 turning point), the significance values were set at .083 (i.e., 0.0167/3). These Bonferroni correction methods could reduce the risk of Type I errors.

2.6 Hypothesis

If the phonetically incomplete applications of T3S were the results of the differences in articulatory implementation triggered by differences in lexical familiarity, as proposed by Zhang and Peng (2013), there would be no differences in the acoustical parameters between the first syllables of AO-AO and AO-AG because the first syllables were the existing syllables with higher lexical familiarity. Additionally, there would be differences in one or more acoustical parameters between the first syllables of AO-AO vs. AG-AO and AO-AO vs. AG-AG because the first syllables of the two pseudoword types were not existing syllables, which the participants were unfamiliar with.

3. Results

The results of the inter-rater reliabilities showed that there were high agreements between the two coders (the 11 f0 time point values: $r = .989, p < .001$; the percentage of the f0 turning point: $r = .978, p < .001$). Therefore, the results to be reported in this study were objective.

3.1 F0 contour

The time-normalized f0 contours for the four word types are shown in **Figure 13**. Graphically, although T3S was applied among these word types, they could be subcategorized into two groups, AO-AO with AO-AG and AG-AO with AG-AG.³ Growth curve analysis was

3 One might notice that the contours of AG-AO and AG-AG looked like a falling-rising pitch and hence questioned if T3S was truly applied in those word types. In fact, there was another tonal alternation involving T3 in Mandarin Chinese, as shown in (i) (Chen 2000; Zhang & Lai 2010; Wee 2019).

(i) **Half Third Tone**

213 → 21 / _ {55, 35, 51}

Therefore, if T3S was not applied, the resulting pitch would be a falling contour. Readers could check Figure 1 in Liu and Chen (2020) for the pitch contour of the kind.

used to examine if there were any differences in the f0 contour shapes among the four word types. The detailed statistical results were summarized in **Table 1**. The results, including intercept (the average), linear (slope) and quadratic (U-shape curve) terms, indicated that the f0 contours between the first syllables in the AO-AO and AO-AG conditions were similar. On the other hand, the f0 contours between the first syllables in the AO-AO and AG-AO conditions as well as those in the AO-AO and AG-AG conditions were different.

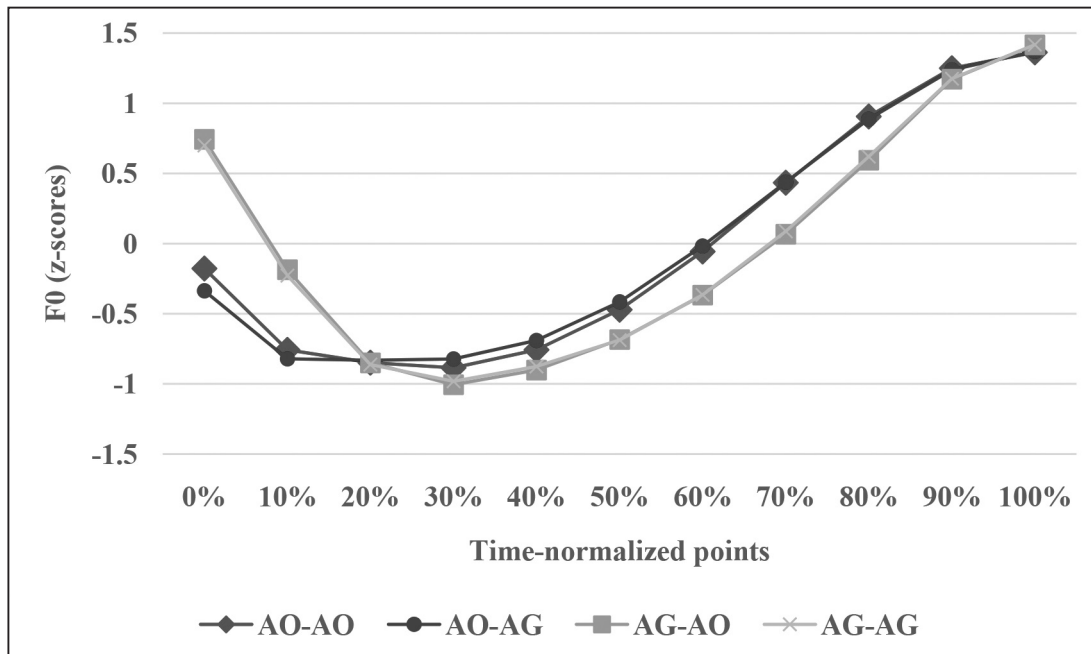


Figure 13. Graphical results of four f0 contours

Table 1. Statistical Results of the F0 Contours among the Four Conditions

Word Types		Intercept (Average)	Linear Terms (Slope)	Quadratic Terms (U-shape curve)
AO-AO vs. AO-AG	Estimate	-.117	.0613	-.005
	<i>t</i>	-1.649	1.853	-1.697
	<i>p</i>	=.099	=.064	=.090
AO-AO vs. AG-AO	Estimate	.860	-.392	.031
	<i>t</i>	12.093	-11.865	9.888
	<i>p</i>	<.001	<.001	<.001
AO-AO vs. AG-AG	Estimate	.814	-.372	.030
	<i>t</i>	11.447	-11.256	9.397
	<i>p</i>	<.001	<.001	<.001

3.2 Percentage of f0 turning point

The average percentages of the occurrence of the lowest f0 were presented in **Table 2**.

Table 2. Results of the Percentage of Lowest F0 Point across Four Word Types

Word Types	Average % of Lowest F0 Point	Standard Error
AO-AO	20.894	1.979
AO-AG	17.936	2.271
AG-AO	29.43	1.534
AG-AG	28.994	1.267

One one-way repeated-measures ANOVA was performed to investigate if there were any differences among the average percentages of the lowest f0 point among the four word types. The results showed that there was a main effect among these word types ($F(2.34, 91.261) = 13.346, p < .001$). Three paired-samples t-tests were performed to explore if there were any differences between AO-AO vs. AO-AG, AO-AO vs. AG-AO, and AO-AO vs. AG-AG. The results indicated that there was a significant difference between AO-AO and AG-AO ($t(39) = -3.687, p = .001$) as well as a significant difference between AO-AO and AG-AG ($t(39) = -3.120, p = .003$). The difference between AO-AO and AO-AG was not statistically significant ($p = .112$). In short, the resulting patterns from the percentage of the lowest f0 point were similar to those from f0 contours. The average percentage of the lowest f0 point of AO-AG was similar to that of the baseline AO-AO and the average percentage of the lowest f0 point of AG-AO and AG-AG were different from that of the baseline AO-AO.

3.3 Interim summary

The results of the statistical analysis were summarized in **Table 3**.

Table 3. Summary of the Statistical Analysis

Word Types	F0 Contour			% of Lowest F0 Point
	Intercept (Average)	Linear Terms (slope)	Quadratic Terms (U-shape curve)	
AO-AO vs. AO-AG				
AO-AO vs. AG-AO	Different	Different	Different	Different
AO-AO vs. AG-AG	Different	Different	Different	Different

The results from the statistical analysis confirmed the first impression from the graphical comparison (c.f. **Figure13**). That is, the phonetic completeness of T3S application in AO-AG behaved similarly to that of the baseline AO-AO and the application of T3S was phonetically incomplete in AG-AO and AG-AG.

4. Discussion

The purpose of this study was to critically examine the applicability of T3S among pseudowords, with special attention to the phonetic completeness of T3S application. Specifically, I aimed to test Zhang and Peng's (2013) proposal that the covert, phonetic contrasts observed between real and pseudowords could be attributed to differences in the articulatory implementation triggered by lexical familiarity effects. The experimental results, by using newly-constructed colors and objects, showed that the first T3 syllables in AO-AO and AO-AG behaved similarly in all the acoustical parameters measured in the study. On the contrary, the f₀ contour shapes and the percentages of the lowest point in the first T3 syllables in AG-AO and AG-AG were different from those in AO-AO, showing that the nature of the first syllable (AO or AG) exerted strong influences on the phonetic completeness of T3S application. Several significant and related issues are discussed below.

First, the experimental results supported Zhang and Peng's (2013) view that the covert, phonetic contrasts observed between real and pseudowords could be attributed to differences in the articulatory implementation triggered by lexical familiarity effects. Given that AO-AG, AG-AO and AG-AG were all pseudowords, the results showed that the nature of the first T3 syllable (AO or AG) was the key to the phonetic completeness of T3S. When the first syllable was an actually occurring syllable (i.e., the first syllable in AO-AG), the application of T3S was phonetically complete. On the other hands, when the first syllable was an accidentally gapped syllable (i.e., the first syllable in AG-AO and AG-AG), the application of T3S was phonetically incomplete. The major difference between AO and AG syllables was that the participants had never encountered those AG syllables before they participated in the experiment and therefore were unfamiliar with the phonetic substances of the AG syllables. The low familiarity to the syllable in turn affected the participants' articulatory implementation when they tried to apply T3S. In short, Zhang and Peng's (2013) proposal was directly tested in the current study and the results supported their view that the articulatory implementation was accountable for the differences in the phonetic (in)completeness of T3S among different types of words.

Although the z-scored f₀ values were used in the current study, one might still inquire if the differences among AO and AG syllables were contributed by the vowel differences.

Specifically, apical vowels were used for the AO syllables while low vowels /a/ were used for the AG syllables. However, if the differences among AO and AG syllables were the results contributed by the differences in vowels, the higher f₀ onsets of the first AG syllables in the AG-AO and AG-AG conditions became unjustifiable (c.f. **Figure 13**). That is, it was well established that low vowels generally had lower f₀ (Lehiste, 1970; Ohala, 1973; Whalen & Levitt, 1995), and the effects could be observed starting right at the beginning of the vowel (c.f. Shi & Zhang, 1987). Therefore, if the differences of the f₀ contours were due to the vowel contrasts, the onset f₀ values of the low vowels /a/ in the first syllables of the AG-AO and AG-AG conditions were expected to be lower than those with an apical vowel. However, according to **Figure 13**, the onset f₀ values of the first syllables in the AG-AO and AGAG conditions were higher. In short, by using the z-scored f₀ values, the influences from the intrinsic vowel pitch would be erased.

Methodologically, the current study provided significant insights for studies aiming at testing the applicability of tone sandhi in different languages/varieties. In this revised *wug* test, newly created colors and objects as well as rigorous steps in data analyses were used. The use of the revised *wug* test had several advantages. First, those methods excluded confounding factors that were frequently found in the literature and could successfully minimize the influences from different vowels in the critical syllable and the influences from different onsets in the following syllable on the f₀ heights. Next, the pseudowords were associated with proper meanings so that the felicitous conditions for tone sandhi were created. Finally, none of the participants had difficulties in memorizing the newly created colors or objects and they could successfully articulate the required phrase patterns and abbreviated forms, showing that the design of the revised *wug* test was feasible for the participants. One note is appropriate here. Although tone sandhi phenomena had been extensively studied across different varieties of Mandarin (c.f., the section *Psychological reality and pseudoword experiment*), those studies fell short of waiving the concerns proposed in the section *Some puzzles*. If the phonetically incomplete application of tone sandhi could be reduced to articulatory implementation, as evidently shown in the case of T3S in the current study, converging evidence from various Mandarin varieties and other tone languages are expected especially when the experimental designs are further polished. The proposed phonological analyses for a variety types of tone sandhi might also need to be modified in light of the new findings. I believe that future studies focusing on these aspects would be particularly informative to the understanding of the nature of tone sandhi phenomena.

The experimental findings of the current study also provide essential implications for the connection between the degrees of productivity and the psychological representations of tone sandhi. To further discuss the issue, results from Chien and colleagues are first presented. Chien, Sereno and Zhang (2016) conducted an auditory-auditory priming lexical decision experiment to

explore the relationship between surface tones and the stored tone representations in the mental lexicon. In a typical trial, a prime with either a T3, a T2 (a surface tone after the application of T3S), or a T1 (baseline) syllable was played and a disyllabic word (either a real word involving T3S, a non-sandhi real word or a pseudoword) was played after a 250-millisecond interval. The participants' task was to decide if the heard disyllabic word was a real existing word or a non-occurring word. The results showed that the T3 prime would elicit statistically significantly faster reaction times than did the other two types of primes. A follow-up study with more types of primes and targets involving T3S by Chien, Yan and Sereno (2020) also supported the view from Chien, Sereno and Zhang (2016). Based on the production study from Zhang and Lai (2010), Chien, Yan and Sereno (2020) claimed that the phonetic incompleteness of T3S in Mandarin Chinese could be attributed to the large differences between the surface form and the underlying form. That is, the large differences between a T3 (which was stored as a low tone in the mental lexicon) and a T2-like rising pitch (the surface form) could explain the lower degrees of the T3S (phonetic) application among pseudowords. The link between the phonetic productivity of pseudowords and auditory-auditory priming results was also established in studies targeting on different varieties in Mandarin (e.g., Chien, Sereno & Zhang, 2017; Yan, Chien & Zhang, 2020). However, based on the current experimental results, the effects of the physiological constraint imposed by the lexical familiarity effects must be considered when one wishes to explicate the phonetically incomplete applications of T3S pseudowords. Specifically, the lower degree of the phonetic completeness among T3S pseudowords might not be stemmed from the large differences between the underlying stored form and the surface form of a tone, but a by-product of the unfamiliar articulatory gestures incurred by the lexical familiarity effects. Future studies with converging evidence from other varieties of Mandarin or tone languages would reinforce the claim that the lexical familiarity effects and the physiological constraints, rather than the phonetic differences between the surface form and the mental representation of a tone, might be the key to the different degrees of tone sandhi (phonetic) productivity.

5. Conclusion

The purpose of this study was to critically examine the applicability of T3S among pseudowords, with special attention to the phonetic completeness of T3S application. Specifically, I tested the validity of Zhang and Peng's (2013) proposal that the covert, phonetic contrasts observed between real and pseudowords could be attributed to differences in the articulatory implementation triggered by lexical familiarity effects. A revised *wug* test that could waive the confounding factors frequently found in the literature was implemented to

collect the speech data from 40 native adult speakers of Taiwan Mandarin. Three acoustical parameters, including 11 time-normalized f0 values, the percentage of the lowest f0 point and the f0 slope, were used to quantify the differences among different word types. The results showed that the first T3 syllable (AO or AG) in the T3 disyllabic word was the key to the phonetic (in)completeness of T3S application, confirming Zhang and Peng's (2013) view that the differences in tone sandhi application could be attributed to the articulatory implementation factor, which was triggered by lexical familiarity effects.

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臺灣大學生對於寫作課程使用策略教學之看法

Taiwanese College Students' Perspectives on the Effectiveness of Strategy-based Instruction in a Writing Course

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摘 要

寫作是一個複雜的過程，大多數的學習者都認為寫作是一項艱鉅的任務。先前的研究指出，第二語言學習者需要得到明確的指導和培訓，以制定適當的寫作策略。因此，本研究旨在了解策略教學在英文寫作課程中如何影響臺灣大學生的寫作表現。本研究中的策略教學包括五個步驟：熱身討論、展示和建模、小組和個人練習機會、分配的寫作任務評估和一對一會議，以及新任務的策略轉移。20 名大學生參加了這項個案研究。收集資料包括研究人員的現場筆記、個人訪談和學生反思，並使用三角測量法來分析出現的關注點。研究結果表明，基於策略的教學有可能幫助學習者提高英文寫作能力，透過課堂互動討論培養學生們的批判性思維能力，以及提高他們在語言學習中的自主性。

關鍵字：策略教學、英文寫作、學生觀點

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Abstract

Writing in a foreign language can be an especially complex process and is felt by most learners to be a difficult task. Previous research pointed out that L2 learners need to be explicitly instructed and trained to develop appropriate strategies for writing. Thus, this study intended to examine how writing instruction focused explicitly on writing strategies impacted Taiwanese college students' writing performance in an EFL context. The strategies involved five steps, which included warm-up discussions, presenting and modeling, both group and individual practice opportunities, one-on-one conferences focused on evaluating assigned writing tasks, and transfer of strategies to new tasks. Twenty EFL undergraduate students participated in this case study. Data sources, including the researcher's field notes, individual interviews, and students' final reflections, were collected, and triangulation was used to analyze the emergent themes and concerns. The results revealed that these EFL college students' writing performance improved when they fully understood how to practice the strategies effectively and transfer new writing skills from one task to another. The qualitative data collected in this study reflected students' critical engagement with the strategies that were being taught and suggest that strategy-based instruction assists learners to improve English writing competence, to foster their critical thinking skills, and to enhance their autonomy in language learning.

Key words: Strategy-based instruction, English language writing, Students' perspectives

1. Introduction

Writing is a complex process, and is felt by most learners to be a difficult task. Writing in a second language (L2) further complicates the process, and L2 learners often find writing to be the most difficult task (Chamot, 2005; Lan, Huang, & Hsu, 2011). They often suffer considerably from writing anxiety, and do not like writing courses (Wu & Lin, 2016). Research has shown that writing strategies are important in helping L2 learners succeed in writing (Raoofti, Chan, Mukundan & Rashid, 2014), and that writing strategies have the potential to be used effectively (Gu, 2007).

Effective use of writing strategies can help learners gain confidence (Cohen, 2000) and lead to better writing competence (Bai, Hu, & Gu, 2014). However, learners may not always be aware of their strategies use, and thus may not be able to use writing strategies efficiently and effectively (Chamot, Barnhardt, El-Dinary & Robin, 1999; Lei, 2008; Rahimi & Norooziasiam, 2013). In addition, less effective language learners know how to use only a few strategies, and often do not choose appropriate strategies for the task (Chamot & Kupper, 1989). This suggests that L2 learners, especially less capable learners, need help in appropriate strategy use to better facilitate their learning and writing.

Research has indicated that explicit instruction and training could help learners develop appropriate strategies (Bedir, 2010; Chamot, 2005; Cohen, 2000; De Silva, 2015; Raoofti, Chan, Mukundan & Rashid, 2014). Raoofti et al., (2014) stated that L2 learners needed to be explicitly instructed and trained to develop appropriate strategies for writing, and suggested that L2 writing teachers should provide adequate strategy instruction to lead to better writing performances. However, few studies have focused on EFL learners' perspectives when it comes to integrating various strategies of English language learning, especially English writing courses. Thus, this study intended to listen to learners' voices regarding the effectiveness of using SBI in a university-level elective intermediate English writing course.

2. Literature Review

2.1 Language Learning Strategies

Language learning strategies could be described as purposeful and conscious mental actions that learners apply to regulate their second or foreign language learning in order to meet learning goals (Oxford, 1990). Various taxonomies of generic L2 language learning strategies have been proposed, with a focus mainly on successful learners (Hussein, 2015; Raoofti et al., 2014).

Research has shown that successful language learners used higher levels and a wider range of strategies than those with lower proficiency (Maftoon & Seyyedrezaei, 2012; Raoofi et al., 2014). This may be because strategic learners had the ability to orchestrate the strategies that best provide positive support to their learning and task demands (Chamot, 2004).

Although some strategies are important to all language tasks, studies have found that different types of skill-specific language tasks can elicit different strategy applications or generate different forms of strategy use (Chamot & Kupper, 1989). Accordingly, research efforts have been made to identify strategies that link to skill-specific tasks. This applies to strategies in L2 writing, i.e. the particular actions that L2 writers apply to the act of writing (Manchón, 2001), and which improve the success of their writing (Hussein, 2015). Therefore, language learners not only needed to be aware of language learning strategies in broad terms, but also strategies that could be applied to skill-specific language tasks in order to meet the demands for a given task and improve their performance.

Extensive research has documented the effectiveness of instances when teachers help (less-able) learners to better select appropriate language learning strategies (for a given task) and thereby assist learners to become better, more independent language learners. Strategy-based instruction is an attempt to systematize this approach in order for it to be replicable in the classroom (Maftoon & Seyyedrezaei, 2012).

2.2 Strategy-based Instruction

Strategy-based instruction (SBI) refers to explicit strategy-learning instruction which aims to enable learners to take an active role in the process by helping them become more aware of the ways in which they learn most effectively. SBI teaches learners to monitor and evaluate the way they learn and become more responsible for their learning efforts (Cohen, Weaver & Li, 1996; Sarafianou & Gavriilidou, 2015). SBI involves teachers and learners who work together to integrate strategies into regular language curriculum (Gu, 2007). A number of SBI models has been developed and, as Chamot (2004) maintains, recent models all share many features, including

- Teachers explicitly demonstrate and model potentially useful strategies which can be explicitly or implicitly embedded into the language tasks;
- Students practice multiple times with new strategies;
- Students self-evaluate the strategies used;
- Students are made to practice transferring strategies to new tasks.

Various SBI models have been used in multiple lines of research enquiries and to different

schooling levels. For example, one line of research has examined the effect of SBI on the type and frequency of the use of the language learning strategies (Cohen, Weaver & Li, 1996; Kürüm, 2012; Sarafianou & Gavriilidou, 2015). Other lines of research have examined the effect of SBI on the four language skills, i.e. Speaking (Cohen, Weaver & Li, 1998), Listening (Graham & Macaro, 2008; Kalantarian, 2016; Thompson & Rubin, 1996; Vandergrift & Tafaghodtari, 2010), Reading (Pei, 2014; Takallou, 2011), and Writing (Hussein, 2015; McMulle, 2009).

Though numerous studies have been conducted to examine the effects of SBI in broad terms and on specific-skill tasks, Negari (2011) argued that in the field of teaching a second or foreign language writing, SBI practice was still developing, and it required many more studies on different grounds to discover how to apply theories in writing practices. Besides, it is noted that language curriculum for EFL learners focus more on structure and forms, and are more product-oriented than process-oriented (Mohseniasl, 2014; Negari, 2011; Tsai & Lin, 2012). Therefore, more research was needed to understand the application of empirical SBI practice in writing, and how it could best provide positive support to the students in their attempt to write in an L2, especially in the EFL context. Accordingly, this study focused particularly on SBI in writing for EFL learners.

2.2.1 Strategy-based instruction research in writing

Many studies have been conducted to examine the effect of SBI on students' writing performance and quality from various angles. For example, some studies (e.g. Hussein, 2015; McMulle, 2009) examined the effect of SBI on students' overall writing abilities. Other studies (e.g. Kao & Reynolds, 2017; Lee, 2013; Mohseniasl, 2014; Negari, 2011; Thayniath, 2015) focused on the effects of SBI on specific stages of the writing process, e.g. preparation stage. The other studies focused on the effects of specific strategies on student's writing performance, e.g. brainstorming strategy (Amoush, 2015); monitoring strategy (Tsai & Lin, 2012); revision strategy (Sengupta, 2000); and metacognitive strategy (Pei, 2014; Wei, Chen & Adawu, 2014). There are also studies focused on the effect of SBI on writing in specific rhetorical modes, e.g. persuasive (Baghbadorani & Roohani, 2014); argumentative (Al-Shaer, 2014; Sasaki, 2000); summarization (Friend, 2001; Hosseinpur, 2015). All these studies showed a significant improvement of students' writing scores after receiving SBI.

Apart from just examining the effects of SBI on students' writing performance and quality, some studies also report the positive effect of SBI on affective aspects. For example, Mohseniasl's (2014) study showed that there was a statistically significant improvement of students' motivation who received SBI for prewriting and reading comprehension strategies. Similarly, Lan, Hung,

and Hus's (2011) study showed that SBI with multimedia learning materials significantly enhance students' positive attitudes with regard to writing, especially in terms of enhancing motivation and enjoyment, and reducing anxiety. The findings of these studies demonstrated that SBI brought about positive effects on students' learning.

As Cohen, Weaver, and Li, (1996) argued, "a strategy is considered to be effective if it provides support to the students in their attempts to learn or use the foreign language" (p. 1). SBI appears to be an effective approach in not only improving students' L2 English writing performance, but also bringing about a positive effect towards L2 English writing. SBI may also have the potential for developing learner autonomy for their language learning improvement and success (Nguyen & Gu, 2013).

Many studies have been conducted to explore the effectiveness of SBI in writing, and the majority of the above-mentioned studies examined that effectiveness by mainly collecting pre- and post-tests scores of students' writing performance (Al-Shaer, 2014; Amoush, 2015; Baghbadorani & Roohani, 2014; Friend, 2001; Hosseinpour, 2015; Hussein, 2015; Lee, 2013; McMullen, 2009; Mohseniasl, 2014; Negari, 2011; Sengupta, 2000; Thayniath, 2015; Tsai & Lin, 2012); however, only a few qualitative studies have been carried out to understand students' perspectives of SBI in writing. Nonetheless, the importance of the voices of the students has been noted when it came to course design and development, and classroom practice (Hongboontri, 2014; Kane & Chimwayange, 2013).

When examining students' perspectives of SBI in writing, previous studies focused on students' development of the use of strategies (Bai, 2015; De Silva & Graham, 2015), or how students experienced and responded to a specific strategy in SBI, for example, Dinkins (2014) and Sengupta (2000) on revision, and Abbuhl (2011) on modeling. The results of the above-mentioned studies showed that SBI has positive effects on student's writing in terms of helping them to notice, understand, and develop a better awareness of writing strategies, and orchestrate their own use of strategies more effectively. The qualitative results of those studies provide further evidence of the effectiveness of SBI, yet little is known about students' perspectives on how SBI contributes to their learning experience. As Dinkins' (2014) study revealed, students differ in the ways they value writing strategies, and it is important for teachers to understand students' thoughts and feelings about different aspects of their writing process. Therefore, the current research aimed to address this gap by examining students' perceptions and experience of their SBI course. The implementation of SBI was mainly based on Chamot's (2004) shared features of recent models mentioned earlier, and with reference to De Silva's (2015) and Gu's (2007) models (see Table 1 for the SBI cycle and associated features).

Table 1: The SBI cycle and associated features

Features	Cycle stages
Preparation and planning	Warm-up discussion
Useful strategies demonstration and explanation, modelling of strategies, and monitoring (e.g. problem identification)	Modeling and monitoring
New strategies practice	Group and individual practices
Strategies evaluation and conference	Reflection
Strategy transfer to new tasks	Reflection and transfer skills

3. Research Methodology

3.1 Design

This research was a case study which was exploratory in nature with an attempt to understand the learners' perspectives on the effectiveness of SBI. The author functioned as an instructor of this elective intermediate-level English writing course for non-English major students in a Taiwanese national university. As a prerequisite, students were required to pass an elective beginner-level English writing course which focused on paragraph-writing. Twenty EFL undergraduate students (two sophomores, 13 juniors, and five senior-year students) participated in this case study. Because of the prerequisite course, they arrived with a good understanding of writing a complete paragraph in English and above-average communication competence in English. English was the main language used in this course, and the instructor and the participants met for 100 minutes every week.

3.2 Procedures

In this study, the strategy-based instruction which was adopted and modified from Chamot et al. (1999), De Silva's (2015), and Gu's (2007) models involved five steps, which included (a) warm-up discussions, (b) presenting and modeling (c) both group and individual practice opportunities, (d) one-on-one conferences focused on evaluating assigned writing tasks, and (e) reflection and transfer of strategies to the new task (see figure 1).

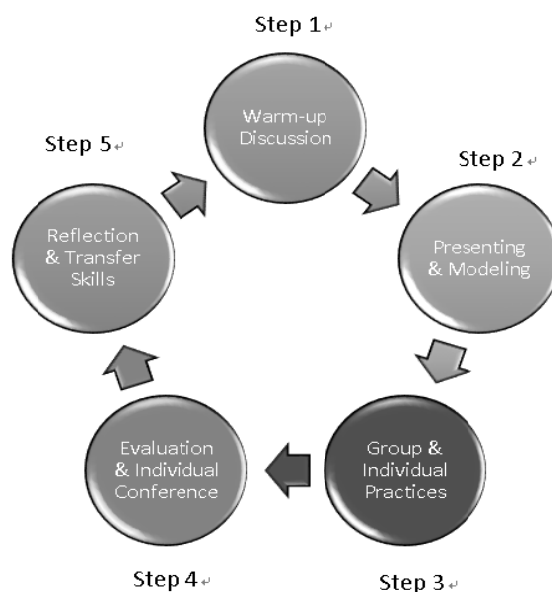


Figure 1. The cycle of the strategy-based instruction

While working on Step 1, the students were given opportunities to build up their background knowledge, share their experiences with teammates, as well as brainstorm ideas for writing topics.

Next, in the step of Presenting and Modeling, the instructor explained the learning goals, objectives and rhetorical patterns first, and then demonstrated and discussed the learning points with the students. Also, in this step, students were given various reading materials which were related to the rhetorical patterns. The short reading passages were given in class while some longer academic reading passages were required to be read at home. Once students had completed the assigned readings, they discussed the assigned tasks in class with teammates.

In Step 3, the students worked together with their teammates in class to complete the assigned tasks, which were related to the assigned rhetorical patterns. After that, each student wrote his/her essay at home individually. They were expected to follow the instructions and the attached rubrics, and to submit the writing to the instructor within a week. The instructor then evaluated each student's writing by using track changes and comments in MS Word. This process allowed the instructor to give detailed feedback, and it had the added benefit of making the subsequent one-on-one conferences more efficient. Before conducting the in-person conferences, students received feedback and scored rubrics from the instructor. Meanwhile, students had to bring at least three questions related to the comments to discuss with the instructor during the individual conferences. Each conference took approximately 30 minutes, and students were required to revise the writing within two weeks after the meeting.

Finally, when students came back to the class after Step 4, they worked on the reflection

process first. They spent approximately 20 minutes sharing with their teammates what they had learned from the comments and individual meetings; they also shared with each other how they would make differences on the new writing task. That is to say, it was assumed that instructed strategies and skills would be transferred from the teacher to the learners, as well as among the learners themselves, and from previous tasks to new tasks. As a result, in the long term, students would build skills to independently develop and apply effective strategies in their English academic writings.

In this study, three rhetorical patterns were focused on during the semester: summary-response, comparison and contrast, and problem-solution. Based on the rhetorical modes, students learned and wrote three to six paragraphs in an academic writing format (introduction, body paragraphs, conclusion, and references). Overall, each rhetorical pattern took approximately four to five weeks to complete the cycle of the strategy-based instruction.

The following contains example materials for the five-step strategy-based instruction taken from the unit of comparison and contrast, including instructions, model paragraphs, rubrics, and one student's written reflection.

Step 1: Warm-up Discussion

At the beginning of the class, the instructor gave the class a warm-up writing activity which is related to the topic of comparison and contrast essay. The students had 15 minutes to respond to the writing prompt (see below). After that, the instructor gave the class 10 minutes to share their responses to each other, and asked volunteers to share their partners' answers.

Warm-up Writing

= *Directions:* Take 15 minutes to complete this writing activity. Think about what you have been eating lately. Write a short paragraph to respond the following questions:

- = (A) What is your favorite food/meal/dining out experience? Why do you like this food/meal/experience?
- = (B) What is your least favorite food/terrible dining out experience? Why?
- = (C) Are there any connections between the food/meal and your mood/day?

Step 2: Presenting and Modeling

First of all, the instructor introduced the rhetorical pattern of comparison and contrast. Then, in order to introduce two styles (point-by-point and block methods) of comparison and contrast essay, the instructor first used two writing samples for the students to identify the differences of the organization (see below).

Writing Sample 1

Students who have Mr. Jones and Mr. Smith are immediately aware of the difference in the lecturing manner of each teacher. Mr. Jones has a pleasant voice, which helps hold the interest of the students. Mr. Smith, however, has a booming voice, which commands rather than teaches. Mr. Jones pronounces clearly in a rhythmic pattern emphasizing key words. On the other hand, Mr. Smith mumbles, running his words together. The moderate tone and inflected words of Mr. Jones make his lectures more interesting than those of Mr. Smith, who speaks in a boring monotone. Mr. Jones also adds humor to the subject, whereas Mr. Smith is always serious about each lesson. Mr. Jones welcomes questions from students who don't understand the material, as compared to Mr. Smith who hates to be interrupted. Mr. Jones takes his time and explains slowly, whereas Mr. Smith rushes through each lesson. Mr. Jones is very enthusiastic.

Writing Sample 2

Students who have Mr. Jones and Mr. Smith are immediately aware of the difference in the lecturing manner of each teacher. Mr. Jones has a pleasant voice, which helps hold the interest of the students. He pronounces clearly in a rhythmic pattern emphasizing key words. His moderate tone and inflected words make his lectures interesting. Mr. Jones also adds humor to his subject, and he welcomes questions from students who don't understand the material. He takes his time and explains slowly. He tries to make sure that his students understand a concept before he moves on to something new, and he is very enthusiastic about his subject. Mr. Smith, on the other hand, has a different tone, pronunciation, expression and attitude from Mr. Jones. He has a booming voice, which commands rather than teaches, and sometimes it is hard to understand because he runs his words together. His lectures are not as interesting as those of Mr. Jones, either, because Mr. Smith speaks in a boring monotone. He also hates to be interrupted; feeling that he must cover everything. Mr. Smith teaches every class in a serious, determined mood. Thus, as the above points illustrate, the lectures of Mr. Jones and Mr. Smith are quite different.

After discussing the differences between two styles, the instructor led students to read the academic passage, titled *The Cost of A Global Food Chain* (p. 116-117) from the textbook (Final Draft 4). Also, the class completed the outline of the article while analyzing the writing skills related to comparison and contrast essay.

Then, the instructor assigned the students to read the student model (p. 118-120) and completed the essay outline (p. 121-122) by the next class.

Step 3: Group and Individual Practices

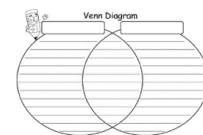
In this step, the students worked in pairs to discuss the prompts and completed the assigned task. After the discussion, each group shared the responses with the class. Meanwhile, the students had the opportunities to learn from each other as well as to plan how they would like to write their own paper. Later, each student followed the writing instruction to complete his/her own task individually.

Your Turn!

- **Directions:** Two people in a group. Choose one of the prompts and complete the following tasks with your partner.
- **Prompts:**
 - (A) Compare holiday practices and traditions related to food and eating in two cultures (e.g., Thanksgiving vs. Chinese New Year). What do these traditions tell us about the cultures and they come from?
 - (B) How do eating habits today differ from eating habits 50 years ago? How do these changes reflect general cultural changes?

Your Turn!

- You and your partner have 15 minutes to complete your tasks:
- Think about your prompt. Decide what you will focus on in your paper.
- Complete the Venn diagram. think of everything you know about both subjects.



Your turn to write the CC essay

- **Directions:** You will write your own comparison and contrast essay. Here are a few things to help you complete the writing task:
 - use the Venn diagram to record your ideas
 - decide the organization of the essay (point-by-point vs. block)
 - use the ideas on Venn diagram to make an outline for each paragraph
 - write each paragraph:
 - Introduction paragraph: hook, background information, thesis statement
 - Body paragraphs: a topic sentence, examples, transitional words
 - Conclusion paragraph: re-state the thesis statement, summarize the key points in the essay, and make a recommendation in support of your choice.

Step 4: Evaluation and Individual Conferences

Since the format and style of English composition is different from Chinese writing, each student may also interpret the writing points differently. Individual face-to-face meetings provide the positive opportunities for both students and the instructor to share and discuss personal needs. Thus, after the students submitted the writing assignments to the instructor, the instructor used track changes to show the comments, markups, and changes for students to review and revise their papers. Each student received the feedback and rubric regarding the writing paper first. Then, the students scheduled a 30-minute individual conference with the instructor. While coming to the face-to-face conference, the student had to bring at least 3 questions from the comments and/or rubric to discuss with the instructor. Below is feedback and rubric students received from the instructor.

Comparison & Contrast Rubric

Category	10-8 points	7-5 points	4-2 points	1-0 point
Purpose & Supporting Details	The paper compares and/or contrasts items clearly. The paper points to specific examples to illustrate the comparison/contrast. The paper includes only the information relevant to the topic.	The paper compares and/or contrast items clearly, but the supporting information is general or vague. The paper includes only information relevant to the topic. Review *1 (6 points)	The paper compares and/or contrasts items, but the supporting information is unorganized/incomplete/missing. The paper may include information that is NOT relevant to the topic.	The paper compares and/or contrasts, but the supporting details are incomplete.
Organization & Structure	The paper breaks the information into point-by-point OR block method structure. It follows a consistent order when discussing the points. (10 points)	The paper breaks the information into point-by-point OR block method structure, but does NOT follow a consistent order when discussing the points.	The paper breaks the information into point-by-point OR block method structure, but some information is in the wrong section. Some details are NOT in a logical or expected order, and this distracts the reader.	Many details are NOT in a logical or expected order. There is little sense that the writing is organized. The points of comparison in the body paragraphs are different.
Transitions	The paper moves smoothly from one idea to the next. The paper uses comparison and contrast transition words to express relationships between ideas clearly. This paper uses a variety of sentence structure and transitions. Review *2 (8 points)	The paper moves from one idea to the next, but there is little variety on transition words and sentence structures to show relationships between ideas.	Some transitions work well; but connections between other ideas are fuzzy.	The transitions between ideas are unclear or nonexistent.
Grammar & Spelling	This paper includes less than 3 errors in grammar and 0 misspelling. Review *3 (8 points)	This paper includes less than 6 errors in grammar and a few spelling mistakes.	This paper includes less than 8 errors in grammar and some spelling mistakes. These errors may distract the reader from the content.	This paper includes a lot of grammar mistakes that distract the reader from the content.

Points: 32/40	<p>*1. The second paragraph seems a little be weak. Also, you need to revise the concluding sentence in para. 3. It's be nice to include a few specific examples in the body paragraphs, especially para. 4.</p> <p>*2. Read the comments carefully. There are a few inappropriate transitional words in the essay.</p> <p>*3. There are some plural noun mistakes and you may what to change "eating outside" like "dine out".</p>
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Step 5: Reflection and Transfer Skills

After discussing the writing assignment with the instructor, the students wrote a reflection paper about what they had learned in the process of completing this assignment. In this paragraph, the students reflected on not only the mistakes they made in their paper, but also how and what they would do to improve in the next assignment. That is to say, the purpose of writing the reflection paper is to guide the students to transfer new writing skills and strategies they have learned in one task to the next task.

It was not until the first meeting did I further realized the structure of compare and contrast essay. Previously, I didn't add a clear thesis statement on the introductory paragraph and that would confuse readers to catch my point. In addition, the three points were also unclear in the body paragraphs. However, I have reorganized my essay by clearly illustrated the three main points with a thesis statement afterwards. Accomplishing this essay, I became more interested in the history of romantic music and I was eager to study it some day in the future. For my next and final essay, I hope my grammar mistakes could be narrowed down to less than three errors and with more abundant content.

3.3 Data collection and analysis

The approach used in this study was a qualitative approach. The researchers (Guest et al., 2013; Lazaraton, 2003; Richards, 2009) stated that qualitative data analysis involves working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others. Thus, qualitative data are usually text-based outcomes of interviews, observations, field notes or documents, and the data from activities (Mertens, 2010; Yin, 2009). That is, this study aimed to understand the impacts of strategy-based instruction on EFL students' perspectives and their writing proficiency. The main instruments used in this study included researcher's field notes, individual interviews, and students' reflection papers.

I. researcher's field notes: Keeping field notes has been a central component of qualitative research since the early 1990s (Emerson, Fretz & Shaw, 2011; Ottenberg, 1990), so the researcher observed and recorded the thoughts, ideas, and queries regarding the in-class discussion activities, after-class self-reflections, as well as individual interviews. That is, these field notes were considered as the valuable contextual data in this study.

II. individual interviews: The researcher who invited the voluntary participants to sign up for the individual interview told them the interviews would remain confidential and their comments and feedback would be used for this study only. There were ten interviewees who met with the researcher individually for approximately 20 minutes to talk about their perspectives, feedback and suggestions on the strategies which they had practiced in class and used in their writing assignments. Moreover, they also shared with the researcher how the strategy-based

instruction had assisted them to strengthen their self-autonomy while they were working on the writing tasks independently.

III. students' reflection papers: Participants were asked to write a reflection paper about what they had learned in the process of completing the rhetorical pattern. In this paper, the students reflected on not only the mistakes they made in their paper, but also how and what they would do to improve in the next assignment. In addition, they were required to include the end of semester reflection which responses did not affect the students' final grade in the final portfolio. There were four open-end questions at the end of semester reflection including (1) Read again the 3 reflection papers written after the individual conference meetings and the papers you wrote in this semester. Thoughts about what you had learned in this writing course. What would you do differently on an English writing essay now? (2) What did you think was helpful to you personally about using the strategies in writing? (3) What was the most challenging part of this course, and (4) What did you least like about this class?

In order to convey the meaning and understanding from the qualitative data, there are four levels of coding in qualitative data analysis (see Figure 2). Therefore, to conduct the data analysis based on the four levels of coding (Hahn, 2008), the researcher-instructor first listened to each interview, transcribed the audio-taped interviews, and confirmed the field notes. As the interview transcriptions were completed, the researcher-instructor compared and contrasted the written texts from each participant and categorized the data depending on the participants' communications. Next, the researcher-instructor reviewed the responses from the students' reflections papers, individual interviews, and synthesized the researcher's field notes from all the activities. Therefore, themes and concerns were developed from the synthesis of the three data sources, using triangulation.

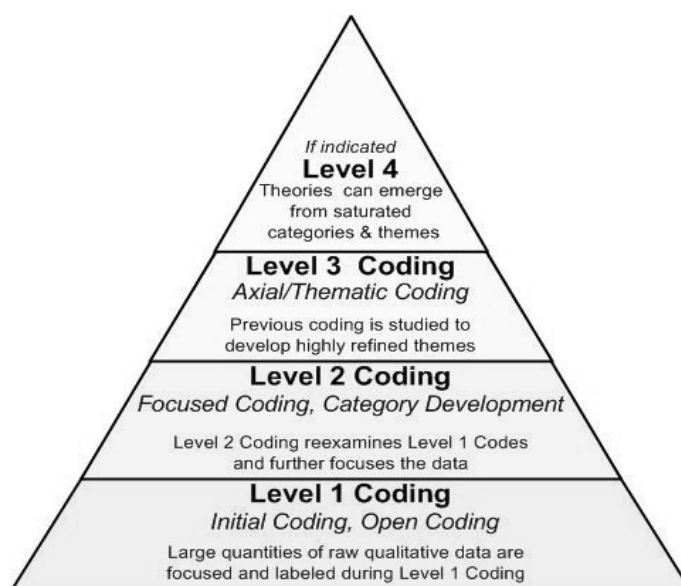


Figure 2. Qualitative coding levels (Hahn, 2008)

According to Denzin (1984), there were four types of triangulation including (a) data source triangulation, (b) investigator triangulation, (c) theory triangulation, and (d) methodological triangulation. As a result, multiple data sources were collected and analyzed by using triangulation research strategy (Patton, 2002) to identify comprehensive understanding themes in this study. These data sources include the researcher's field notes, individual interview transcripts, and students' reflection papers (see Figures 3).

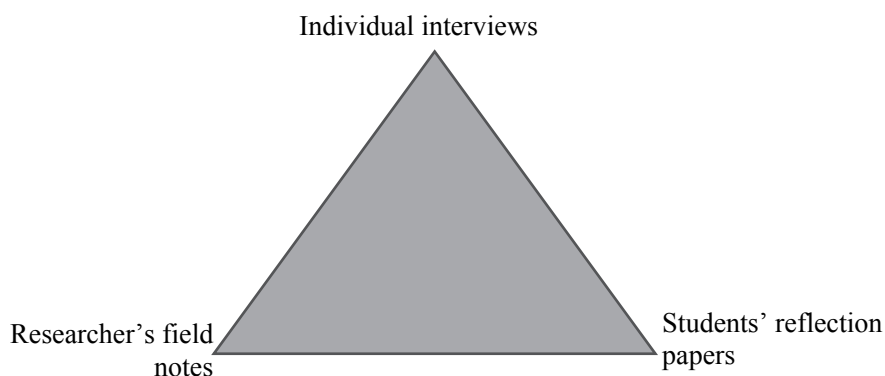


Figure 3.Triangulation analysis of the data

In addition, in order to establish inter-rater reliability on the themes of the study, three out of 10 individual interview transcripts and five out of 20 students' reflection papers were randomly picked to be analyzed by another instructor. The second instructor imported the transcripts into an Excel spreadsheet first and used the Find feature to track the similar phrases from the texts to get the common codes for the themes. Later, the instructor-researcher and the second instructor met to discuss the results. Three out of four themes were matched by both researchers. Thus, interrater reliability was found to be 75%, indicating that the rates were in positive agreement.

4. Results

This case study aimed to understand the learners' perspectives on the effectiveness of SBI in English writing performance. According to the researcher's field notes, individual interviews and reflection papers, the participants' responses mainly focused on how different steps of strategies (such as warm-up discussions, group and individual practices, evaluation and individual conferences, and reflection) had guided them to prepare for their writing. There were four primary themes that emerged from the study. The exemplar quotes are listed below based on student-participants' representativeness of the themes. A1 to A10 represented the participants who attended the individual face-to-face interviews, and A11 to A20 were remaining

participants, who didn't join the interviews.

It's important to recognize that these findings represent the experiences and perspectives of the student-participants, not the instructor-researcher.

Theme 1: Transferring various skills to other tasks

Several interviewees mentioned that the use of Step 2: Presenting and Modeling helped them get clear mental pictures about how to complete the writing assignments by modeling the assigned articles. One of the participants said, *“the way that the teacher led us to think about and analyze the structure of the article which made me understand the meaning and the main idea of the article. What is more, by understanding the structure of the article it helped me get a clear idea about what I am going to write in my writing assignment”* (A2). In addition, the researcher's field notes also recorded that the participants not only learned the importance of having accurate writing format and style, such as APA style, but also applied the format of in-text citations and references in their papers from the step of Presenting and Modeling. This is what another participant said: *“I had no idea about writing style or format. Yet, from reading articles and handouts the teacher gave us in class, I understand the rules of APA style”* (A10). Another said, *“From the reading materials, I can see various examples of in-text citations and the list of references, which I used as examples while I was writing my papers and reports. I thought it's useful to learn to cite the sources and format the references, so I could avoid plagiarism in my papers”* (A3).

In addition, the participants also shared that besides English writing techniques, throughout Step 3: Group and Individual Practices, they learned to enhance self-autonomy as well as improved other skills such as

(a) oral/communication skills:

- *I'm now trying to learn more synonyms, vocabulary words, and read more articles online or foreign news. Also, I learned to use academic words* (A1).
- *In this class, I not only learned writing skills, but also practiced my speaking skills while discussing the prompts with my teammates* (A4).

(b) critical thinking skills:

- *I learned to answer the “why-question” and use the strategies we practiced in class to draft my paper and brainstorm the ideas* (A6).
- *I used the rubric to examine my writing before submitting it or sharing it with my partner in class. I read each criteria carefully and use each one to challenge and analyze my own writing first* (A8).

- *The assigned writing tasks and discussion prompts made me think closely and critically while answering each question. Also, I push myself to read more relevant articles in order to collect the evidence to support my points in the papers (A9).*

Regarding Step 5: Reflection and Transfer Skills, below are some responses that the participants wrote on their reflections papers. They shared that they learned to include the thesis statement in the introductory paragraph, used specific examples in the body paragraphs, deleted the repetitive parts in the body paragraph, constructed the conclusion paragraph, paraphrased the words and sentences, and developed an outline of the essay for the further writing tasks.

- *I revised my essays by deleting the repeating parts but added the points to the conclusion paragraph. I'd like to keep improving my writing skills on how to design a clear structure and let readers understand my writing easily (A5).*
- *I should practice describing what I want to write with more specific examples, especially in the body paragraphs (A7).*
- *Now I know I need to have a clear thesis statement on the introductory paragraph and only focus on a clear point in each body paragraph (A13).*
- *I use an outline to develop my essay. The outline helped to hold good coherency between one another paragraph; it's easier to stay on the right track by mentioning only the important key points; all the sources were listed in the outline, so using an outline saved lots of time writing the essay with all the resources needed (A17).*
- *For the next writing task, I'd like to strengthen my article by learning to paraphrase more words and fix grammatical problems (A19).*

Tables 2 through 4 are the examples to illustrate how the participants transferred new writing skills from one task (comparison and contrast essay) to another (problem-solution essay). In Table 2, the participant (A7) pointed out in the individual conference and reflection paper that he didn't have a clear thesis statement in the introductory paragraph of the comparison and contrast essay. However, he revised this paragraph with a clear thesis statement, and he also remembered to write a clear thesis statement in his next essay, problem-solution.

Table 2: A7's writing performance (transfer new writing skill, having a clear thesis statement, from one task to another)

<p>2nd Essay: Comparison and Contrast Essay Topic: Classical music and romantic music 1st draft (Introduction paragraph) <i>Music is not restricted to people or a specific place. Among all types of music genres, classical music and romantic music are the two major forms of music which are distinguished to people all around the world. Romantic music, which approximately begins from the mid nineteenth century, is the subsequent development of classical music. Though both type of music <u>seem</u> to be similar, people usually consider that romantic music is more touching and pathetic.</i></p> <p>Revision <i>Music is one essential part of human soul, like water to all organisms, and it is not restricted to a certain group of people or a specific place. Among all types of music genres, classical music and romantic music are the two major forms of music which are distinguished to people all around the world. Romantic music, which approximately began from mid nineteenth century, is the subsequent development of classical music. Though both types of music seem to be similar, people usually consider that romantic music is more touching and pathetic. In general, they differ from their histories, characteristics, and the majority group of their audience.</i></p> <p>3rd Essay: Problem-solution Essay Topic: How Can We Keep Food Scandals from Happening? 1st draft (Introduction paragraph) <i>If you are Taiwanese, you may say that Taiwan is famous for its delicious food. People in Taiwan make a big profit on selling bubble tea. However, there was a period of time this product facing a great blow because of food safety problem. But there are many food scandals uncovering in recent years. The main reason why these food scandals showed up is that businessmen wanted to make as much profits as possible, so they started to use illegal and cheap ingredients which contain toxic starch. The best way to solve the problem is revising the law properly to keep people from trying to sell toxic food to harm human's health.</i></p>
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A9 mentioned two writing problems in the individual conference and reflection paper: (a) missed writing a topic sentence at the beginning of the body paragraph and (b) wrote long sentences that include too much information. She learned from her experiences with the comparison and contrast essay and managed her sentences much better in the problem-solution essay (Table 3).

Table 3: A9's writing performance (transfer new writing skill, avoid writing long sentences, from one task to another)

<p>2nd Essay: Comparison and Contrast Essay Topic: GMO Foods vs. Organic Foods 1st draft (body paragraph 1)</p> <p>The technique of gene modifications is a novel technique developed only in a few decades, which is a way to modify genes artificially so as to increase the <u>amount</u> of crops when harvested, by either making crops secrete some proteins to prevent being eaten by predators, or encoding genes that enable crops to survive from extreme weathers. In our daily lives nowadays, almost every crops people take in are GMO foods. Nonetheless, there are some people opposing GMO foods, censuring that the modified genes may merge with human gene and cause cancer. But the fact is, natural crops genes also may merge with human gene after being consumed. Besides, merged genes get corrected by cells naturally. In addition, some extrapolate that since proteins GMO foods secrete prevent them from being eaten by predators, the proteins aren't edible for humans as well. Yet, in truth, natural foods also secrete proteins to protect themselves, it's just that the protein secreted isn't enough or is innocuous to the predators after natural selection. What predators don't eat does not insinuate that it also devastates the human body.</p> <p>Revision</p> <p>Gene modification is a novel technique developed only in recent few decades, which is a way to modify genes artificially so as to increase the <u>amount</u> of crops when harvested. Scientist either make crops secrete some proteins to prevent being eaten by <u>predators, or</u> encode genes that enable crops to survive from extreme weathers. Nowadays, almost every crop people take in is gene modified. Nonetheless, there are some people opposing GMO foods, censuring that the modified genes may merge with human gene and cause cancer. But the reported announced on Jan. 9, 2014 that natural crops genes also may merge with bacteria's gene to alter human body after being consumed. Besides, merged genes get corrected by cells naturally. In addition, some extrapolate that since proteins GMO foods secrete prevent them from being eaten by predators, the proteins aren't edible for humans as well. Yet, in truth, natural foods also secrete proteins to protect themselves. It's just that the protein secreted isn't enough or is innocuous to the predators after natural select. Thus, the foods that predators don't eat may also harm human's body.</p> <p>3rd Essay: Problem-solution Essay Topic: Comate Change 1st draft (body paragraph 1)</p> <p>The problem of climate change has been constantly brought up in the social media due to the rising frequency of natural disasters. Through decades, human has been constantly using resources from mother nature, as well as producing more wastes, regardless of the vicious effect towards our environment. Many people took the resources for granted and deemed the nature as a forever lasting paradise. Not until drastic changes of our environment appeared <u>did</u> we stop neglecting how human has been destroying the environment. Climate change not only damaged the quality of our lives, but also marred habitats of creatures around the word. Many creatures may die from the unadaptable environment caused by climate change. Nonetheless, many people still don't understand how their behaviors cause climate <u>change, and</u> keep polluting the environment.</p>

Another participant, A1, added new ideas in her conclusion paragraph of the comparison and contrast essay. After the discussion in the individual conferences, she wrote her mistake on the reflection paper. She was awarded her mistake while working on the problem-solution essay in the first draft.

Table 4: A1's writing performance (transfer writing skill, not including new idea in the conclusion paragraph, from one task to another)

<p>2nd Essay: Comparison and Contrast Essay Topic: Hand puppet shows: <u>Pi-Li</u> vs. <u>Jin-Guang</u>. 1st draft (Conclusion paragraph) <i>In conclusion, hand puppet shows have been a precious culture in Taiwan. This paper illustrates some features, including the characters, the marking strategy, and the revolution, of the two most popular hand puppet show companies in Taiwan. They both have their own strengths and weaknesses, as well as their own fans. It's not important to judge which one is superior. Both fans are sincerely love this hand puppet culture because hand puppet shows enrich their lives in greatly. All in all, everyone should respect and work together to preserve such traditional Taiwanese culture.</i></p> <p>/</p> <p>Revision <i>In conclusion, this paper contrasted the features: characters, the marking strategies, and the revolution of hand puppet show between two hand <u>puppet</u> show companies (<u>Pi-Li</u> and <u>Jin-Guang</u>). In my opinion, hand puppet show is a precious culture in Taiwan, so each company has its own strengths and weaknesses. It's not important to judge which one is the superior. It's more necessary for us to respect and work together to preserve such traditional Taiwanese culture.</i></p> <p>3rd Essay: Problem-solution Essay Topic: Do Humans Need Death Penalty in The Society? 1st draft (Conclusion paragraph) <i>In conclusion, abolition of the death penalty is the recommended solution because the death penalty indeed can't reduce the crime rate. The death penalty has been carried out for a long time, and it's time for humans to stop doing the same thing over and over again. Administering death penalty won't bring to different results. I believe that everyone should enhance concepts of laws and orders, as well as understand the true purpose of criminal laws.</i></p>

Theme 2: Receiving benefits from individual conferences

According to the researcher's field notes, interviews and students' reflection papers, the participants indicated that they appreciated that the instructor held the individual conference meetings with them after each writing assignment. One of the participants said "*I loved the atmosphere while discussing the topics and ideas with teammates and the meeting time I had with my teacher. I think individual conferences help me to find the problems and understand how to improve my writing most*" (A4). Also, they commented that the individual conferences had made several positive differences on their writing, such as avoiding translating from Chinese to English, reducing grammar mistakes, sentence fragments and run-ons. Here was some feedback quoted from the participants:

- *With the three meetings, I fully understood the reasons for the sentences which were modified by the teacher (A1).*
- *From the individual meetings, I learned to fix the weak arguments in my essays (A2).*
- *In the meetings, I can discuss my questions with the teacher, such as: my unclear argument points, the use of vocabulary words, and grammar (A3).*
- *I think I often write some ambiguous sentences for readers to figure out the meaning by themselves. However, from the individual meetings with the instructor, my teacher guided me to explain more to the readers and help me avoid writing unclear sentences (A8).*
- *In each meeting, I practiced answering the teacher's questions in English immediately. As a result, I felt like I learned to avoid translating what I want to say from Chinese to English. I thought having an individual conference with my teacher was a good way to train myself to think in English quickly (A10).*

Theme 3: Cooperating with partners in class

Another interesting finding was that working in a group seems like an efficient learning approach for the participants. Here are the responses from the interviewees and students' writing reflections:

- *During the discussion activities, I learned the values about learning together; my partner and I shared different opinions and we learned to communicate with each other and persuade each other (A5).*
- *From the team discussion, it was easier to come up with a useful solution to the problem (A6).*
- *While working in a group with my teammates, I felt that I could learn better in class. I didn't nod off, but focused on the teacher and the discussion topics (A7).*
- *It's helpful to work with my team, so I can revise my writing and learned which parts I needed to revise/improve from my partners' comments (A11).*
- *I enjoy the teacher's teaching style. Having group discussions first helps me to work on my own writing. In the discussion and team work, I made some new friends from this class (A15).*
- *While searching for the appropriate article to respond to, my partner and I learned to analyze the context and content of the readings. We read the articles and wrote down the points which we agreed with or against, and then we searched for more academic information to support our points of view (A20).*

Theme 4: Learning new knowledge from the readings

In Step 2: Presenting and Modeling, the participants were required to read several passages

for each rhetorical pattern. There are two reading models in the textbook (Final Draft 4): the first model shows students how the rhetorical mode is applied in a real-world setting, and the second model shows a typical assignment from a college writing course. Additionally, the students were required to use at least three academic sources to support their arguments while working on both a comparison and contrast essay and problem-solution essay. That is, the students read several academic passages for the topics they chose in both rhetorical patterns. The participants also pointed out that they gained new knowledge about different topics including self-driving cars, the approaches of online learning, food security issues, child marriage, death penalty, and income inequality from the reading articles which they used to complete their writing assignments in this course. One of the participants noted that “*I learned some issues about aging problems in different countries*” (A5). Furthermore, intensive reading in this class seemed to develop the participants’ reading habits. On this subject, a student said, “*Reading articles in different topics before writing my essays inspired me to learn more every week*” (A9).

5. Discussion of the Study

The current study aimed to understand the EFL college students’ perspectives on the effectiveness of using SBI in an elective intermediate English writing course. The SBI model applied in this study was adopted and modified from previous studies (Chamot et al., 2004; De Silva, 2015; Gu, 2007). While reviewing the steps of the SBI model in this study, there are some similar findings from previous studies (Amoush, 2015; Bai & Gu, 2014; Kao & Reynolds, 2017; Sengupta, 2000; Tsai & Lin, 2012) about the steps of warm-up discussion, modeling and monitoring, and revision. That is, the results of this study also showed that employing planning, brainstorming, modeling, and revising activities would be effective strategies for improving English learners’ writing performance.

In addition, the instructor-researcher added individual conferences to this SBI model (Step 4), which allowed the instructor and the participants to share their concerns, discuss their questions and review their writing. This step can not only provide support to those struggling writers who tend to lack the skills needed to evaluate texts and make strategic changes (Dinkins, 2014), and also share the authority and discuss the decision making process with learners (Thambirajah & Nordin, 2014). Moreover, the instructor-researcher found that having individual conference meetings with the instructor helped students to overcome challenges in English writing, a finding which supported existing studies related to writing conferences (Alfalagg, 2020; Bai, 2015; Thambirajah & Nordin, 2014). Alfalagg (2020) showed that oral feedback in writing conferences resulted in a large statistical impact on learners’ writing performance (Cohen’s

d=2.19), especially on the use of first- and second-person pronouns, the definite article ‘the’, and the use of conjunctions. In addition, Thambirajah and Nordin (2014) mentioned that in a student-centered writing conference, instructors listen carefully and pay attention on students’ questions, concerns and responses; at the same time, students are seen as active participants and are offered opportunities to share their thoughts as well as to recognize their learning progress in writing. It is interesting to note that, in this study, the participants also shared that they understood more about how to avoid translating from L1 to L2, reducing grammar mistakes, sentence fragments and run-on sentences after meeting with the instructor individually. The instructor-researcher believes this is due, at least in part, to the opportunity for the instructor to model and explain these skills in an individual, face-to-face environment, and to do so verbally as well as in writing. In this study, the students’ reflections and interviews also expressed that the interactive discussions between them and the instructor-research helped the learners to become more aware of their own writing processes and to realize their potential. That is, the individual conferences can encourage students not only to become active learners, but also to acquire knowledge related to content matter.

Another important step of the SBI used in this study was having the learners reflect on their writing process in order to improve their writing performance. In this study, the participants observed their thoughts with regard to the writing process, grammatical accuracy and the organization of the texts they were writing. This process gave them practice developing their critical thinking skills and facilitated the process of transferring new skills from one task to another. Chamot (2005) likewise described how learners wrote personal observations about their own learning experiences, and the way they attempted to solve language problems.

The participants in this study also revealed that working together was an effective learning approach, especially in the planning process as they shared and brainstormed new ideas, as well as in the revising stages of their essays. This may be because students are given an opportunity and time to think, discuss, and generate ideas, and also be supported by peers, which in turn encourage the use of cognitive/preparation strategies that allow them to produce much better quality writing than working on their own (Kao & Reynolds, 2017).

6. Implications of the Study and Conclusion

The themes of this study revealed four major implications; first, writing a reflection paragraph/paper gave the learners a chance to think closely about the process of writing, reevaluate their thinking, and analyze their lessons and experiences upon completing the writing tasks. Next, offering reading samples which were related to the rhetorical patterns for the EFL

learners improved not only reading comprehension but also their understanding of English writing structure. That is, EFL students were given more inputs to absorb before demonstrating their output. Also, planning appropriate time for the EFL learners to discuss their writing with their teammates was an effective way to develop their critical thinking and communication skills. Fourth, and what the researcher felt to be most important, holding individual conferences with each student not only allowed the instructor to meet the learners' individual needs, but the conferences also supported the ongoing learning progress of the learners.

It is important here to consider a few limitations to this study. First is that the participants' English proficiency was, with only two or three exceptions, at an advanced level. These advanced students all had a clear understanding of paragraph writing and the rules of English grammar. That is to say, this SBI model may have different outcomes when applied to lower proficiency levels of EFL learners. In addition, this method depends on students having relatively high levels of motivation. For example, individual conferences played a necessary role in this study, but once a learner isn't willing to share his or her ideas and challenges, it would be hard for the instructor to provide more instructions. Next, the study's small number of participants (20 students) enabled the researcher-instructor to devote a lot of time to evaluating and giving feedback on students' writing. Larger classes would require several creative adjustments which would surely impact the learning outcomes. Finally, the ability to conference individually with students, which the students and researcher alike felt to be so beneficial, was possible because of the relative freedom and flexibility that the researcher-instructor was allowed. Many institutions might find individual conferences to be too disruptive of normal class proceedings, and too-great of a sacrifice of face-to-face learning time.

Another limitation of this study is regarding data analysis. The researcher believes that the positive interrater reliability rate of 75% could have been improved by allocating more time for the review process. In this study, the second instructor reviewed approximately 30% of the qualitative data, including the interview transcripts and students' reflection papers. In the future, the researcher suggests the following ways to improve the interrater reliability rate. First, the researcher should start recruiting a data reviewer team earlier so that more of the data could be reviewed. Next, the researcher could organize a meeting for the data reviewer team, so everyone could share an understanding of key phrases and concepts which will help to identify the common themes from these qualitative data. Also, the researcher and the data reviewer team should meet in person to discuss the results.

While writing in an L2 can be a difficult task for students, with appropriate teaching methods to guide students in their writing and learning process, teachers can help and support students along the way. SBI shows a statistically significant positive relationship with students'

self-rated writing ability (Mohsenials, 2014; Tsai & Lin, 2012) and writing difficulty (Kao & Reynolds, 2017). This study qualitatively demonstrated that SBI could be one of the effective teaching methods that teachers can employ in their writing classes to encourage, help and support their students to improve both their writing performance and confidence. Based on the findings of this study, it was suggested that EFL writing teachers introduce writing strategies to students and guide them to be aware of and apply appropriate strategies during the various stages of their writing process. The cycle of SBI introduced in this study can serve as a basis of teaching procedures which, despite the aforementioned limitations, teachers can adopt and modify to suit their own classes.

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科技輔助社會認知教學法 (TEST) 對 以英語為外語學習者公開演說焦慮之影響

Effects of Technology Enhanced Socio-cognitive Teaching (TEST) on EFL learners' Public Speaking Anxiety

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摘 要

臺灣以英語為外語的大學生普遍遭遇到「公開演說焦慮」的情況，當被要求使用英文進行發言討論、成果發表、或是演說辯論時，常因焦慮導致口說表現以及表達效果受到影響。為改善 EFL 學習者的公開演說焦慮，為有效改善問題並增益學習成效，本研究提出「科技輔助社會認知教學法 (TEST)」從外語習得原則及社會互動來養成認知。參與研究為 25 位應用外語系二年級學生，在 18 週課程中進行策略導向的內容本位課程，配合主題選用手機應用程式輔助學習，並透過應用程式增加互動頻率。利用之科技包含自動語音辨識、人工智慧語言處理、擴增實境、通訊應用程式等。透過量化之間卷調查及質性之自我反思，達到三角測定成效。量化調查顯示：「公開演說焦慮自陳量表」從第一週的中等偏高降為第十八週的中等程度，焦慮降低程度接近顯著；「科技接受模型調查」平均值提高，雖未達顯著標準，仍代表學生對使用科技學習接受度增高。質化反思顯示：學生對通訊程式滿意度及使用意願最高，顯示社會互動依然受到重視。本研究提出之創新教學法 TEST 及演說辯論活動能降低演說焦慮並提升口語溝通動機。實證成果亦提供教師使用科技融入教學之實用方法。

關鍵詞：以英語為外語、公開演說焦慮、社會認知教學法、科技強化語言學習

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Abstract

The study aims at investigating the effect of the proposed method, Technology Enhanced Socio-cognitive Teaching (TEST), on reducing speaking anxiety and improving speaking ability of Taiwanese EFL learners. Twenty-five sophomore English majors participated in the study; they took a content-based course, Speech and Debate, for one semester, using theme-based mobile applications to facilitate English speaking practices, and interacting with each other through mobile apps. A total of eight mobile apps were used, and the functions included automatic voice recognition, artificial intelligence speech processing, augmented reality, and instant messaging; the apps were used for self-learning and mutual interaction, including individual speech preparations, live-action role play games, and online inter-school debate contests. Results show that the anxiety level of the students dropped from moderate high level to moderate level, according to the Personal Report of Public Speaking Anxiety scale, and the technology acceptance level went up, based on the Technology Acceptance Model. Qualitative surveys show that the students regarded the apps with an instant messaging function as the most useful and were most willing to continue use, indicating that social interaction is crucial in oral training despite of the enhancement of technology. The findings of the study confirm the positive effect of TEST on reducing EFL learners' speaking anxiety and increasing their motivation to use English in communication. EFL teachers are suggested to integrate technology in the classroom to enhance language learning and social interaction.

Keywords: English as Foreign Language (EFL), Public speaking anxiety (PSA), Socio-cognitive method, Technology enhanced language learning (TELL).

壹、前言

近年來，語言學習者在學習過程中產生的「學習焦慮 (learning anxiety)」對於第二外語習得領域已成為顯學。主因來自於教育理念對於學習者個人因素越發重視，例如語言學者 Stephen Krashen (1982) 提出「情意濾網假說 (Affective Filter Hypothesis)」，認為在語言學習中被強迫、威脅的經驗，會在學習者心中建立一道「情意濾網」的心理障礙，這會讓學習得效率變慢，因此教師必須試圖消弭學習者心中的不安，讓他們自在學習、效果才會好。教育學者 Ron Miller (1990) 提出全人教育 (Holistic Education) 理念，認為學習內容的統整不僅包含德、智、體、群、美，還應顧及思維與操作、觀念與實踐、分工與合作、欣賞與創作的學習過程，也就是說教育應涵括智能與情緒兩面。無論是語言學或是教育學，都重視學習焦慮的應對。

心理學的「焦慮」定義為主觀情緒反應，包含引發自主神經系統反應的緊張、厭惡、擔憂等情緒 (Spielberger, 1983；引自 Horwitz et al., 1986)。而在教育學以及語言學上，「焦慮」被認定為「對學習情狀產生的模糊抽象厭惡情緒」(Scovel, 1978, p.134)。外語學習焦慮 (Foreign Language Anxiety, FLA) 則為「與第二語言學習背景相關聯的緊張及厭惡情緒」(MacIntyre & Gardner, 1991)，屬於情境式焦慮，包含教室環境、學習者個人特質、目標語言、以及學習過程等，都可能觸發焦慮情緒。儘管「焦慮」的定義以負面居多，但學習焦慮卻被發現是影響學習成效最強有力的因素之一 (Liu & Huang, 2011)。例如 Saito 與 Samimy (1996) 發現 FLA 對學習英文的日本學生產生顯著負面影響。但 Dalkilic (2001) 卻發現成績較好的學習者顯示出較高的焦慮情緒，暗示焦慮亦可能促成正面學習成效。對於第二語言教師來說，能有效掌握學生的情緒反應—無論是降低學生焦慮情緒、或是將情緒轉換為進步動力—對於造就學生的學習成效會是非常關鍵且重要的因素。

為了瞭解焦慮產生的原因，Horwitz 等 (1986) 開發「外語教室焦慮量表 (Foreign Language Class Anxiety Scale, FLCAS)」，發現溝通焦慮、考試焦慮、以及負面評量憂慮為造成高焦慮狀態的三大主因。此外，各種語言能力都有觸發焦慮的可能，包含聽力 (Kim, 2002；Vogely; 1998)、寫作 (Cheng, 2002；Chou, 2013)、閱讀 (Matsuda & Gobel, 2001；Saito et al., 1999) 等，其中又以口說產生的焦慮感為最 (Luo, 2014)。Young (1990) 發現課堂中有些活動特別容易引發焦慮，包括臨時角色扮演、在同學前發言、在班上公開發表等，而這些活動都要求口語能力展現。在 Horwitz 等 (1986) 的研究中，亦發現學生對於有關演說焦慮的敘述同意度高、對於表述自我的演說信心的敘述同意度低。從不同角度來說，研究者也發現：當學習者對自己的口語表現不滿意時，容易引發 FLA，導致學習成效不彰 (Aida, 1994；Basic, 2011；Liu, 2006)。由此可見：演說焦慮對於掌握學習者的外語學習焦慮及引導較佳學習成效、其重要性不可小覷。

而深入研究公開演說焦慮 (public speaking anxiety, PSA)，其觸發原因除了前述提到之

普遍性會造成焦慮的原因，另外還包含對於溝通型態的不熟悉 (Woodrow, 2006)、對口語表達技巧的缺乏導致缺乏自信 (Griffin, 2009)、準備不足的擔憂 (Gkonou, 2011)、在眾人前表現自我的尷尬情緒 (Genard, 2015)、對於與聽眾間產生地位高低的想法 (Gkonou, 2014)、面對陌生人的侷促感以及對自己緊張外顯的憂慮 (Mak, 2011) 等等。此外，學習者本身不同變因—例如性別、文化背景、語言能力高低—也可能導致不同程度的口語焦慮。以上種種原因涵括生理與心理層面、內在與外在來源、甚至是個人以及社會因素，複雜的程度比起其他三種語言能力焦慮更甚，且讓掌控 PSA 的考量更加多面。希冀能全面的了解、掌握外語學習者的公開演說焦慮，則應從認知、社會、及文化層面著手。

本研究提出使用「科技加強社會認知教學法 (Technology Enhanced Socio-cognitive Teaching method, TEST)」降低臺灣大學生英語公開演說焦慮。以「社會認知教學法」為主軸，以社會角度接近、佐以認知概念教學、協助學習者調整並改善公開演說焦慮感；另外本研究加入新的教學元素：透過科技加強方法，輔助認知概念的傳遞，促成社會連結的效果，期能達成科技加強學習的成效。本研究目的即是以課堂行動研究方式，對於創新教學法提出實證，期能降低臺灣大學生的英語公開演說焦慮、提升以英語做口語表達之表現、長遠而言能增進臺灣以英語為外語學習者的溝通能力。

貳、教學理念與理論基礎

一、公開演說焦慮之變因探討、應對提案、及實證效果

前人研究發現：引發口語焦慮的原因包含語言學習環境、老師、及學生本身。學習者本身對自己的口語能力評價較低、則易引發較高焦慮 (Woodrow, 2006; Mak, 2011)。擔憂來自於老師 (Young, 1990) 或是同學 (Gkonou, 2014) 的負面評價，容易導致高焦慮感。而教室的氣氛也影響很大：教學活動中，以師生問答及上台簡報較容易導致高焦慮，小組討論的焦慮感相對較低 (Liu, 2006)。其他導致焦慮的因素包括學生課前的準備不足 (Gkonou, 2011)、以前不好的經驗 (Riasati, 2011)、對高風險測驗 high-stake tests 的反感 (Zhang & Liu, 2013)，以及對無法通過課堂評鑑的恐懼 (Horwitz & Young, 1991) 等。

另也有研究指出：學習者本身不同變因—例如性別、文化背景—也會導致不同程度的口語焦慮。Luo (2014) 研究以中文為外語的學習者，發現相較於語言能力，性別影響焦慮程度較大。Woodrow (2006) 則發現在以英語為外語學習者 (English as Foreign Language, EFL learners) 中，來自儒家思想背景如中國、韓國、日本的 EFL 學習者，焦慮感相較其他背景的 EFL 學習者高。然而目前雖有以各地 EFL 學習者為目標的研究，如歐洲（如 Sweden: Basic, 2011; Greece:Gkonou, 2011）、中東地區（如 Turkey:Çađatay, 2015）、東南亞（如 Indonesia:Anandari, 2015）、東北亞（如 China: Liu, 2006; Japan:Williams & Andrade, 2008; Taiwan:Hsu, 2012），但沒有發現一致認同的研究成果，因此尚無法斷言文化背景對於演說焦慮的影響。學習者性別部分亦同，Kim (2002) 研究韓國大學生、Matsuda 與

Gobel (2001) 研究日本大學生，都發現性別對於焦慮感無相關，然而 Cheng (2002) 研究臺灣大學生，卻發現女性大學生的焦慮程度顯著高於男性。目前為至對於性別與焦慮產生的關聯性尚無定論。

此外，語言程度也被發現影響至鉅。MacIntyre 與 Gardner (1991) 主張：「as experience and proficiency increase, anxiety declines in a fairly consistent manner」(p.111)。Liu (2006) 對於中國 EFL 學習者做實驗，發現語言能力越高者、焦慮感越低。除此之外，對於外語學習者來說，在課堂之外、和外國人應對也容易導致焦慮，原因來自於不熟悉目標語言、以及不熟悉母語與目標與之間不同的溝通模式 (Woodrow, 2006)，也反應出學習者對於目標語言的操縱能力影響焦慮感產生。

以上文獻回顧發現：引發外語學習者公開演說焦慮的原因多元，無法單一面向解釋，因原因複雜，目前尚無一致認同的教學法 (method 或 approach)。時常被採用的教學活動 (activity) 則包括：第一、利用任務導向活動代替單一練習，讓學習者自發性學習、著重在完成任務而非提供正確答案，如此可增加自信心、降低自我負評 (MacIntyre et al., 1997)。第二、以小組形式取代個人報告，產生支持氛圍、降低焦慮產生 (Gregersen, 2003)。第三、改變教師給予回饋的方式，使用非直接的回饋語言、減少直接的修正意見，或改以正面讚美 (Lightbown & Spada, 1999)。第四、使用多元評量方式，減少使用考試或考卷、改用形成性評量 (Gregersen & Horwitz, 2002)。

實證研究顯示：使用以上教學活動，對於改善口語焦慮確實產生成效。Tsiplakides (2009) 使用任務導向活動與學習小組方式來教導希臘籍、年約 13 到 14 歲的 EFL 學習者，學期末透過面談、課堂觀察日誌、以及小組討論，發現焦慮感強的學生更願意主動參與口語活動、且較經常與老師或同學有眼神接觸，在口語測驗的正確度與流暢度表現都進步了。Atas (2015) 則對土耳其籍的高中 EFL 學習者使用戲劇活動，為期六週，根據前後測、面談、以及學習者日記，判斷透過戲劇演出訓練、學習者的焦慮感顯著降低；戲劇活動亦屬於任務性導向活動的一種，再次證實任務性導向活動對於降低口語焦慮的效用。然而以上教學實證多為單一課堂活動測試，且為單一個案情境的結果，缺少普及化的原則，不易推廣。教學研究的目標，應考量心理、認知、社會、文化各層面，根據「原則」、提出「教學法」。

總結而言：協助外語學習者克服口語焦慮情緒的教學方式應考量認知、社會、及文化等各個層面，但因導致焦慮的來源複雜、難以主觀實質的控制，目前在以英語為外語的教學實證結果多為基於單一課堂活動的測試，而非一套完整、全面的教學法；實證結果多限於單一學習環境，如個案研究，難以推及至外語學習環境。為了有效改善 EFL 學習者的公開演說焦慮，並將效果推廣至包含所有外語學習環境，教學研究的目標應考量認知、社會、及文化等各個層面，提出完整的教學法概念，根據教學原則、提出建議。

任何教學法應植基於對外語習得理論。根據理論、提出對應現實需求的條件，並列舉

應遵循的教學原則；如此一來，外語教師無論在任何教學場域、面對不同教學對象，均可根據教學原則，設計符合課室背景的教學活動。研究者在教學實踐計畫中提出「社會認知教學法 (Socio-cognitive Teaching Method)」即按照此原則設計。

二、社會認知教學法於外語習得理論之背景

外語習得（或第二語言學習得）理論普遍分為四大學術派別：行為主義，先天主義，認知主義，社會文化主義。行為主義派根植於 Skinner 的行為理論，認為語言學習其實為行為學習的一種：因有刺激、產生反應、進而形成習慣行為；透過正面及負面制約方法、強化學習成效。行為主義派相信語言學習等同於養成好習慣、排除壞習慣的過程；此派別主張的學習方式是記憶、反覆、練習。此派別的理论受到天生主義派的反對，認為此類型的學習方式無法解釋語言中複雜的結構使用（代表學者如 Chomsky）；天生主義的學者認為語言能力是天生的、當人出生時即具備學習語言的能力，且此天生的語言能力是普世的 (universal)，不受語言背景限制。天生主義派別認為最佳的語言學習方式為沈浸 (exposure)，例如 Krashen (1982, 1988) 提出語言習得的五項假說—輸入假說、習得假說、監控假說、自然順序假說、以及情感過濾假說—即主張語言應透過沈浸在可理解輸入 (comprehensible input)、自然養成，不應加以額外壓力、如果壓力較大或不想學習則學習效果會受到影響。

認知主義派承襲行為主義及天生主義、但著重在大腦及認知產生的差別。認知主義派把語言學習當作是行為技能的學習，但更重視人腦處理語言以及使用語言的方式 (information processing)，所以他們並不同意先天主義主張語言是一個獨特的大腦運作區塊，也不追隨行為主義對於無意識習慣養成的看法；認知主義派認為語言學習是認知的過程，且受到外在世界的影響，會被大腦認知的情緒反應左右。而社會文化主義派則著重學習者與社會的互動：語言是透過真實使用的過程而達到真正的內化，也就是學習者在與他人的互動當中最能夠學好語言（代表學者如 Vygotsky）。社會環境提供學習者支持的鷹架 (Scaffolding Theory：Wood, Bruner, & Ross, 1976)，例如透過教師或同儕、藉由口語或非口語引導，與學習者間產生互動、幫助學習者逐步增加獨立運作能力，並逐漸抽離互動過程中、讓學習者發揮自我。

總結而言，外語習得重視的語言學習元素包含：（一）學習者情意；（二）學習者認知；（三）學習者與社會互動。也就是要妥善成功的習得外語，需讓學習者透過沈浸的環境、建構大腦認知、養成語言使用習慣，並藉由與他人互動與支持、增進能力且讓語言內化；在過程當中，教師及同儕應提供支持鷹架，在顧及學習者情意的前提下，協助學習者進步至獨立。因此一個完整的教學法，應包含上述要素：在互信互助的情境下，大量使用目標語言於有意義的互動情境。而社會認知教學法即遵照外語習得原則，從社會互動、認知養成兩方面著手。

三、社會認知教學法對於克服公開演說焦慮的對應方式

本研究提出之「社會認知教學法」套用心理學上「認知行為治療法 (Cognitive-Behavioral Therapy, CBT)」之框架。根據國家教育研究院「雙語詞彙、學術名詞暨辭書資訊網」提供之定義：「認知行為治療是介於傳統的行為治療和認知治療兩個學派之間，做有目的的結合，取行為治療的嚴格方法，用以改變個體不良認知的一種新的心理治療或諮商的方法。」(廖鳳池，2000) 換言之，CBT 綜合認知治療與行為治療的方式，結合認知治療師挖掘負面思想緣由、加以修正的治療方式，以及行為治療師找尋引發負面情緒的觸發原因、改變行為的治療法，CBT 則要求讓被治療者沈浸在產生恐懼的情境下、面對恐懼及負面情緒、逐步改變潛意識中的負面認知。

CBT 認為個體的行爲改變主要受其「內在認知事件」的影響；所謂的內在認知事件泛指個體對外事件所產生的歸因、衡鑑、解釋、自我增強、信念、防衛機轉及其他許多相關的概念而言。而個體針對內在認知產生內在語言分爲正向及負向：正向內在語言的自我教導使個體產生積極面對壓力事件的態度，對自己的因應能力較具信心；負向內在語言則會使個體對壓力事件採取誇大嚴重性的觀點，對自己的因應能力或挫折忍耐力採取過低的評價，產生自我反對或自我擾亂的想法，導致自我挫敗的結果。而 CBT 即是協助當事人中斷不適應的行爲，並產生適合該情境的因應策略及行爲 (廖鳳池，2000)。

CBT 普遍被用在治療焦慮失調症候群上 (Stallard, 2002)，著重在思想、情緒以及行爲上，相互影響生成；透過改變思想、引發情緒、改變行爲。治療方式是鼓勵當事人測試自我想法並找到佐證、或是改變想法去認知選擇，然後逐步自主改變行爲模式。建議的實行步驟爲：第一步：設定目標 (Goal-setting)；第二步：引導發覺 (Guided discovery)；第三步：蘇格拉底反詰法 (Socratic questioning)；第四步：自我反思 (Use of reflection)。

CBT 亦被建議用在語言諮商 (Advising in Language Learning, ALL)，認為 FLA 既然屬於「特殊複雜的自我認知、情緒、及行爲」(Horwitz et al., 1986, p. 128)，符合 CBT 行爲治療的範疇。學習者應改變他們對自我負面的想法、增加面對情境的自信心。實證方面，Curry (2014) 將此方法推廣在神田外語大學的日本 EFL 學習者，初步證實此方法能有效協助學生學會自我引導、改善焦慮。

然而 CBT 使用在外語學習時，仍有其限制：(一) CBT 的諮商模式因著重反詰對話，較適用於個人諮商治療，而不適用於課堂中、人數較多的情況；(二) CBT 的諮商模式著重於改善焦慮，並非增進學習成效，但對於外語學習者而言，從焦慮降低、到學習精進，尚須教學上的引導及練習；(三) 配合著 CBT 治療、在語言學習上的配套教學措施，仍須仔細設計，避免在學習過程中再次產生其他焦慮因素，EFL 教師須了解焦慮改善並非一蹴可幾。

四、科技輔助對社會認知教學法在克服公開演說焦慮知作為

考量以上 CBT 限制，本研究在「社會認知教學法」中加入「科技加強語言學習 (Technology-enhanced language learning, TELL)」元素。TELL 著重於網際網路使用，以「科技軟體」讓學習者自主操控、獲得回饋，增加語言輸入、內化吸收、及語言輸出 (Kranthi, 2017)。

「科技輔助語言學習 TELL」和「電腦輔助語言學習 (Computer-assisted language learning, CALL)」差別在於「電腦」的存在用途：在 TELL 中，重心從「電腦」轉移到「科技」本身，強調溝通媒體的實際作用，而不局限於在電腦上使用；在 CALL 中，電腦用於輔助語言學習，但在 TELL 中，電腦僅是支援學習的一種，真正輔助語言學習的是軟體的成效，如透過網路及其他多媒體。科技軟體可以讓學習者具備自主操控及獲得回饋的能力，且能夠增加語言輸入 input、內化吸收 intake 及輸出 out 的教學彈性 (Kranthi, 2017)。例如透過網際網路，學習者可自主且大量獲得真實語料的輸入；透過網路連線，學習者可產生各種形式的語言輸出；且由於網路無國界的特性，學習者可獲得許多無法在面對面學習中產生的學習經驗。

TELL 定義上著重於網際網路使用，然考量目前的科技環境，最能符合 TELL 精神原則的媒介，除了電腦、應包括可攜式上網工具，如手機、平板。且近年來手機應用軟體 app 越趨發達，讓無國界溝通不僅不再受制於空間隔閡，甚至可以在任何場域、任何時間進行，大大提升了學習者的自主性、並增加學習過程的彈性。此特性正好符合社會認知教學法中「社會」原則，讓 TELL 成為輔助學習的媒介與工具。

此外，科技提供方便快捷的聯絡管道，如常見的即時通訊應用程式 app，可讓教學引導的溝通更暢順，且免除面對面評量反饋的尷尬，具備補強 CBT 對於團體學習限制之潛力，強化社會認知教學法中「認知」原則。最後，儘管手機應用程式大量產生並廣泛應用，鮮少有單一手機應用軟體 app 能涵括所有教學目標；若配合教學目標、選擇主題 app，可提供教學資源及練習機會。



圖 1. 科技加強社會認知教學法 TEST 概念架構

五、研究問題

本研究目的為探討提出的「科技加強社會認知教學法 TEST」對於改善臺灣以英語為外語學習者對以英文進行公開演說焦慮之影響及成效。研究設計上，控制變因為「科技加強社會認知教學法 TEST」，應變變因為「公開演說焦慮程度」以及「公開演說表達能力」。此外，本研究因加入科技使用，測試科技加強對於焦慮降低的關聯性，增加操縱變因「科技接受程度」，觀察科技使用對於公開演說焦慮改變的成效。本研究提出問題如下：

研究問題 1. 透過科技加強社會認知教學法，對於以英語為外語學習者之公開演說焦慮的改變成效為何？

研究問題 2. 透過科技加強社會認知教學法，對於以英語為外語學習者之公開演說能力的增益成效為何？

研究問題 3. 透過科技加強社會認知教學法，科技使用與公開演說焦慮改變的相關性為何？

參、教學實踐內容與策略

一、教學內容與策略

本研究配合應用外語系之必修課「演說與辯論」實施。每週上課一次、一次 2 小時，一學期共 18 週。修習完本課程，學生可獲得 2 學分。課程教學目標為訓練學生進階口語表達技巧，包含合宜的演說方式及態度，及強有力的辯論策略及表現。修習本課程的學生已具備基本英文口語表達能力，因此課堂中以策略教學為導向，讓學生將藉由大量練習來演練。課程提供多元化評量方式，包括個人演說及團體報告、口語回饋及紙筆反思。此外，本課程將科技融入教學，使用可攜式科技（手機或平板）讓學習無時無刻進行，目標為養成學生主動尋找學習資源的能力，提供學生學習資源，培養自主學習能力。

本課程使用「科技加強社會認知教學法 TEST」之設計如下說明：

（一）社會層面：

強調「互動」重要性、建構「鷹架」學習經驗。配合活動為 1. 學習成效之活動設計成由單人（簡報演練：告知性演說）、雙人（音韻表現：讀者劇場）、小組（模擬談判：實況角色扮演）、到班級（辯論比賽）之任務導向活動，逐步增加同儕合作深度；2. 學習成效之評量系統加入同儕評量，同儕間給予正向鼓勵及改善建議，建構鷹架學習。

（二）認知層面：

引導發覺「自我認知」、能力養成易透過「認知建構」。教學方法為 1. 以主題式教學構成課程大綱，按照學生進行演說辯論所需要的能力逐步建構；從演說基礎的肢體表現、內容架構、逐步推進到說服技巧；2. 以「演說焦慮」作為課程起步，讓學生認知自我情況

並設定目標，在接續的學習過程中逐步調整態度及焦慮感。

(三) 科技層面：

配合「主題」課程、利用科技「機動性」及「即時性」。融入方式為 1. 配合主題式大綱，挑選符合主題、強化練習的手機應用程式，上課由教師演示、課後學生可自主練習，破除課室時間地點的限制，讓學習無時無刻可以進行；2. 利用網路及 app、強化互動性，破除課室時間地點的限制，讓互動不僅在同校同學、甚至跨校進行。



圖 2. 演說與辯論之課程架構

附錄 1 詳列本課程的教學設計。挑選手機應用軟體 app 均符合條件：1. 可跨移動裝置服務平台，iOS 系統及 Android 系統平台均可使用；若無法跨平台，則需有對應功能的 app、或可使用網頁版；2. 可免費使用基本功能、不增加學生負擔；3. 可自行操作使用，符合自主學習的需求。選用 app 的科技包含自動語音辨識、人工智慧語言處理、即時通訊功能。選擇使用的 app 如附錄 2。

二、學習成效評估方式

本課程的學習成果設計將配合課程主題、依次練習，符合任務導向原則，並讓學生在累積辯論能力的過程中、逐步確認學習進度、反思修正學習目標；同時授課教師可在每一次的活動中，提供反饋意見，一方面確認學生的學習狀況、以利調整教學進度，二方面逐步協助學生、期達成鷹架理論的支持效果。同時，學生可藉由在信賴的環境中做公開演說，逐步降低自我的學習焦慮。學習任務配合課程進度設計，以每三到四週為週期、進行一次能力目標的達成確認；評量頻率不宜太頻繁、以免造成學生額外的焦慮情緒負擔。根據以上理念、設計的學習任務條列如表 1。

肆、研究方法

一、研究對象

參與學生為大學部學生共 25 人，包括 12 位男性、13 位女性。平均年齡為 19 歲，包含二年級 22 位、三年級 2 位、四年級 1 位。其中 1 位為日本籍交換學生，就讀於管理學

院。另有兩位來自中國，一位是交換生、一位則是常規生；其餘 22 位為本國籍；以上均就讀於應用外語系。

英文能力上，該系學生入學成績為英語科前標；入學後的多益模擬檢測成績平均分數為 534 分（聽力平均 301、閱讀平均 233），換算 CEFR 語言能力參考指標約 B1 程度，屬於中級能力。而根據學生自我評量，英語能力在 1（極差）到 4（極佳）等級中平均為 2.26、口語能力平均為 2.00，顯示學生對於自己英文能力信心略顯不足。

科技使用經驗上，表示不曾使用科技學習英文的人數為 5 位，其餘均有相關經驗，如觀看影片 (VoiceTube, YouTube, TED)，使用字典 (Bravolol, Google translate)，關注新聞 (CNN, BBC) 等；有相關經驗者的學習媒介包含使用手機應用程式 app 或上網站搜尋。

表 1. 學習任務及達成能力目標說明

主題	任務導向活動	學習任務內容	達成能力目標
主題一、 認識公開 演說焦慮	(無)	填寫公開焦慮感自我評量及 科技接受程度問卷	說明公開演說焦慮，進行問 卷填寫，提高學生對於焦慮 感的認知。
主題二、 音韻表現	讀者劇場	選擇一篇故事、詩、笑話、 劇本、演講等文本，流暢而 有感情進行公開誦讀。	1. 藉由自由選擇情緒表達的 文本，練習聲音演出技 巧。 2. 藉由小組合作，降低公開 演說焦慮感。
主題三、 簡報演練	知識性演說	選擇與文化體驗相關的主 題，配合使用簡報軟體，以 小組為單位，進行約 10 分 鐘的知識性演說。	1. 藉由知識性多元主題，達 到知識性演說要求。 2. 藉由簡報軟體使用，訓練 清晰訊息傳達。 3. 藉由小組合作，達到同儕 鷹架學習效果。
主題四、 模擬談判	實況角色扮演	與合作的班級分組，透過網 路交換資訊，破解問題並完 成任務。競賽題目與文化體 驗相關。	1. 採用拼圖式語言學習，透 過交互詢問增進溝通能 力。 2. 藉由網路溝通，練習非面 對面時訊息傳達方法。
主題五、 辯論比賽	網路辯論賽 1. 班級初賽 2. 跨班決賽	依照國際演辯規則，分組 進行正反辯論。每場 40 分 鐘。班級初賽選出冠軍隊 伍，與合作的班級透過網路 進行決賽。	1. 班級合作達成目標，提升 合作及學習動機。 2. 擴大同儕範圍，相互觀摩 學習，強化同儕鷹架學習 效果。

二、研究工具

本研究使用質性研究及量化研究混合法，以求研究成果之具體化。使用的調查工具包含量化之間卷調查及質性之自我反思，期達到三角測定法的訴求成效。問卷部分使用已有前人研究使用、具備高信度與效度之間卷作為架構，由申請者配合研究目的、加以修改。自我反思部分則提供引導式開放性題目，輔助作答。

(一) 量化研究工具

1. 公開焦慮感自我評量 (Personal Report of Public Speaking Anxiety, PRPSA)

為 McCroskey(1970) 提出，利用前後測判讀學生經過教學干涉後的焦慮感變化。信度高達 0.90 且經長期測試顯示信度可靠 (McCroskey, 2009)，為前人在做相關研究時最常使用的問卷，其他同類問卷如 PRCA 和 PRCA-24 均以 PRPSA 為本，且常用在 EFL 學習環境 (Chen, 2009; Hsu, 2012)。PRPSA 為五等級李克特量表（1 為強烈不同意，5 為強烈同意），共有 34 道陳述，總分範圍為 30~170。McCroskey (1992) 定義指標：34-84 非常低，85~92 中等偏低，93~111 中等，111~119 中等偏高，120~170 為非常高。

2. 科技接受程度問卷 (Technology Acceptance Model, TAM)

採 Davis (1989) 提出之問卷，利用前後測判讀學生經過教學干涉後的科技接受度變化。「科技接受模型以認知有用和認知易用為獨立變數，使用者態度、行為意圖和使用行為為相依變數。主張認知有用性與易用性會影響使用科技的態度，進而影響具體的行為表現，也主張人對資訊科技的使用受其行為意圖所影響。」(朱碧靜，2012) 該量表共有 12 道敘述。為統一問卷分析結果，本研究將原始版本使用的七等級李克特量表修改為五等級（1 為強烈不同意，5 為強烈同意），並微調敘述、與公開演說相關。

(二) 質性研究工具

1. 學生學習反思 (Portfolio)

採用教育學上常用的 KWLH 架構，於學期結束時讓學生根據學習經驗填寫，問題內容引導學生回答 K (what we Know about the topic?) 確定學習目標、W (what we Want to know about this topic?) 及 L (what we Learned about this topic?) 記錄學習歷程、H (How can we find out more about the topic?) 設定目標。

2. 總學習成效：

四次評量活動的成績（每次佔學期總成績 20%），以及期末總成績（含四次評量活動共 80%、學習反思 20%）。

三、研究流程

第一週：前測（使用公開焦慮感自我評量、科技接受程度問卷）

第二週：主題一

- 第三週到第七週：主題二、評量活動「音韻表現」
 第七週到第十週：主題三、評量活動「簡報演練」
 第十一週到第十三週：主題四、評量活動「模擬談判」
 第十四週到第十七週：主題五、評量活動「辯論比賽」
 第十八週：後測（使用公開焦慮感自我評量、科技接受程度問卷）
 學期作業：（使用學生學習反思）

伍、教學暨研究成果

一、科技加強社會認知教學法對公開演說焦慮的改變成效

表 2 說明公開焦慮感自我評量 (PRPSA) 的調查結果。根據 PRPSA，在第一週前測中、共 25 位學生的平均焦慮程度為中等偏高 110.56；而在最後一週後測中、共 25 位學生的平均焦慮程度降低為中等 101.45。使用單一樣本 t 檢定，前後測平均分數差異接近顯著標準， $t(24) = -2.02$, $p = .05$ 。由此推斷 TEST 對英語為外語學習者降低公開演說焦慮有效。

表 2. 公開演說焦慮於教學前後的差異比較

PRPSA	總數	平均值	標準差	t	自由度	顯著性（雙尾）
前測	25	110.56	17.12	-2.02	24	0.05
後測	25	101.45	22.59			

二、科技加強社會認知教學法對於公開演說能力的增益成效

為檢測公開演說焦慮的降低對用公開演說能力的影響，將 PRPSA 後測成績與總學習成效（四次評量活動、期末總成績）做關聯性檢定，結果見表 3。根據皮爾森基差相關係數分析，儘管未發現顯著關聯，但在「音韻表現」($r = -.15$)「簡報演練」($r = -.32$)「辯論比賽」($r = -.24$)及「期末總成績」($r = -.14$)為負相關，代表 PRPSA 越低、焦慮感越低、活動評量越高、表現越好。

表 3. 公開演說焦慮與公開演說能力的關聯性

		音韻 表現	簡報 演練	模擬 談判	辯論 比賽	期末 總成績
PRPSA 後測	皮爾遜相關係數	-0.15	-0.32	0.10	-0.24	-0.14
($n=25$)	顯著性（雙尾）	0.48	0.12	0.64	0.26	0.51

三、科技加強社會認知教學法與科技接受程度的關聯性

表 4 說明科技接受程度問卷 (TAM) 調查結果。根據 TAM，前測時平均分數為 3.79，後測時平均為 3.93；使用單一樣本 t 檢定，並未有顯著差異， $t(24)=1.13, p>.05$ 。結果顯示 TEST 使以英語為外語學習者對於使用科技進行公開演說練習之接受度產生微幅增高。

表 4. 科技接受程度於教學前後的差異比較

TAM	總數	平均值	標準差	t	自由度	顯著性 (雙尾)
前測	25	3.79	0.63	1.13	24	0.27
後測	25	3.93	0.73			

表 5 說明檢驗科技接受程度改變與公開演說焦慮改變的關聯性。然而檢定後並未發現顯著關聯， $r = -.28, p>.05$ ，但負相關係數顯示當公開演說焦慮降低、科技接受程度相對增高。與總學習成效做關聯性檢定，均無顯著相關；除「簡報演練」($r = -.05$)「期末總成績」($r = -.06$)為微弱負相關，其餘皆為正相關，表示科技接受程度之前後測變化越大、公開演說表現越好。此結果符合 TEST 目的：降低焦慮、推廣科技。

表 5. 科技接受程度與公開演說能力的關聯性

		PRPSA 前後測差平均	音韻 表現	簡報 演練	模擬 談判	辯論 比賽	期末 總成績
TAM 前後測差	皮爾遜相關係數	-0.28	0.03	-0.05	0.13	0.14	-0.06
平均 ($n=25$)	顯著性 (雙尾)	0.17	0.88	0.82	0.54	0.50	0.77

四、學習者變因對科技加強社會認知教學法的影響

以文化差異而言，因本研究之學習者的文化背景差異不大，日本國籍者僅一人，且同屬亞洲文化圈，因此不將文化差異列入分析。表 6 說明性別對與公開演說能力及科技接受程度的影響。根據獨立樣本 T 檢定，性別因素無論在 PRPSA 及 TAM，前後測差異均無顯著差異。然而女性的 PRPSA 前後測差距平均值高 ($M = -14.62, SD=17.90$)，代表 TEST 對改善女性的公開演說焦慮、成效較明顯。而男性 PRPSA 前後測差距平均值之標準差偏高 ($M = -1.92, SD=22.95$)，顯示 TEST 對改善男性的公開演說焦慮、成效無一致性。但男女在科技接受程度改變的差異均不顯著，顯示性別對科技接受程度較無影響。

表 6. 性別對與公開演說能力及科技接受程度的影響

		總數	平均值	標準差	<i>t</i>	自由度	顯著性 (雙尾)
PRPSA 前後測差平均	男性	12	-1.92	22.95	1.55	23	.14
	女性	13	-14.62	17.90			.
TAM 前後測差平均	男性	12	0.34	0.90	.69	23	.50
	女性	13	0.08	0.95			

五、學生學習回饋

為深入理解學生的想法並獲取使用者回饋意見，在學生的期末學習反思報告中，提出各面向的公開式問答。並根據學生的回答，做出分析。引述學生意見部分，則以 S 加上數字編號標註來源；同時為忠實呈現學生意見，英文文法錯誤不做修改。

在科技強化「語言學習」層面，學生認為即時通訊應用程式 Line@ 在本次課程中幫助最大、滿分 3 分之中平均得分為 2.8 分，其次依序為口說分析應用程式 Orai (2.6)、即時通訊應用程式 Discord (2.4)、發音練習應用程式 Tongue Twister (2.2)、Pronunciation (2.0)、站姿調整應用程式 Posture (2.0)，幫助最小的為提詞應用程式 PrompterSmart、平均得分 1.8。調查結果顯示學生普遍認為具備即時通訊功能的應用程式較有益於口說訓練；針對口說能力部分，比起針對單一主題能力的應用程式，具備全面口說分析功能的人工智慧應用程式 Orai 較受到學生肯定。調查結果詳見圖 3。

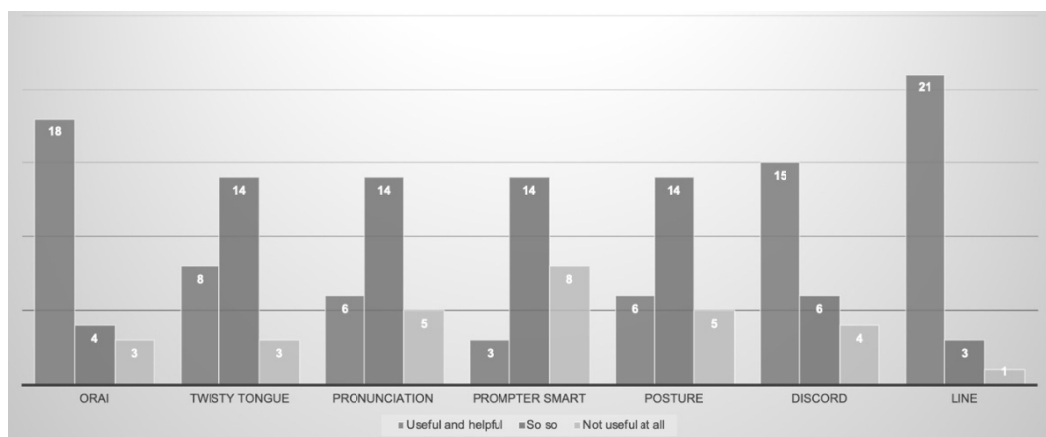


圖 3. 學生評量應用程式調查結果

關於科技強化「認知學習歷程」層面，僅 1 位學生沒有表示意見 (S13:「no suggestion.」)，有 21 位學生 (84%) 對於課堂融入 app 反應正面，回饋意見包括增加練習機會、引起學習動機等：

I think it is very good to use useful apps to learn some important skills of speech and debate. These apps helped my learning. (S24)

I agree to use app during the class. Make us more curious to the class.(S17)

Funny and it catch the attestation very much. Also help on preparing the speech.(S4)

有 3 位學生 (12%) 提出負面意見。分析其回饋，主因來自於時間：教師在課堂演示 app 使用的時間不夠、造成操作方式不清楚、消耗時間。或是在使用 app 過程中、因為操作因素、導致拖延課堂時間。意見如下：

Although it's convenient, I am not good at technology. That is, sometimes I don't know what to do.(S10)

I don't think have a face time by the app during the class is a good idea. Because sometime it would lag then user can't hear what the other side said.(S5)

Even it is attractive and quite interesting to us but it still have limit to learn compare to traditional learning; however, those app is very suitable to be part of the class.(S14)

關於透過科技加強「社會互動性」層面，學生對於使用 app 增加互動的反應正面；尤其對於透過 app 與他校進行辯論比賽，投入程度高。意見如下：

I like it because the teacher gave us much time to practice. Though I lost in a debate, it was fun. I think I've improved a little.(S3)

This class also uses many technological programs to improve our language skills, and I was very impressed by the debate with other school.(S16)

I think when the course need to meet with other college, Discord is the best choice.(S18)

然而，有學生針對使用 app 進行網路連線的活動表達了負面意見，包括主題四的實況角色扮演及主題五的辯論比賽。主因在於網路連接困難、視聽效果欠佳：

I don't like to do debate through Internet. It's very hard to get what the other school exactly said when the connection was poor.(S19)

Sorry, I don't like the way we did a debate contest with the other school because the Internet will influence something. For example: the voice's clearness.(S20)

針對辯論本身，學生表示跨校辯論造成情緒緊張。因為用比賽方式進行，無法讓每個人都參與，對此學生也表示可惜：

I prefer to debate with our classmates than other school's students. Because it's too anxious for me to debate with another school's students. Also, only part of students did the debate with another school. If we can debate in small group, everyone will have chance to do the debate. Maybe that would be helpful for us.(S22)

I'm glad that I had a chance to talk with students in other university but it was too few chances to actually talk with them. I even didn't know whether I had improved by debating with them or not because too less experiences.(S3)

整體而言，學生對於 TEST 應用於演說與辯論課程的學習經驗趨向正面，包含增加練習機會、增加學習樂趣、引發學習動機等主觀感受；負面意見則集中於課堂時間不夠、網路連線不穩等客觀原因。對於增加互動如辯論、改善口說焦慮，學生多數持正面態度、珍惜互動機會，少數學生表達不滿意，原因來自辯論比賽規則、賽制到最後僅少數同學能參與實際比賽、而希望增加個人練習機會等。雖為負面意見，卻也反向証明了學生對於增加社會互動性的需求。

陸、發現與討論

一、科技加強社會認知教學法 (TEST) 之成效

本研究根據造成以英語為外語學習者公開演說焦慮的原因，提出「科技加強社會認知教學法 (TEST)」，期能改變、進而改善 EFL 學習者使用英文進行口語表達時的成效。教學法中引進分組活動及競賽，按照每次活動任務的完成度來做評量，並引進科技軟體、手機應用程式 app 等作為課堂活動的延伸及輔助。經過一學期的教學，學生對於自身公開焦慮感顯示降低，對於科技接受程度顯示增高；雖然兩者均未達到統計上的顯著標準，但其改變方向已與教學計畫原設計理念相符合。

探討其未達標準的原因，可能與任務設計有關。前人研究 (Liu, 2006) 發現：小組討論的焦慮感相對於上台簡報為低，原因包括小組討論形成的支持氛圍 (Gregersen, 2003) 及以任務完成為導向的評量方式能減少個人負評 (MacIntyre et al., 1997)。本研究雖將任務型導向活動均設計為以小組模式進行，然而實際操作方式仍有個人演說的成分：例如主題二的任務「讀者劇場」，小組成員共同以聲音演出文本，但由每個成員擔任文本中單一角色、每個成員依然有獨自演出的機會，雖然時間短暫、且並非評量唯一焦點，仍可能造成焦慮感。主題三的活動「知識性演說」，小組中成員輪流口說、完成報告；主題五的活動「網路辯論賽」中，小組成員擔任正反辯論員，輪流陳述論點。這些活動中，個

人口說時間雖然短暫、且不至於被單獨評量，但依然可能讓 EFL 學生感到緊張。

由此看來，任務活動立意雖好，但活動的本質依然會影響焦慮感的產生。由問卷分析結果看來，四個主題（「音韻表現」、「簡報演練」、「辯論比賽」）的活動成績與 PRPSA 為負相關，代表焦慮感越低、表現越好；但主題四「模擬談判」的任務型活動「實況角色扮演」是唯一的正相關，代表焦慮感越高、表現越好。實況角色扮演 (Live Action Role Play, LARP) 本質即為遊戲，透過模擬談判的方式來勝出；其中角色扮演的本質，可讓參與者脫離自己身為學習者的角色、更專注於遊戲中的氛圍 (Broma et al., 2019)。特別是以教育為目標的角色扮演 (Edu-LARP)，融入社交互動、改變單一個人學習方式、有效提高學習興趣 (Bowman, 2014)。當學習者沈浸在遊戲氛圍中，適當的焦慮感反倒成為助力。

透過以上分析，顯示「科技加強社會認知教學法 (TEST)」中，「社會互動性」因素的影響效果較為突出。儘管在質性意見部分，有學生提出因網路連線不穩定而造成活動品質降低，然而「科技強化互動」因素確實增加了社會互動的機會，也為課室中的社會互動性添加樂趣。對於科技強化語言學習在實際教教學現場的應用，應可持續推廣加深。

二、教師教學反思

「科技加強社會認知教學法 (TEST)」透過科技強化提高社會互動，進而減緩引發焦慮原因。科技功能使課室學習的範疇無限延伸，例如師生之間使用 Line@ 提高互動頻率：Line@ 提供之公開訊息功能，協助教師宣布課程訊息、提醒重要活動時間；Line@ 提供的私人通訊功能，允許教師針對不同學生給予個別化回饋，學生亦可直接向教師提出問題、表達意見，兼顧個人隱私及亞洲人在意的「面子」。此項功能增加互動外，亦降低前述由「學習環境，包含教師與學習者關係」而造成的焦慮感。

TEST 藉由科技輔助加速認知建構、強化認知改變成效，提升信心減少焦慮。TEST 強調依照課程主題來選用 app，將科技元素定位為「輔助」而非主角，讓每個 app 功能做最大發揮。例如進行發音訓練，就提出 Sound，讓學生使用 app 了解口腔唇齒發音位置，進而改善發音準確度；進行發音表達，則配合 Tongue Twister 練習連音、滑音等使用。此項功能輔助課程主題之認知建構過程，app 內建回饋則提升信心降低焦慮。

然而因 TEST 為傳統課堂增加多種元素，導致時間管理上較不充裕。儘管教師已經在課前透過 Line @ 讓學生安裝 app、減少課程中停滯的時間，但在介紹各個 app 的使用方式上依然需要時間，也就是教師在課程內容教學之外還需挪出時間指引 app 使用方式，影響到後續練習次數及時間。解決方案是交由學生課後自行練習，但相對學習效率降低。教師本人亦感到窘迫，能講述的內容必須減少。

另外，透過網路與他校學生交流互動，易受連線條件限制。這是應用科技者常見的困擾：因網路連線速度造成科技使用效率變差。例如使用 Discord 與他校連線進行「模擬談判：實況角色扮演」，學生須透過 Discord 向他校同學獲取談判資訊，但網路連線不穩、聲音聽不清楚、進而影響理解，拖延任務達成時間。偶有網路塞車的狀況、影響安裝 app

效率，連帶影響課堂整體進度。這是科技使用難以突破的窘況。

值得一提的是：儘管近年力推科技學習，但專業科目教師不一定具備科技專業、自行開發科技的門檻較高。本研究 TEST 提倡「主題式」使用現有科技：教師以專業知能選用已開發且存在之科技；應用程式開發之初不見得是以教學為出發點，但透過教師的專業知識及課堂引導，將其應用在課堂上。例如本研究選用的 Posture Zone，設計原意為配合醫療治療，但用於訓練公開演說時，可協助調整演講者站姿，達成有自信而不龜縮的站姿，提升信心。如此不受制於科技、真正享受「科技強化」成效。教師在專業上依然可持續鑽研，精神無需受科技開發分散。

柒、建議與省思

根據研究資料之分析、學生回饋之意見、及教師現場之觀察，發現 TEST 於英文口語課程的應用實有成效。TEST 對英語為外語學習者降低公開演說焦慮成效明顯，隨著焦慮感降低、學生在口語表現越好；而學生對使用科技之接受程度亦有提升、並正面影響其公開演說的表現。儘管本次教學對象缺乏國籍及英文程度差異之變因、無法進行檢驗，但性別變因檢驗後顯示影響不顯著，可推論 TEST 具備廣泛使用的潛力。在以英語為外語環境中較少存在國籍變因，若能加以控制英語程度分層，則 TEST 成效理應可不受性別影響、達到降低以英語進行公開演說之焦慮成效。

本研究根據研究成果，提出以下應用與建議：

一、創新教法：

科技輔助社會認知教學法 TEST 根基於語言習得理論、心理學、語言諮商等層面，具備堅實理論背景；TEST 執行細節為外語學習者量身打造，從社會互動、認知調整、文化接納等層面進行，具備在不同語境實施之潛力。

二、創新教學活動：

演說與辯論在各個學科中已證實為有效學習方式，對於批判性思考的養成以及社會溝通能力的培養均有助益。然因演說與辯論之語言需求及任務難易度較高，用在語言學習上、可普遍實施之研究成果較少，且其對於口語及溝通能力之效益未能明白標示。本次研究利用 TEST 架構、搭配演說與辯論活動，顯見其用於演說焦慮之改變成效，及口語能力增益成效。

三、科技輔助成效：

現階段的學生身為數位原住民 (digital natives)，在生活中使用科技以為不可擋之勢：

如何乘勢利用科技輔助學習，為現代英語教師不可逃避之責任。本研究將利用 TEST 之實證成果，鼓勵從 CALL 到 TELL 之改變，顯示科技輔助語言學習之成效。

以現今國際化現況，更頻繁的國際接觸、更擴展的國際市場，均導致對於直接且即時的溝通方式的需求更加強烈。這種需求已讓許多高等教育體制將公開演說能力設定為課程主要目標，重要性甚至視同與學科專業能力並駕齊驅 (Yeh, 2013)。這樣的大環境需求及教育氛圍下，對於解決在臺灣的以英語為外語學習者、對於公開演說焦慮而造成英語口說、表達、溝通能力的影響，實為英語教學教育者必須面對的挑戰。本研究提出之創新教學法期能達成降低臺灣大學生英語公開演說焦慮之成效，長遠能達成提升英語溝通能力之效。

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附錄 1：課程架構


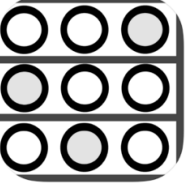
主題	教學目標	教學內容	評量活動	科技使用
主題一 Speaking anxiety	本主題介紹演說焦慮、帶領同學認識焦慮情緒、並提供第一次的認知改正	1.引導認知：「公開演說焦慮程度問卷」 2.歸納根源：「隱喻分析練習」(speaking in public is ... because...) 3.反詰認知：討論學生撰寫的隱喻練習，討論潛意識中造成 PSA 原因 4.設定目標：認知自我焦慮、設定改進目標		1.Google 表單 2.QR Code 3.Line@ (iOS)(Android)
主題二 Style of presentation	本主題逐一講述公開以說時應具備的風範	1.清晰度：講話速度、音調起伏、聲量調整 2.理解度：發音標準、輔助手勢使用 3.外顯風範：站姿、眼神接觸、服儀	音韻表現：讀者劇場 Reader's theater	1.Orai (iOS)(Android) 2.Twisty Tongue (iOS) 3.Sound (Android) 4.Posture Screen Mobile (iOS) / Posture Zone (Android)
主題三 Visual aids	本主題講述演說的視覺輔助	1.簡報軟體：軟體應用、製作原則、版面設計 2.內容呈現：數字、圖形、表格、圖像	簡報演練：知識性演說 Informative presentation	1.PromptSmart (iOS) / Teleprompter (Android) 2.Chartistic (iOS)/Graph Maker (Android)
主題四 Verbal delivery	本主題說明演說時的口語表達技巧	1.主題發展：大綱架構、舉例列證 2.架構加強：轉折技巧、強調技巧	模擬談判：實況角色扮演 LARP game & Reflection	1.Discord (iOS)(Android)

主題	教學目標	教學內容	評量活動	科技使用
主題五 Debate strategies	本主題講授 辯論時所需 了解的規則 及技巧	1. 辯論規則講解 2. 反詰技巧：提 問、批判、反詰 3. 談判策略： (1)The Principle of Reciprocity, (2)The Principle of Scarcity, (3)The Principle of Authority, (4)The Principle of Consistency, (5)The Principle of Liking, (6)The Principle of Social Proof	辯論比賽：網路 辯論賽 Debate contest	1. Online meeting with webcam 2. Peer Eval (iOS)

附錄 2：選用之應用程式

App 名稱	使用平台	App 功能	達成能力目標	圖示
Line@	iOS / Android	「LINE@ 生活圈」帳號為通訊軟體 Line 提供之群體管理功能，可形成群組，管理者可群發訊息、亦可 1 對 1 向使用者發布訊息；使用者則為單向對管理者通訊，避免使用者彼此打擾。另外管理者可發布動態訊息，類似公佈欄之效果。	用於提高師生互動頻率。 1) 1 對 1 功能可提供師生個人回饋互動。 2) 動態訊息功能可協助課堂資訊公告 3) 管理員群發訊息功能可協助訊息公告及提醒。 * 官方於 2020 年 3 月停用該功能	
Orai	iOS / Android	具人工智慧口語訓練功能，可自動辨識語音、分析聲調 tone、清晰 clarity、虛字 vocal filler、速度 pace，並提出建議。	用於加強口語表達能力、並可自主學習 * 官方於 2019 年底全面收費。	
Twisty Tongue	iOS	以繞口令達成發音訓練。可自動辨識語音，分析發音準確度，並可單字反覆練習，或聽取範例發音。簡單小任務、完成過關。	用於加強發音準確度，近而提升發音表達能力。 * 免費版可使用 12 則繞口令。	
Sound	Android / 亦提供網頁版	知識性的應用程式，提供具備互動性的 IPA 音標發音表格、搭配高畫素的影片演示發音嘴型、以及提供動畫演示唇齒位置。	用於加強發音準確度。並可演示英式英文發音及美式英文發音。 * 免費版可使用基本練習功能。 * 網頁版： http://soundsofspeech.uiowa.edu/english/english.html	

App 名稱	使用平台	App 功能	達成能力目標	圖示
Posture Zone	Android	運用 AR 功能，可透過拍照、分析使用者的姿勢，包含站姿、駝背、坐姿改善等。	用於訓練公開演說時、演講者站姿，達成有自信、不龜縮的站姿，提升信心。	
PostureScreen Mobile	iOS	[Posture Screen Mobile] 另具備 3D 呈像、可協助使用者透過周圍環境來觀察自己的姿勢，隨時進行調整。	* [Posture Screen Mobile] 前身為 [Posture Assessment]，為免費應用程式。改版後提供專業功能，需收費。	
PromptSmarrt	iOS	利用自動語音辨識自動提詞。	用於輔助公開演說表達技巧，取代讀稿行為，逐步養成自然口語表達技巧。 * 免費版均包含自行輸入文字稿功能，誦讀時將自動換句換行提詞。接受朗誦長度達 30 分鐘。	
Teleprompter	Android		其自動語音辨識功能亦有助於發音調整：若發音不清楚，則無法跳動至下一字。亦可應用於朗讀練習。	
Chartistic	iOS	利用手機繪製直條圖、線形圖、面積圖、餅狀圖，且能搭配美工圖案做出圖解	用於輔助公開演說表達技巧。將文字資訊變為圖像資訊，強調趨勢及佔比，藉以達到說服效果。	
Graph Maker	Android			

App 名稱	使用平台	App 功能	達成能力目標	圖示
Discord		即時通訊應用程式。與 Line@ 不同之處在於使用者可自由形成群組、透過文字、圖像、影音等方式通訊。最常被使用的方式是玩線上遊戲時可分享即時串流影音。	用於與他校同學連線進行活動。可共同形成小組、在組內溝通並進行任務。	
Peer Eval	iOS / 亦提供網頁版	具高度自由操作能力的同儕互評軟體，可自由設定 rubrics 及配分、分組；評分可給評語，並可即時看到評量成果。	用於即時互動回饋，鷹架支持 * 網頁版： https://peereval.mobi/	

曲調聽視測驗於臺北市國小六年級學童之研究

A Study of the Aural-Visual Tonal Test Applied to Sixth Graders in Taipei City

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摘 要

本研究旨在瞭解國小六年級學生在曲調聽視測驗的表現情形，進一步分析不同性別、音樂學習經驗等背景學生於測驗表現之差異情形。本研究以文獻探討與教科書分析為測驗編製基礎，自編曲調聽視測驗，透過臺北市分區取樣方式進行施測，共施測 340 位國小六年級學生。

本研究之主要發現如下：

- 一、學生於曲調聽視測驗之整體表現方面，其「輪廓辨識」答對率高於「音程辨譜」。
- 二、學生於「輪廓辨識」的辨別圖形與圖譜差異不明顯，然在「音程辨譜」方面，學生對於辨別「音域位置」比辨別「音程距離」或「音高排列」較為容易。
- 三、學生於「輪廓辨識」測驗的表現，因題項「輪廓辨圖」或「輪廓辨譜」的不同形式呈現而有所差異。
- 四、學生於「輪廓辨識」測驗題項的「音型上行」答對率高於下行音型，此外，學生對於「先上再下音型」的答對率高於「先下再上音型」。
- 五、學生對於「音程辨譜」測驗，以辨別音程距離相近之音譜較為容易。
- 六、「音程辨譜」測驗方面，學生能夠根據譜例前後音域位置判斷選項。
- 七、不同性別之學生其曲調聽視測驗結果無顯著差異。
- 八、不同音樂學習經驗的學生其曲調聽視測驗結果有顯著差異。

最後根據研究結果，研究者針對音樂教師、學校單位、以及未來研究等提出相關建議。

關鍵詞：音樂測驗、曲調感知、聽視辨別

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Abstract

This study aims to measure the performance of sixth graders on an aural-visual tonal test. The content of the test was based on the textbooks and national music standards. The test was applied to 340 sixth graders in Taipei City. The differences of the music aural-visual discrimination abilities between the female and male students with different musical backgrounds were analyzed and discussed. The results are as follows:

1. Students could identify melodic contours better than tonal intervals.
2. There was not much difference in students identification of melodic contour thru figures or notations. It was easier for students to recognize the ranges of music than to identify the precise pitches of the music.
3. Students performed differently in music contour discrimination among different arrangements of music contour.
4. In the contour discrimination subtest, students answered more correctly for upward melodies than for downward melodies. Moreover, students performed better on the upward-to-downward melodic contours than on the downward-to-upward ones.
5. For the interval discrimination subtest, it was easier for students to identify the notations of the music with smaller intervals.
6. For the interval discrimination subtest, students tended to give the answers for melody ranges according to the proceeding music.
7. There was no significant difference in aural-visual tonal discrimination between genders.
8. Students performed aural-visual tonal discrimination significant differently according to their different music backgrounds.

Many suggestions based on the results were given for educators, administrators, and further research in the future.

Keywords: music test, melody perception, aural-visual discrimination.

壹、緒論

國家教育研究院於 2014 年公布《十二年國民基本教育課程綱要總綱》，以「核心素養」為課程發展主軸，強調藝術為重要的溝通工具，理解各類符號（包括藝術）、善用這些工具以進行表達、溝通及互動（國家教育研究院，2014）。綜觀前幾年國民中小學九年一貫課程綱要藝術與人文學習領域之七大基本學習要項，音感與認譜為其中要項（教育部，2008），顯示音感與認譜是音樂學習之重要藝術學習內涵。

音感能力涉及複雜的心理歷程，包括對於音樂脈絡結構的敏銳度，以聆聽為媒介，透過認知來分辨與理解音樂結構 (Cuddy & Upitis, 1992; Gordon, 1971; Schwadron, 1967)。另一方面，樂譜為記錄與重現音樂的媒介，辨認樂譜的能力為音樂認知的重要能力表現 (Davidson & Scripp, 1988)，如此呼應了 Hargreaves 與 Zimmerman (1992) 提出音樂行為包含音樂感知 (perception) 與音樂表徵 (representation) 兩大項，因此音感與認譜兩者是核心的音樂學習要項，亦為重要的音樂行為能力。

為提升教學品質，教育部於民國 101 年著手研發國中小學生學習成就評量標準，制訂各科目的評量規準（心理與教育測驗研究發展中心，2012）。學習評量涵蓋的意義多元，對釐清教學之目標、觀察學生之學習能力、或評估未來教育之方向等，都具有關鍵的功能，其中最重要的是能更客觀地瞭解學生的學習成就。世界各國的教育體制廣泛重視學生的學習評量，如同其它學科領域一樣，藝術教育有課程標準，訂定學生在視覺藝術、音樂、表演藝術各藝術學習範疇中應該具備的知識與能力，以及不同階段應該達到的標準（教育部，2001；Consortium of National Arts Education Associations, 1994）。

音樂感知與認知的測驗類型包含聽覺辨別 (aural discrimination)、聽覺再認 (aural recognition)、聽視辨別 (aural-visual discrimination) 等三類 (Cuddy & Upitis, 1992)。許多研究顯示，透過樂譜的認知測量可測出學生的音樂感知與理解能力 (Bamberger, 1995; Davidson & Colley, 1987; Davidson & Scripp, 1988; Gromko, 1994; Smith et al., 1994; Upitis, 1990)，「聽視辨別」是連結聲響與樂譜的能力測驗 (Boyle, 1992; Costanza, 1971)，在測驗的過程中，需要組織與覺察聲響，之後再將音樂表徵符號與聲響關聯，亦即以音感為前提，測量個體認譜或表徵符號的理解能力 (aural-visual discrimination ability) (Leonhard & House, 1972; MacKnigh, 1975; Walker, 1992)。

國內針對音感測驗的研究顯示音樂學習經驗對於音感的表現具有顯著影響（李君儀，2004；郭芳吟，2013；許瑾翎，2004；黃怡娟，2004）；性別方面顯示女生的音感能力優於男生（程緯華，1997；蘇郁惠，1998；Chuang, 1997）。關於認譜方面的相關研究指出音樂學習經驗與認譜能力的發展密切相關 (Cassidy, 2001; Gromko & Russell, 2002; Holahan et al., 2000)，然國內針對學生認譜能力的相關研究仍相當有限，遂構成本研究之背景與動機。

本研究目的旨在施測台北市國小六年級學生曲調聽視測驗，以瞭解台北市國小六年級

學生於曲調聽視測驗之表現情形，進而探討不同背景變項的學生在曲調聽視測驗表現之差異情形。研究問題如下：

- (一) 台北市國小六年級學生於曲調聽視測驗之整體表現情形為何？
- (二) 台北市國小六年級學生於「輪廓辨識」與「音程辨譜」測驗之表現情形為何？
- (三) 台北市不同背景（性別、音樂學習經驗）學生於曲調聽視測驗表現之差異情形為何？

貳、文獻探討

本文獻探討將就音感能力之內涵、曲調感知能力理論與研究、以及國小教科書分析進行評述，以呈現本研究之理論基礎。

一、音感能力之內涵

音感能力係指聆聽者能聽出音樂內容之能力，包括對於音樂脈絡結構的敏銳度，以及詮釋音樂結構的能力 (Cuddy & Upitis, 1992; Gordon, 1993; Jones, 2010)。Cuddy (1971) 指出音感能力即個體將聲音結構化與系統化之歷程表現，進一步 Thompson (2004) 提出音樂和語言類似，隨著時間呈現不同聲響特質的組合，聆聽者必須透過聽覺感官的理解來感受存在於音樂的意義。

針對音樂感知的不同向度，Jones (2010) 將音樂感知能力 (music perception) 解釋為個體對於整體音樂元素的感知（包括節奏、曲調、和聲）等能力。Sloboda (1985) 則強調聽音基礎在於個體專注聲音間的組合 (grouping)，並加以理解音與音的關係，此如同 Cuddy 與 Upitis (1992) 以及 Gordon (1971) 所提出對於音感的定義。除此之外，Grutzmacher (1987) 提到聆聽者對於音型的音感 (aural perception of tonal patterns) 是透過聽想來完成，之前 Gordon (1978) 運用音樂聽想 (audiation) 來描述個體內部聽音的認知過程，其心理認知歷程包括 (1) 知覺、記憶、分辨與綜合音樂中的曲調型與節奏型、(2) 重現與創造音樂的曲調型與節奏型。聆聽音樂的感知行為歷程可分為三個階段，「感覺 (sensation)」階段，為聲音直接刺激感覺器官的能量轉換過程；「知覺 (perception)」階段，是指聆聽者會針對刺激進行組織，使得聲音產生概念與意義；「認知 (cognition)」階段則是聆聽者對於音樂的理解。

另一方面，Holahan 與 Saunders (1997) 則將音感分為兩層次的認知歷程：第一層次是音高接收、保留、比較等聽覺辨識，此層次來自於短期記憶，第二層次則是透過音樂文化的接觸與練習來建立音樂的認知結構 (cognitive structure)，此呼應 Krumhansl (1990) 所提出聆聽者創造曲調音型與結構，保留心像 (mental representations) 短期記憶，之後透過經驗則能夠形成長期記憶。相對於 Sloboda (1985) 之論述，Holahan 與 Saunder (1997) 的理論同樣著重於感知與認知，並進一步強化經驗的重要性。各方論述雖有所差異，但仍有其

共通點：音樂感知的主體於聆聽者本身，以感官的接收為媒介，透過認知的中介歷程（例如記憶、分辨或是判斷等），最後形成個體對於音樂結構或特徵的理解模式，此理解能力則為音感能力。

二、曲調感知能力

許多音感相關研究是針對單一獨立的音樂元素向度進行探究，如節奏感知 (Povel & Essens, 1985; Sadakata et al., 2006)、曲調感知 (De Gainza, 1970; McDonald & Ramsey, 1979; Ramsey, 1983; Rasch, 1985; Sergeant & Roche, 1973; Stoffer, 1985; Temperley, 2014)、調性感知 (Temperley, 2007)、和聲感知 (Raphael & Stoddard, 2004; Rasch, 1985)、樂句結構感知 (segmentation) (Bod, 2002; Pearce & Wiggins, 2012) 等，皆是針對單一向度進行深入的探究，其中曲調研究占相關研究之重要比例。

Friberg 與 Ahlbäck (2009) 提及音樂感知的量化研究中，其中曲調特徵為最主要的研究焦點。同於前者，Radocy 與 Boyle (2012) 於音樂認知心理學聚焦於音高與曲調的感知，並以認知歷程與結構來解釋曲調感知。追溯早期理論研究發現，Ortmann (1926) 曾指出曲調結構分析顯示吸引聆聽者注意力的曲調特徵，包括起始與結束音、最高與最低音、重複音、音程距離、音高方向、鄰近音 (proximity)、音群組織與音程關係等。相同地，Mursell (1937) 亦認為曲調感知形成於聆聽者對於曲調結構（連續音高組織）所產生的感知回應。

其他研究提出許多影響個體感知曲調的相關因素以及歸納曲調感知的理論與規則，其中關於曲調感知規則之論述中，以完形心理學角度所提出的感知理論被普遍接受。完形理論包括接近 (proximity)、相似 (similarity)、連續 (common direction)、封閉 (simplicity) 四個規則 (Bower & Hilgard, 1981)。Gembris (2002) 認為結構化和感知處理在嬰兒時期已經形成，而完形學說認為音符排列轉化形成有意義的結構，如此也就是將音高關係組織成曲調輪廓。Radocy 與 Boyle (2012) 進一步提出完形組織於曲調上之感知規則包括（一）將音聚集成曲調單位、（二）將重複音視為同一單位、（三）將曲調進行的移動歸納出一個共同方向、（四）將曲調輪廓或樂句單位（音型）組織為最簡單的形式等。其他學者對於完形心理學將曲調感知的規則視為與生俱來的觀點提出不同意見，例如 Hebb 於 1949 年提出的論點中認為感知是一個「相對的」的現象，認為曲調包括感知能力以及個體在學習經驗的發展，Hebb 之觀點凸顯出後天學習對於曲調感知能力的影響，認為「熟悉度」是一個影響曲調感知的重要變項。同於 Hebb 的論點，Holahan 與 Saunder (1997) 亦認為熟悉的曲調對於聆聽者較容易掌握，經驗是影響曲調感知的關鍵因素。




除此之外，Dowling 與 Harwood (1986) 提出曲調基模 (melodic schema) 理論，認為基模能夠建立於舊經驗上，而曲調基模可以反映出曲調輪廓、音程關係、音高循環、調性等。曲調基模的概念同於前述的感知原則，皆為聆聽者從曲調本身的特性中建立出分析邏輯。同樣地，Serafine (1988) 從曲調的感知 (perception) 與認知的角度，進一步提出四種不同層次的聆聽單位：（一）慣用的構造 (idiomatic construction)、（二）動機的連結 (motive

chaining)、(三) 音型或動機的組織 (patterning)、(四) 樂段的形成 (phrasing)。各單位間具有延續性關係，強調透過組織使音樂理解的單位擴大，以形成記憶上更容易提取的音樂內容。另一方面，Holahan 與 Saunder (1997) 亦認為聆聽者對於進行中的曲調起伏的預知以及音程關係的辨識，皆仰賴心像的檢索與比較，此歷程常建立於舊經驗能力。

研究者歸納論述，發現曲調感知能力研究，主要探究感官、認知、邏輯建立的歷程，強調感官對於音樂接收與對音樂組織的理解。曲調感知形成的過程包括掌握曲調特徵、建立曲調認知之規則、分析曲調特徵之關係等，其中曲調單位組織包括將多音高組成音型，或是歸納出曲調走向等結構單位。由於感知必須以聽覺為媒介，因此在曲調感知的研究常使用曲調片段或是音型等單位為聽覺刺激，以瞭解個體於曲調或音型感知分析與理解的規則。

三、國小教科書分析

國小各階段學習皆包含音感與認譜的內容，階段間具有延續的關係。在音感與認譜學習內涵分析方面，「第一階段」音感學習內涵包括分辨音的高低、長短、進行方式，認譜方面則為簡單的記譜符號或是圖形譜，在認知上屬於圖像表徵 (iconic representation) 的階段；「第二階段」音感學習內涵強調音型的聽辨，較第一階段更為注重曲調的走向與結構，在認譜方面則進入基礎的讀譜練習，由認知第一階段圖像表徵的層次提升至認知記譜符號的意義，在認知上屬於符號表徵 (symbolic representation) 的階段，在讀譜學習教材中則同時包括屬於圖像表徵與符號表徵的內容；「第三階段」為延續的音感練習，強調曲調音型的辨認，與第二階段的音型辨認相似，但是更為強調完整樂句結構中的音型辨認。在認譜學習方面，此階段的認譜學習延續第二階段的讀譜練習，並擴充讀譜音域的範圍，因此這一階段的認譜內容可視為「進階的讀譜練習」。因此，在聽視辨別測驗的設計方面，本研究的聽覺音型與曲調的設計內容，將對應認譜上面「圖像表徵」與「符號表徵」兩種層次。

教科書曲調輪廓分析方面，研究者發現中高年級教科書的音感養成與初階圖形譜之讀譜能力相互結合，包括聽辨音的高低、聽辨曲調的上下行、聽辨曲調的輪廓等等，皆配合圖像或是線條輪廓來呈現（如音樂聆賞地圖）。認譜學習方面則是配合高音直笛的習奏脈絡來進行，由  開始，音高的辨認依序往上擴充至 ，再往下至 。整體而言，認譜上的學習脈絡除了直笛的習奏讀譜練習之外，與音感相結合的練習主要包括圖像、符號兩層次，例如音樂聆賞地圖（用圖像與運用線條呈現）以及透過圖像、樂譜等各類型譜例瞭解音型的上行與下行、級進與跳進等概念。進一步將教材內容與課程綱要進行對應與比較，研究者發現教科書音感學習內容與讀譜能力的規劃可分為圖像與音感結合（圖像表徵層次）、以及認譜與演奏結合（符號表徵層次）兩大範疇。

參、研究方法

一、研究設計與實施

本研究旨在瞭解台北市國小六年級學生曲調聽視辨別測驗的表現情形，研究方法採用測驗施測，研究者以自編曲調聽視測驗，針對臺北市國民小學六年級學生進行施測，以了解學生於曲調聽視測驗之表現情形，以及不同背景之學生於曲調聽視測驗表現之差異情形。

二、研究場域與對象

本研究施測對象為臺北市國民小學六年級學生，抽樣原則為分區方便取樣 (convenience sampling)。研究者依據臺北市行政區，分別就中正區、大同區、中山區、松山區、大安區、萬華區、信義區、士林區、北投區、內湖區、南港區、文山區等十二個行政區，邀請臺北市行政區內同意參與本研究之小學六年級班級各一班，總計 340 位學生進行研究。研究者先徵詢所有參與學生家長的同意，並且請每位家長填寫同意書，此外研究者提供施測學校與參與教師有關「人體試驗研究計畫保證書」(附錄一)之內容，並且於研究執行與結果分析發表期間確實遵守學術倫理之規範。各區施測人數與所占總人數之百分比，如下表 1：

表 1. 研究對象抽樣人數分配表

行政區	施測人數	所占百分比 (%)
中正區	27	7.9
大同區	38	11.1
中山區	22	6.4
松山區	30	8.8
大安區	27	7.9
萬華區	23	6.7
信義區	26	7.6
士林區	26	7.6
北投區	22	6.4
內湖區	33	9.7
南港區	38	11.1
文山區	29	8.5
總計	340	100

三、研究工具

本研究工具為自編「曲調聽視測驗」，研究者依據文獻探討的表徵能力發展之相關論述、課程綱要內容、以及教科書的設計脈絡，選取以圖像表徵 (iconic representation)，與符號表徵 (symbolic representation) 兩種認知表徵模式作為曲調聽視辨別能力之視覺辨別面向。測驗內容為研究者根據文獻探討與教科書分析，形成測驗架構與進行試題編製，並以教科書各版本共同具備的歌曲、直笛曲、欣賞曲以及補充歌曲作為自編測驗之命題素材來源。

研究者為使測驗更貼近學生的學習，進一步分析教科書之共同曲目，三版本之共同曲目共有 27 首，另外，研究者採用兩版本之共同歌曲共五首，以及兩首單一版本內之曲目，共 34 首作為測驗預試的編製素材，曲目如表 2（康軒代碼為 K，翰林版代碼為 H，南一版代碼為 N）。

表 2. 預試之教科書曲目表

曲 名	版本與頁數
布穀	N4 上 P.38 ; H3 上 P.123 ; H3 下 P.128 ; K3 下 P.118
朋友再見	N6 上 P.85 ; H4 上 P.133 ; K3 下 P.31
森林裡的小鳥	N3 上 P.50 ; N6 上 P.51 ; H3 上 P.127 ; K3 上 P.22
野餐	N5 上 P.91 ; H4 下 P.114 ; K4 下 P.26
普世歡騰	N5 下 P.66 ; H6 上 P.78 ; K5 上 P.28
小星星	H3 下 P.120 ; H4 下 P.133 ; H5 上 P.91 ; N4 上 P.45 ; K3 下 P.15
學唱歌	N3 下 P.45 ; H3 上 P.112 ; K3 下 P.22
星光滿天	H3 下 P.121 ; N3 下 P.89 ; K3 上 P.115
快樂頌	H3 下 P.130 ; H5 上 P.123 ; N5 上 P.47 ; K3 下 P.30 ; K5 下 P.10
爬山	H3 上 P.150 ; N4 下 P.96 ; K3 上 P.114
春神來了	N4 下 P.92 ; H3 下 P.98 ; K3 下 P.15
月光	H3 上 P.104 ; K4 下 P.17 ; K3 下 P.17
捕魚歌	N3 上 P.92 ; H3 下 P.114 ; K3 下 P.115
阿里郎	N5 下 P.90 ; H4 下 P.130 ; K4 下 P.114
捉泥鰍	H5 下 P.112 ; K5 上 P.138 ; K3 下 P.90
棕色小壺	N4 上 P.94 ; H4 下 P.132 ; K4 下 P.8
丟丟銅仔	N4 上 P.89 ; H5 上 P.88 ; K5 下 P.22
王老先生有塊地	H4 下 P.106 ; N3 上 P.54 ; K3 上 P.33
點仔膠	H3 下 P.123 ; N4 下 P.93 ; N5 上 P.64 ; K3 上 P.111

表 2. 預試之教科書曲目表 (續)

曲 名	版本與頁數
小乖乖	H4 下 P.138 ; N4 上 P.88 ; K3 下 P.8
祈禱	N4 上 P.92 ; H4 上 P.123 ; K4 上 P.32
快樂人生	N5 下 P.88 ; H4 下 P.143 ; K5 上 P.139
小白花	N5 上 P.54 ; H5 上 P.91 ; H5 上 P.122 ; K5 上 P.14
瑪莉有隻小綿羊	N3 下 P.41 ; N5 下 P.54 ; H3 上 P.81 ; H3 上 P.121
The Old Man	N3 下 P.59 ; H4 上 P.130 ; K4 上 P.122
太湖船	N6 上 P.91 ; H4 下 P.139 ; K5 上 P.132
風鈴草	N5 下 P.89 ; H4 下 P.131 ; K5 下 P.90
聖誕鈴聲	N5 上 P.93 ; H4 上 P.141
野玫瑰	H5 下 P.81 ; K5 上 P.7
小蜜蜂	N3 下 P.88 ; H3 上 P.98
搖籃曲	H3 上 P.121 ; K3 上 P.118
西風的話	H5 下 P.85 ; H5 下 P.89
茉莉花	H6 上 P.126
嘉禾舞曲	N4 下 P.45

基於以上曲目，本測驗進行效度檢核函請國內兩位音樂教育專家與一位國民小學具有豐富音樂教學經驗的音樂專任教師進行內容效度檢核，之後進行預試，預試樣本共計五個班級 130 位學生，來自非正式施測對象之國小六年級生。預試結果之內部一致性係數於三組預試學校結果如下表 3，其中總試題皆高於 .91 以上，其中輪廓辨圖與音程辨譜介於 .80-.94，各大題間介於 .77-.92，顯示本測驗具有良好測驗的信度水準。

表 3. 內部一致性係數信度考驗值

組	總試題	輪廓辨圖	音程辨譜	第一大題	第二大題	第三大題
A	.91	.89	.80	.85	.79	.77
B	.96	.94	.90	.92	.87	.90
C	.95	.94	.90	.91	.86	.89

預試的建構效度分析方面，兩項聽辨類型與各大題之間的相關係數，如下表 4。輪廓

辨識與音程辨譜的相關約為 .83，與總測驗的相關均在 .94 以上，顯示輪廓辨識與音程辨譜之間以及與總測驗間呈現高度關聯，代表測驗具有高度建構效度。

表 4. 聽視辨別類型相關係數對照表

	輪廓辨識	音程辨譜
總測驗	.96**	.94**
輪廓辨識		.83**

**：相關性在 0.01 層上顯著（雙尾）。

在困難度與鑑別度分析方面結果如下表 5。本測驗共為 60 題，其中介於 .40 到 .80 之間的困難度指標值的試題有 45 題，有 15 題的困難度則介於 .80~.90 間屬較為容易之題項，總試題鑑別度為 .59，其中無論是「輪廓辨識」、「音程辨譜」或是各大題之平均鑑別度皆達 .50 以上，顯示此測驗整體上具有良好的鑑別度。

表 5. 預試困難度與鑑別度分析

試題範圍	總試題	輪廓辨識	音程辨譜
困難度平均	.69	.72	.58
困難度區間	.41~.93	.61~.91	.41~.93
鑑別度平均	.59	.57	.65
鑑別度區間	.27~.94	.27~.88	.27~.94

綜合以上，本研究「曲調聽視測驗」的建構除了來自於教科書共同曲目為試題素材，並參考教科書分析之樂譜學習範圍進行編製，經由專家效度與上述預試信效度結果，進行刪題後，正式測驗共使用 25 首教科書之曲目作為試題素材。第一大題曲目包括〈瑪莉有隻小綿羊〉、〈聖誕鈴聲〉、〈太湖船〉、〈普世歡騰〉、〈野玫瑰〉、〈小蜜蜂〉、〈搖籃曲〉、〈西風的話〉、〈茉莉花〉、〈嘉禾舞曲〉；第二大題曲目為〈風鈴草〉、〈聖誕鈴聲〉、〈小白花〉；第三大題曲目包括〈快樂頌〉、〈朋友再見〉、〈棕色小壺〉、〈春神來了〉、〈小星星〉、〈丟丟銅仔〉、〈捕魚歌〉、〈阿里郎〉、〈王老先生有塊地〉、〈點仔膠〉、〈小乖乖〉、〈祈禱〉。

測驗分為兩類型聽視辨別，分別為（一）輪廓辨識：輪廓對應圖形譜（輪廓辨圖、輪廓辨譜）；（二）音程辨譜：音程對應樂譜。研究者考量測驗難度層次設計以及三音音型、五音音型、曲調型等聽覺刺激，將正式試題分為三個大題如下表 6：

表 6. 試題與基本概念對應建構表

基本概念	學習內涵	表徵階段	試題內容	大題規劃
認識曲調的組成方式，如音的高低、長短、進行方式	音感		1. 輪廓辨圖：三音音型、五音音型、曲調型聽覺刺激對應圖形	第一大題
認識音樂符號與其他記譜符號，如：音符、譜號、拍號、小節線、簡譜、圖形譜	認譜	圖像表徵		
基礎的音感練習（如上行或下行的音型聽辨）	音感	圖像表徵	1. 輪廓辨譜：三音音型、五音音型聽覺刺激對應圖譜	第二大題
基礎的讀譜練習	認譜	符號表徵	2. 音程辨譜：三音音型聽覺刺激對應樂譜	
延續音感練習（如辨認曲調音型）	音感	圖像表徵	1. 輪廓辨譜：曲調型聽覺刺激輪廓對應圖譜	第三大題
延續基礎讀譜練習	認譜	符號表徵	2. 音程辨譜：曲調型聽覺刺激對應樂譜	

四、資料分析

本研究資料處理及分析方法包含：（一）描述性統計 (descriptive statistics)：以次數分配、百分比計算有效樣本之基本資料，以及總試題與各大題之平均數、標準差、與答對百分比；（二）二因子變異數分析 (two-way analysis of variance) 檢驗不同性別與音樂學習經驗的學生於總試題、聽視辨別類型以及各大題的得分表現是否顯著差異，經由檢定各層面間有無顯著差異後，若達顯著水準者則再以 Bonferroni 法進行事後比較。

肆、研究結果分析

本研究旨在以自編的曲調聽視測驗施測於臺北市小學六年級學生，以瞭解學生於曲調聽視測驗之表現情形。本結果以學生「整體測驗」表現、「輪廓辨識」與「音程辨譜」表現、以及不同背景（性別、音樂學習經驗）學生之表現差異進行討論。

一、學生整體測驗表現

研究者針對學生於各項試題類型之答對率進行分析，其答對率與分佈區間結果如下表 7：

表 7. 輪廓辨識與音程辨譜之分項答對率平均值與分布區間表

聽視辨別類型	項目試題	題數	答對率 (%) 平均值	分布區間
輪廓辨識	輪廓辨圖 (三音音型)	1-01 至 1-08	79	66~89
	輪廓辨圖 (五音音型)	1-09 至 1-12	74	63~80
	輪廓辨圖 (曲調型)	1-13 至 1-20	74	58~85
	輪廓辨譜 (三音音型)	2-01 至 2-04	71	61~89
	輪廓辨譜 (五音音型)	2-05 至 2-08	78	71~83
	輪廓辨譜 (曲調型)	3-01 至 3-04	68	65~73
音程辨譜	音程辨譜 (選出單音)	2-09 至 2-12	55	48~64
	音程辨譜 (選出三音)	2-13 至 2-16	59	52~73
	音程辨譜 (音程距離)	3-05 至 3-08	57	51~64
	音程辨譜 (音域位置)	3-09 至 3-12	66	47~78
	音程辨譜 (音高排列)	3-13 至 3-16	47	36~60

由上表可知，學生於「輪廓辨識」試題答對率平均值介於 68%~79% 間，呈現各項目之試題皆有一半以上的學生可以答對，相對於音程 47%~66% 之答對率，顯示輪廓對於學生來說屬於較容易辨別的特徵，此一結果符合 Levy (2001) 之研究結論。

學生在各項目試題答對率平均差異不大，在輪廓辨識的試題中，無論選項形式是圖形或是圖譜在聽視辨別情形上無顯著差別。不過，學生在「曲調型輪廓辨譜」試題答對率略低，研究者認為由於此曲調型試題為樂曲片段的一部份，不如單獨音型的獨立設計能夠凸顯輪廓，因此試題與各選項譜例視覺上之輪廓起伏不如其他音型試題來得明顯，此一結果吻合 Taylor (1971) 研究指出曲調音型聽辨較單獨音高聽辨的錯誤率較高現象。

「音程辨譜」方面，各分項試題的答對率皆低於「輪廓辨識」。學生在音程辨譜之答對率平均差異不大，答對率由高至低依序為「音域位置」、「選出三音」、「音程距離」、「選出單音」、「音高排列」。「音程辨譜 (音域位置)」較其他試題項目略為容易，顯示在音程的試題中，能夠藉由前後小節的音域位置判斷答案的試題對學生而言較為容易；選項間需判斷多音音程距離變化的「音程辨譜 (音高排列)」的答對率較低。整體而言，學生在輪廓辨圖 (三音音型)、輪廓辨譜 (五音音型) 平均答對率最高，音程辨譜 (音高排列) 則答對率最低。

二、「輪廓辨識」與「音程辨譜」表現

(一)「輪廓辨識」分項結果

研究者依據學生於輪廓辨識之表現情形進行分析，其中分為「輪廓辨圖」與「輪廓辨譜」兩類，依據聽覺刺激的形式又可分為三音音型、五音音型與曲調型。選項分為圖形與圖譜兩種形式，選項之輪廓走向分為〈上行〉、〈下行〉、〈先上再下〉、〈先下再上〉等四種。針對不同聽覺刺激下之選項輪廓走向答對率結果如表 8。以下分別以「輪廓辨圖」、「輪廓辨譜」兩類，於各項目試題（不同音型）之輪廓走向答對率進行探討：

表 8. 輪廓辨識各項目試題答對率百分比

			上行	下行	先上再下	先下再上	平均
輪廓	辨圖	三音	84	73.5	82	75	78.5
		五音	77	63	80	78	74
		曲調型	69	65	71	84	72
辨譜	辨譜	三音	89	71	64	61	71
		五音	83	71	81	78	78
		曲調型	73	67	65	68	68

「輪廓辨圖」方面，三音音型答對率最高為〈上行〉，五音音型以〈先上再下〉的答對率最高(80%)，兩者〈下行〉辨別較困難，整體平均答對率相近。曲調型「輪廓辨圖」，以試題〈先下再上〉的答對率最高(84%)，〈下行〉的答對率最低(65%)。依據以上研究結果，研究者認為在〈先下再上／先上再下〉答對率較高的原因是由於樂曲結構的影響，如同郭芳吟(2013)研究指出當樂句單位明顯時學生能夠將其組織，以樂曲的結構單位來辨別走向，因此在辨別上較為容易。此外，曲調型「輪廓辨圖」的答對率除了〈先下再上〉之外，皆低於三音音型輪廓辨圖，此一結果符合 Edworthy (1982 / 1985) 指出之曲調單位愈長，則受試者分辨能力愈下降的研究結果。

「輪廓辨譜」方面，三音音型以試題為〈上行〉的答對率(89%)最高，而〈先下再上〉的答對率(61%)最低，結果顯示出對於學生而言，〈上行／下行〉較容易辨別，〈先上再下／先下再上〉則困難。五音音型以〈上行〉的答對率最高(83%)，〈下行〉(71%)的答對率最低。若與三音音型相比，五音音型〈上行／下行〉答對率與三音音型相近，而在〈先上再下／先下再上〉則顯著高於三音音型，後者之情況同於輪廓辨圖的結果，顯示五音所形成的輪廓較為鮮明，此一現象亦驗證 Edworthy (1982 / 1985)、Smith 等 (1998)、Holahan 與 Saunders (1997) 以及 Holahan 等 (2000) 關於輪廓研究中指出五個音為最適合的測驗單位之看法，因為五音不會造成記憶保留的困難，但較三音而言又較能呈現清楚之

輪廓。

整體而言，三音音型與五音音型無論在「輪廓辨圖」或是「輪廓辨譜」，其〈上行〉或〈先上再下〉的答對率皆高於〈下行〉與〈先下再上〉，此結果與李君儀 (2004) 曲調聽音研究中提出辨別〈上行〉較〈下行〉容易以及 Dyson 與 Watkins (1984) 指出〈先上再下〉比〈先下再上〉輪廓更容易辨識的研究結果相符。

(二)「音程辨譜」分項結果

研究者依據學生於音程辨譜之表現情形進行分析，其中依據聽覺刺激形式分為「三音音型」與「曲調型」兩類。三音音型音程辨譜中，分別有選出〈中間音〉與選出〈完整三音〉的題型；曲調型音程辨譜中，則有〈音程距離〉、〈音域位置〉、〈音高排列〉三種選項設計的題型。針對不同聽覺刺激下之選項結果如表 9，以下分別以不同聽覺音型 (aural patterns) 之答對率進行討論：





表 9. 音程辨譜各分項試題之答對率百分比

聽覺刺激	三音音型						曲調型			
	選出中間音		選出完整三音		音程距離		音域位置		音高排列	
選項形式	題號	答對率	題號	答對率	題號	答對率	題號	答對率	題號	答對率
	2-9	64	2-13	53	3-5	64	3-9	64	3-13	41
	2-10	57	2-14	57	3-6	52	3-10	78	3-14	52
	2-11	48	2-15	73	3-7	51	3-11	73	3-15	60
	2-12	51	2-16	52	3-8	63	3-12	47	3-16	36
平均		55		58.75		57.5		65.5		47.25

1. 「三音音型－選出中間音」題型

本題型設計答題者分別辨別選項中間音之正確音高位置，其中與前音相臨的題目（題 2-9、2-10）、與前音不相臨（題 2-11、2-12）之譜例與答對率如表 10：

表 10. 三音音型－選出中間音之試題譜例與答對率





















題號	2-9	2-10	2-11	2-12
譜例				
答對率	64%	57%	48%	51%

由表 10 可知，整體答對率介於 48~64% 之間。其中題 2-9 答對率最高，題 2-11 答對率最低，顯示辨別與前音相鄰（級進）的單音音高（題 2-9 與 2-10）較容易，辨別與前音不相鄰（跳進）的單音音高（題 2-11 與 2-12）則較困難。

2. 「三音音型－選出完整三音」題型

本題型設計答題者將聽到的三音音型選出完整三音之正確音高，其中，題 2-13 至 2-15 的錯誤選項與正確答案只有一個音不同，題 2-16 各選項與正確答案間則有兩個音不同，試題正確答案與答對率如表 11。

表 11. 三音音型－選出完整三音之試題選項譜例與答對率

題號	2-13	2-14	2-15	2-16
正解				
選項 1				
選項 2				
選項 3				
選項 4				
答對率	57%	73%	52%	53%

由以上結果可知，整體答對率介於 52%~73% 之間。其中題 2-14 答對率最高，題 2-15 答對率最低，研究者推論 2-14 題答對率最高的主要原因是因為試題間音距較窄（級進），而 2-13 與 2-15 題所要判別的記譜位置分別為六度與七度，因此相對應之記譜位置較為困難，此結果同於 Deutsch 與 Boulanger (1984)，以及 Huron (2006) 的研究，辨別寬音程比辨別窄音程的樂譜對應更困難。此外，題 2-16 雖試題音距相近，但因選項設計同時改變前後兩個音高，導致難度增加。

3. 「曲調型－選出正確音程距離」題型

本題型設計答題者選出完整曲調片段中空白小節之正確樂譜，試題各錯誤選項與正確答案只有一個音不同。各試題空白小節之正確答案與選項答對率列於下表 12：

表 12. 曲調型－選出正確音程距離之試題選項譜例與答對率

題號	3-5	3-6	3-7	3-8
正解				
選項 1				
選項 2				
選項 3				
選項 4				
答對率	64%	52%	51%	63%

由以上結果可知，整體答對率介於 51%~64% 之間。題 3-6 與 3-7 分別辨別四度與五度的音程，較題 3-5 的一度音程難判斷。題 3-8 正確答案雖為六度的音程，但其各選項間的音程差異為三度以上，因此相較於題 3-6 與 3-7 之些微級進音差異，學生將更容易辨別此音型。









4. 「曲調型－選出正確音域位置」題型

本題型為根據所聽見之曲調片段選出完整曲調片段中空白小節之正確樂譜，選項為音域位置不同但音程距離完全相同之設計。各試題之正確答案與選項以及答對率百分比請見下表 13：

表 13. 曲調型－選出正確音域位置之試題選項譜例與答對率

題號	3-9	3-10	3-11	3-12
正解				
選項 1				
選項 2				

表 13. 曲調型－選出正確音域位置之試題選項譜例與答對率（續）

題號	3-9	3-10	3-11	3-12
選項 3				
選項 4				
答對率	64%	78%	73%	47%

由以上結果可知，整體答對率介於 47%~78% 之間，研究者推論 3-11 題答對率較高的原因是由於各錯誤選項與正確答案間皆超過四度以上之音域距離，選項間較大音域落差將降低試題的難度。此外，研究者推論 3-10 題（如下譜）答對率高的原因是由於空白小節前後的譜例即對應正確選項之音高位置，此結果與 Tsuzaki (1991) 所提出之研究結論類似，曲調中不同的基準音程與起始音，將會影響對於辨別樂曲中曲調音程的正確判斷。

題 3-10



5. 「曲調型－選出正確音高排列」題型

本題型為根據所聽見之曲調片段選出完整曲調片段中空白小節之正確樂譜。表 14 呈現試題之正確答案與各選項以及答對率。由下表結果可知，整體答對率介於 36%~60% 之間。其中題 3-15 答對率最高，題 3-16 答對率最低。研究者推論 3-15 題答對率高是由於中間有重複音，因此提升正確答案之選答率。題 3-16 答對率最低是因為選項內音符數量（五個音）較多，且選項內具有超過兩處以上的音高排列變化，因此學生需有更精準音高位置之聽視辨別能力才能準確答對。

表 14. 曲調型－選出正確音高排列試題選項譜例與答對率





















題號	3-13	3-14	3-15	3-16
正解				
選項 1				

表 14. 曲調型－選出正確音高排列試題選項譜例與答對率（續）

題號	3-13	3-14	3-15	3-16
選項 2				
選項 3				
選項 4				
答對率	41%	52%	60%	36%

三、不同背景學生於曲調聽視測驗表現之差異

（一）性別與課後音樂學習背景之人數分佈

本研究樣本之性別百分比分析如下表 15，其中男生共 184 人，占樣本數 54.1% 些微高於女生 156 人，占樣本數 45.8%。

表 15. 不同性別樣本人數統計表

性別	個數	百分比
男	184	54.1
女	156	45.9
總計	340	100.0

本研究將課後音樂學習經驗分為「校外課後音樂學習經驗」（外）與「校內課後音樂學習經驗」（內）兩類，本研究樣本之課後學習背景分析如下表 16：

表 16. 不同音樂學習經驗樣本人數統計表

音樂學習經驗	個數	百分比
內無外無	138	40.6
內無外有	80	23.5
內有外無	30	8.8
內有外有	92	27
總數	340	100

由上表 16 可知，無校內外音樂學習經驗者（內無外無）者占 40.6%，為最大比例，接下來依序是校內外音樂學習經驗皆有者（內有外有）占 27%。若以校外音樂經驗之有無之比例而言，具備校外音樂經驗者約為 50.5%（內無外有、內有外有），無校外音樂經驗者約為 49.5%，人數約各占一半。

（二）不同音樂學習經驗與性別之學生表現差異情形

為分別探討不同性別與音樂學習經驗學生於測驗表現上是否有顯著差異，以及不同性別與學習經驗間是否有交互關係存在，本研究以二因子變異數分析 (two-way analysis of variance) 檢驗不同性別與音樂學習經驗於總試題、兩聽視辨別類型是否有顯著差異，結果分述如下。

1. 不同性別與音樂學習經驗者在總試題表現之差異情形

本研究以二因子變異數分析檢驗性別與音樂學習經驗者於總試題上是否有顯著差異，結果如下表 17：

表 17. 總試題之二因子變異數分析摘要表

變異來源	SS	df	MS	F	p
性別	24.407	1	24.407	.275	.600
音樂學習經驗	14105.161	3	4701.720	52.986***	.000
性別 × 音樂學習經驗	280.269	3	93.423	1.053	.369
誤差	29459.991	332	88.735		
整體	475124.000	340			

* $p < .05$ ，** $p < .01$ ，*** $p < .001$

由以上結果顯示，性別與音樂學習經驗之二因子交互作用未達顯著水準 ($F = 1.053$ ， $p > .05$)，表示不同性別與音樂學習經驗在總試題的差異情形並無交互作用效果。直接檢驗性別與音樂學習經驗之主要效果後發現，「性別」的主要效果未達顯著水準，表示不同性別的學生在總試題並無顯著差異；「音樂學習經驗」的主要效果達顯著水準 ($F = 52.986$ ， $p > .001$)，表示不同音樂學習經驗的學生在總試題達顯著差異。因此，進一步針對音樂學習經驗進行事後比較。由於 Scheffé 法僅能針對單因子進行事後比較，多因子事後比較主要使用 LSD 法或是 Bonferroni 法進行檢核，本研究使用較為嚴謹之 Bonferroni 法進行事後比較，結果如下表 18：

表 18. 總試題之不同音樂學習經驗事後比較表

經驗類型 ／人數	(1) 內無外無 n=138		(2) 內無外有 n=80		(3) 內有外無 n=30		(4) 內有外有 n=92		F 值	事後比較
	M	SD	M	SD	M	SD	M	SD		
總試題	27.86	8.31	38.61	11.56	33.76	11.46	44.81	8.05	63.63***	4>2>1 4>3>1

* $p < .05$, ** $p < .01$, *** $p < .001$

由以上結果顯示，總試題表現上學生們的平均數由高至低依序為「內有外有」、「內無外有」、「內有外無」、「內無外無」；其中，除了「內無外有」、「內有外無」未達顯著差異外，其他項目依序皆達顯著差異。顯示在總試題的表現上，僅具備校外經驗的學生與僅具備校內音樂經驗的學生兩者間表現並無顯著差異，其表現皆優於完全沒有校內外音樂學習經驗的學生，顯示無論是校內或校外音樂經驗，其皆能夠提升學生在聽視辨別的能力表現，因此，學生即使沒有參加校外音樂課程，校內音樂社團活動亦能提升學生之聽視辨別能力表現。

2. 不同音樂學習經驗與性別者在「輪廓辨識」試題表現之差異情形

本研究以二因子變異數分析檢驗性別與音樂學習經驗者在輪廓辨識上是否有顯著差異，結果如下表 19：

表 19. 輪廓辨識之二因子變異數分析摘要表

變異來源	SS	df	MS	F	p
性別	2.236	1	2.236	.055	.815
音樂學習經驗	4463.177	3	1487.726	36.609***	.000
性別 × 音樂學習經驗	151.582	3	50.527	1.243	.294
誤差	13491.865	332	40.638		
整體	215225.000	340			

* $p < .05$, ** $p < .01$, *** $p < .001$

由以上結果顯示，「性別」的主要效果皆未達顯著水準，表示不同「性別」的學生在屬於「輪廓辨識」的試題表現上並無顯著差異；「音樂學習經驗」的主要效果達顯著水準 ($F = 36.609$, $p > .001$)，表示不同「音樂學習經驗」的學生在屬於「輪廓辨識」的試題表現上達顯著差異。進一步以 Bonferroni 法進行事後比較，結果如下表 20：

表 20. 輪廓辨識之不同音樂學習經驗事後比較表

經驗類型 ／人數	(1) 內無外無 n=138		(2) 內無外有 n=80		(3) 內有外無 n=30		(4) 內有外有 n=92		F 值	事後比較
	M	SD	M	SD	M	SD	M	SD		
輪廓辨識	20.01	6.38	25.57	7.43	22.86	8.5	29.16	4.24	39.93***	4>2>1 4>2>3

* $p < .05$, ** $p < .01$, *** $p < .001$

由表 20 顯示在輪廓辨識的表現上，同時擁有校內外音樂經驗者優於僅具備校外音樂經驗者、僅具備校內音樂者以及無校內外音樂經驗者；完全沒有校內外音樂經驗的學生與僅具備校內音樂經驗的學生，表現並無差異。

3. 不同音樂學習經驗與性別者在屬於「音程辨譜」試題表現之差異情形

本研究以二因子變異數分析檢驗性別與音樂學習經驗者在音程辨譜上是否有顯著差異，結果如下表 21：

表 21. 音程辨譜之二因子變異數分析摘要表

變異來源	SS	df	MS	F	p
性別	41.419	1	41.419	2.517	.114
音樂學習經驗	2706.029	3	902.010	54.819***	.000
性別 × 音樂學習經驗	37.322	3	12.441	.756	.519
誤差	5462.796	332	16.454		
整體	53753.000	340			

* $p < .05$, ** $p < .01$, *** $p < .001$

由表 21 結果可知，「性別」的主要效果皆未達顯著水準，表示不同「性別」的學生在屬於「音程辨譜」的試題表現上並無顯著差異；「音樂學習經驗」的主要效果達顯著水準 ($F = 54.819$, $p > .001$)，表示不同「音樂學習經驗」的學生在屬於「音程辨譜」的試題表現上達顯著差異。進一步以 Bonferroni 法進行事後比較，結果如表 22。

表 22. 音程辨譜之不同音樂學習經驗事後比較表

經驗類型 ／人數	(1) 內無外無 n=138		(2) 內無外有 n=80		(3) 內有外無 n=30		(4) 內有外有 n=92		F 值	事後比較
	M	SD	M	SD	M	SD	M	SD		
音程辨譜	7.84	3.01	13.03	4.91	10.9	3.57	15.65	4.72	73.14***	4>3>1

* $p < .05$, ** $p < .01$, *** $p < .001$

上表 22 結果呈現在音程辨譜方面，同時具備校內外音樂者表現最佳，而僅具備校外音樂經驗者與僅具備校內音樂者表現並無顯著差異，皆優於完全沒有校內外音樂經驗者。此結果與學生在總測驗的表現情況完全相同，顯示有無音樂學習經驗將和學生表現顯著相關。

整體而言，不同「性別」的學生在「總試題」、「輪廓辨識」、「音程辨譜」並無顯著差異；「不同音樂學習經驗」的學生在「整體總試題」、「輪廓辨識」、「音程辨譜」皆達顯著差異。無論在輪廓辨識或音程辨譜，具備音樂校內外經驗者皆優於完全無校內外音樂經驗者，此結果符應李君儀 (2004)、黃怡娟 (2004)、Attneave 與 Olson (1971)、Cuddy (1971)、Cuddy 等 (1979)、Dowling (1978)、Dyson 與 Watkins (1984)、Gromko 與 Russell (2002) 以及 Uptitis (1987) 之研究結果。

肆、結論與教學建議

一、結論

(一) 學生於〈上行〉的答對率高於〈下行〉，〈先上再下〉的答對率高於〈先下再上〉

學生對於曲調的輪廓辨識〈上行〉皆高於〈下行〉，在三音音型、五音音型方面，〈先上再下〉答對率皆高於〈先下再上〉。整體而言，學生對於音型走向以〈上行〉的答對率最高。

(二) 學生辨別音程距離相近之樂譜較跳進的音更為容易

無論是聽辨單音或是聽辨完整的三音音型，學生在辨別與前音相鄰（級進）或是相對音距較近的音答對率較高，此顯示音程間距越近，學生越容易辨別其相對音之記譜位置。

(三) 學生能根據前後音進行「音程辨譜」判斷，超過兩音以上的音高變化則較困難

學生能夠根據前後小節譜例之音域位置判斷出重複音，且排除相對位置錯誤的音高選項，譜例與正確答案音域越靠近則答對率越高，此顯示學生已具備連結聽覺與樂譜間相對關係之能力。此外，「音高排列」選項內若音高變化越多或選項內沒有前一小節為基礎，對於學生來說此類的聽視辨別題目則更為困難。

(四) 不同性別的學生曲調聽視測驗表現無顯著差異

整體平均數而言，女生在曲調聽視能力的表現雖優於男生，但經由統計分析，不同性別的學生無論在「總試題」、「輪廓辨識」與「音程辨譜」表現上皆無顯著差異。

（五）不同音樂學習經驗的學生曲調聽視測驗表現有顯著差異

不同音樂學習經驗的學生，無論在「總試題」、「輪廓辨識」與「音程辨譜」表現上與各大題表現上皆具有顯著差異，顯示音樂學習經驗為影響學生測驗結果之關鍵因素，其中表現最優者為同時具備校內外音樂學習經驗的學生，其次為具備校外音樂學習經驗者、具備校內音樂學習經驗者，最後則為校內外皆無任何音樂學習經驗的學生。

二、建議

（一）對教師的建議

針對教學內容方面，教師應為學生搭起連結音感與認譜之鷹架，教師在教學上應幫助學生由輪廓線條的感知，逐漸發展出感知音與音之間的關係，並以音感之發展為基礎，掌握先聆聽後感知的原則，由圖像至符號，從辨別圖形、圖譜逐漸發展至樂譜的認知引導學生進一步發展出聽辨整合的能力。曲調感知方面，教師可加強較困難的曲調輪廓、音程，由於學生在聽辨〈下行〉或是〈先下再上〉等曲調輪廓較為困難，因此建議教師於進行音感教學時，能帶領學生感知不同輪廓組合的起伏，增進學生對於曲調輪廓之敏銳度，並進一步由輪廓辨別發展出聽辨音程之能力。

現今十二年國民基本教育課程綱要之藝術領域強調教學者運用藝術的本質與特性來激發學生的直覺、推理與想像，促進其創意及思考的能力，如此學生將從表現、鑑賞與實踐的學習過程，進而體驗美感經驗，創造藝術價值，從而領悟生命及文化的意義（教育部，2018），因此教學者應重視音樂曲調之藝術美感價值，選取優美適切的音樂曲調教材，以提升學生對於音樂曲調之直覺感知與涵養，進而激發其音樂曲調之想像與創造能力。

在評量方面，教師應重視學生在音感與認譜發展情形之評量工具，教師若能施測相關測驗且配合課程教學之多元評量，將更能了解學生學習情形且實踐差異化教學之目標。雖然相關測驗的資源能幫助教學者了解學生音樂學習情形以及教學者之教學效能，然另一方面，藝術領域學習評量亦應重視學習的歷程與情境，學生成果並非僅止於一次性的測驗結果。本研究的測驗結果受限於研究題目設計，僅能提供教師有關學生於測驗表現之參考，學生的音樂學習評量應採多元方法，除了學生自我評定，亦可採用同儕互評、學習歷程檔案評量、實作評量等（教育部，2018），教師應強調學生自發、互動與共好的學習歷程以協助其發展音樂相關之核心素養。

（二）對學校單位的建議

由於學生的音樂學習經驗為影響聽視辨別測驗表現之重要因素，本研究建議學校單位應重視學校音樂課程與音樂性社團。在發展聽視連結的音樂聽辨能力上，音樂課程之樂器演奏或是歌唱皆為良好之媒介，同時學校音樂性社團亦提供學生課程之外學習演唱、演奏與合唱、合奏之良好管道，因此，學校應重視學生音樂課程與課後音樂性社團，以提供充

足的機會讓學生音樂能力得以適性培養與發揮。

學校單位應能適時、明確、持續不斷地協助學生了解自身有關音樂學習的狀況，學生資料應包含質與量且多元呈現，資料來源應包括時機的多元、情境的多元或評量策略的多元等（教育部，2018）。此外，學校應協助教師成立教師成長團體，幫助教師如何與學生共同討論音樂評量規準，運用學習日誌、晤談、分組合作評量以及觀察法等多元音樂評量技巧，以幫助學校確實了解學生音樂學習狀況，進而發展相關協助學生提升學習策略與興趣之校內與社區音樂活動。

（三）對後續研究者的建議

在測驗試題編制方面，節奏、音域、重複音、曲調結構…等皆會造成聆聽者音樂聽辨感知的差異，進而影響對於曲調輪廓的判斷，因此，建議後續相關測驗編製者可將相關因素納入考量，針對單一音樂元素進行多元的組合與比較。同時在音樂選擇方面，除了鋼琴音色之外，研究者建議將直笛或其他樂器聲響融入測驗題目設計。研究對象方面，本測驗僅針對臺北市分區方便取樣之六年級學生進行施測，因此無法得知在縣市間的表現與差異情形，建議未來研究為求測驗結果之客觀性，應針對其他縣市、年級進行隨機抽樣研究，以瞭解不同年齡與地區的差異，如此結果將更具全國孩童之代表性與推論性。

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附錄一【人體試驗研究計畫保證書】

身為本論文研究計畫的研究者，我願意為下列事項簽名負責：

- 一、本論文研究將透過團體紙筆施測的方式，採用播放音樂檔案，學生於題本上進行勾選的進行模式，來瞭解學生在音樂聽辨能力上的反應，所有學生資料皆採用匿名處理。
- 二、在此論文研究的施測過程中，我會詳細的將測驗程序告知受試者。
- 三、我向施測單位保證，在此論文研究中所有的執行過程都會依照本校人體試驗委員會的規範。
- 四、我願意對受試者提供之研究資料負完全保密責任。

研究者：(簽名)

文化的傳承與學習：新住民青少年家中視覺文化探看

Cultural Inheritance and Learning: Delving into New Immigrant Adolescents' Home Visual Culture

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摘 要

本研究鑑於教育部與學術界對新住民子女教育之研究愈趨關注，加以新住民子女在家中之原生國文化學習情形亦有待瞭解，故本研究主要在研析新住民家庭母親與青少年生命中重要家中物件之影像及其詮釋，並探討新住民青少年視覺文化接觸與學習經驗對藝術教育的可能啓發與運用。本研究採用視覺研究法與多重個案研究法，透過觀察、影像選擇拍攝、參與者訪談、影像符號閱讀及詮釋來蒐集資料，受訪調者包括新住民家庭中的母親及他們的青少年子女，研究者邀請參與的新住民家庭選取家中對其生活而言具特殊意義或最喜好的重要物件並拍攝紀錄，並就所拍攝影像進行訪談與詮釋，經由觀察、家中日常視覺物件選取拍攝與訪談及其對拍攝影像之詮釋的三個部分相互交叉比對及印證，以探看新住民混融日常視覺文化符碼之內容與詮釋。研究結果顯現東南亞裔母親透過各式形態的日常實踐來進行文化傳承與文化教育，這些做為文化傳承與文化教育的日常視覺文化都助益於新住民青少年對母親原生文化的體認與瞭解。根據上述結果，本研究提出拓展連結學校內與學校外學習資源之藝術教育的重要，期能協助新住民子女提升對雙邊文化的學習與瞭解，以促進發展出含融多元文化的跨領域藝術教育學。

關鍵字：藝術教育、視覺文化、新住民青少年

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Abstract

The purpose of this research project is to study the influences of everyday visual culture on Taiwan's new immigrant adolescents' development of cultural identity. Because of the increasing number of cross-nation marriages between Taiwanese males and females of Southeast Asian or mainland Chinese descent, mixed heritage children's development of cultural identity is more complex and challenging. Since developing sophisticated art curricula to help construct students' cultural identity continues to be a leading concern in the field of art education, it is necessary to examine the relationship between new immigrant children's development of cultural identity and their informal learning experiences with visual culture in Taiwan.

A diverse range of methods including visual methodologies and multiple case study were utilized. Data were collected from observations, pictorial documentation, audio recorded informal and formal interviews. The participants included mothers and their children who were eleven to eighteen and came from homes of new immigrant families where mothers are from Southeast Asia. The new immigrant families for the study were located in Taipei City, New Taipei City and Hsinchu City. Everyday visual culture constructs didactic alternative spheres through which ideas about ethnic traditions, beliefs and aesthetic sensitivities are taught and learned. New immigrant adolescents' visual culture in the home is a direct source presenting the diversity of culture. Understanding the relationship between new immigrant adolescents' establishment of cultural identity and their experiences with visual culture can improve communication and understanding among multicultural societies and help art educators better develop cross-cultural art pedagogy. The implication of how new immigrant adolescents' learning experiences relate to everyday visual culture can help schools incorporate the rich cultural context provided through new immigrants' hybrid ethnic aesthetic practices will be discussed.

Keyword: Art Education, Visual Culture, New Immigrant Adolescents

壹、前言

協助學生建立文化認同已是現今藝術教育的重要目標之一 (Freedman, 2003)，國內藝術教育相關學者也經由各面向的探研提出協助學生發展文化認同在藝術教育中的重要性 (袁汝儀, 1996；陳瓊花, 2005；陳秋瑾, 2000；黃壬來, 2002)，而視覺文化取向的藝術教育強調透過與學員日常生活經驗的連結，來協助其對自身文化意涵的學習、認識與欣賞，同時也能在課堂中藉由對各族群日常視覺文化的接觸而能學習包容多元文化。臺灣因社會結構與經濟環境的轉變，自 1970 年代中期起，開始有泰國與菲律賓新娘的出現，之後持續有其他東南亞國家及大陸配偶的跨國婚姻，近幾年國人為尊重這批新移入者的文化而以「新住民」來稱呼他們，至今，這些逐年增加的跨國婚姻家庭的子女也逐漸進入小學、國高中及大學就讀，根據教育部 108 學年度的新住民子女就讀國中、小人數統計資料，隨國人生育率持續降低，近 10 年來全國國中、小學生人數自 96 學年起逐年遞減，其中新住民子女學生數卻反而提升了，所占比率由三成八上升至十成 (教育部, 2021)，儘管從 104 學年開始，新住民子女就讀國小人數呈現下降趨勢，但從新住民子女所占有十成的全國國中小學生人數來看，新住民子女的成长與發展仍是整體國民素質的重要環節，另新住民子女受跨國原生家庭影響的因素，在學習階段需克服的挑戰亦較高，學校如何發展出協助這些跨國婚姻家庭的子女發展雙邊文化認同的藝術課程，仍是目前藝術教育的重要課題。

近十多年國內學界針對東南亞及大陸等外籍配偶的生活適應及其子女的文化認同與學校表現有相當的關注 (吳清山, 2004；吳瓊洳、蔡明昌, 2017；林彩紬、鍾才元、林惠蘭, 2012；張芳全、王平坤, 2012；張芳全, 2017；陳俊毓, 2005；陳毓文, 2010；馮涵棣, 2008；蔡榮貴、黃月純, 2004)，但針對這些跨國婚姻家庭中視覺文化對其子女文化認同影響的研究卻付之闕如，亦少有研究針對探討非學校內藝術相關學習對新住民子女文化認同發展的影響性、及家中的藝術學習如何有效與學校的藝術學習產生連結。

本研究鑑於近年來教育部與學術界對新住民子女教育之研究的關注，加以新住民子女在家中之原生國文化學習情形亦有待瞭解，故本研究目的的主要在於探究新住民青少年子女的家中視覺文化意涵及其學習經驗，將研析新住民青少年子女的家中視覺文化影像及其詮釋，分析它們的訊息與意義，檢視新住民青少年子女的家中視覺文化物件的選擇與詮釋，分析家中視覺文化的學習經驗如何影響他們的雙邊文化理解，進而將成果提供藝術教育教師，以供發展含容多元文化的跨領域藝術教學之參酌，並提昇藝術教師教學、輔導及多元文化知能，及實踐藝術面向的文化回應教育學 (Gay, 2000)。綜上所述之研究背景與動機，本研究之研究目的為研析新住民家庭青少年與母親生命中重要家中物件之影像及其詮釋。

貳、視覺文化、文化認同與藝術教育

移民已是在全球化浪潮中各國社會常見的現象，對於跨國婚姻家庭中混血子女的文化認同研究已進行多年 (Root, 2001; Standen, 1996; Stepick et al., 2001; Thornton, 1996)，而美國學界更早在進入二十一世紀前即積極投入對急遽增多的移民後代進行生活與文化融合等相關議題的研究 (Portes & Rumbaut, 2001; Smith-Hefner, 1999; Suárez-Orozco & Suárez-Orozco, 2001)，試圖幫助生活在多元族裔文化中的移民後代發展多族裔文化理解與文化認同，美國 DePaul University 更於 2010 年成立批判性混血種族研究組織 (Critical Mixed Race Studies)，試圖宏觀地從跨領域如社會學、心理學、史學、法學、人類學等的角度來看待現今社會中混種族群的各面向問題，以促進多元文化的交流、學習與相互欣賞。

一、物質文化與文化認同的交互關係

隨著全球各地愈趨增多的移民現象，也帶動生活中多樣異族文化接觸經驗，伴隨日益提高的多元混融日常文化，促使歐美學界在八〇年代初期興起對生活中物質文化與族群文化形塑之間關係的關注與探看 (Appadurai, 1986; Csikszentmihalyi & Rochberg-Halton, 1981)，這些學者們企圖藉由對不同族裔日常物質的專研來理解社會中各族裔背後的文化意涵、價值觀、品味、審美與傳統等。繼這一波探看各族裔的文化承襲與日常物質間之關係的熱潮，另有一批學者則熱衷於探討物質文化、私人生活空間與認同之間的關係 (Belk, 1988; Bourdieu, 1989; Rochberg-Halton, 1984; Wallendorf & Arnould, 1988)，直至二十一世紀初，更有一批社會文化領域學者 (Clarke, 2001; Edensor, 2002; Grauer, 2003; Hecht, 2001; Miller, 2001) 透過檢視各族裔人們與家中物質文化的交互關係來探看人的文化認同發展，期望藉以提升社會多元族裔間的相互了解與尊重。

社會學界 (Bourdieu, 1990; Emmison & Smith, 2000; Halle, 1993) 與人類學界 (Clarke, 2001; Miller, 2001; Pink, 2004) 更透過實地民族誌田野研究，分別就不同族群的私人生活空間之物質文化與族群文化認同發展關係做長期田野資料收集與考察，提出從生活空間中日常物質文化的實踐經驗，能呈顯與掌握特定文化意涵、信仰、品味、美感經驗與傳統。而這些與文化認同發展具緊密關係的物質文化又涵蓋在視覺文化範疇，關注日常生活的視覺文化理論家 Nicholas Mirzoeff (1998) 指出「……視覺文化即是每天的日常生活」(…everyday life is visual culture) (p. 125)，鑽研視覺文化教育運用的 Kevin Tavin (2003) 也強調視覺文化是一種實體的存在，包含影像、物件、工具、人造物及設施等，另外，早於二十世紀中末葉將視覺文化運用於教育實務的學者 Kerry Freedman (2003) 專注於文化的視覺表達，她與研究夥伴 Patricia Stuhr 解釋視覺文化是「形塑我們存在的人們所設計圖像及人造物之總和」(the totality of humanly designed images and artifacts that shape our existence) (Freedman & Stuhr, 2004, p. 816)，綜上述跨社會文化領域及人類學對日常物質文化與文化認同發展關係的研究，足見日常視覺文化是反映文化認同的重要元素，也是詮釋之所在，

這些存在於人們生活空間中的視覺文化，做為發展個人文化認同的管道是非常重要的。

二、視覺文化取向藝術教育

現今資訊科技與各式傳播媒體的快速發展影響著我們的生活方式，也改變我們對視覺訊息的溝通需求，尤其現今年輕人生活在充斥著各式媒體的視覺科技產品中，教育學者們紛紛提醒視覺文化影像與物件對年輕學子的成長所扮演的重要影響，西方藝術教育學者們也提出將視覺文化包含在既有藝術教育課程中的重要性 (Barnard, 2001; Duncum, 2001; Freedman, 2000; Freedman & Wood, 1999; Stankiewicz, 2000; Sturken & Cartwright, 2009)，強調培養年輕學子面對這些龐雜的包含視覺科技產物的視覺訊息時，能有獨立思考與批判能力，同時能建立自我文化認同及包容多元文化。近二十多年來國內外藝術教育學者（郭禎祥，1994; Mason et al., 2006）根據相關研究，提出以藝術做為基礎的課程內容助於對於自己文化的理解與接納，也能提升對不同文化的接觸與認識。當 1990 年代視覺文化思潮已在國際藝術教育界蔚為風潮，進入二十一世紀，國內藝術教育學者們（郭禎祥、趙惠玲，2002；陳瓊花，2003；黃壬來，2002；廖敦如，2004；趙惠玲，2004/2005）紛紛提出當今的藝術教育不再強調技法與媒材的學習與熟練，更應重視周遭事物與藝術教育的關聯，並呼籲藝術教育應將視覺文化包含在藝術教育的教學中，學習視覺符碼的判讀、詮釋與解析能力、並能在文化脈絡中建構自身意義及提升對自我文化的省思。

在臺灣少子化愈趨嚴重而這些跨國婚姻家庭的混血小孩的就學人數愈趨增加的現今，學校中的藝術教育如何有效的運用視覺文化資源及跨域藝術課程理論，來協助課堂中所占成員持續增高的跨國婚姻家庭的混血學童發展對雙邊文化之理解、學習與傳承，仍是現今跨域美感教育的重要目標之一。

參、研究方法

一、研究範圍與對象

本研究對象包括新住民家庭的母親及其青少年子女，母親皆為東南亞裔，新住民青少年為十一歲至十八歲，因十一歲以上青少年已具對文化內容的覺察力及清楚說明自己想法的能力 (Erikson, 1968)。探究族群認同發展的學者們 (Gay, 1985; Phinney, 1989; Rotheram, 1987) 指出認同的形成是一個區別與整合的過程，它提供了族群歸屬感與歷史的延續感，而青少年時期除已發展族群知覺與歸屬感之外，也大致在族群認同上具有相當的雛形，基於學者們對族群認同發展的分析，本研究對象選擇十一歲以上至十八歲的新住民青少年來進行探究。由於多數新住民因教育程度與

家庭社經地位低弱而居社會弱勢（黃富順 2006；張芳全、王平坤，2012），新住民家庭父母雙方大多需投入工作來分擔家計，平時忙於工作，因此要找到家中有適於本研究訪談的青少年子女且願意讓研究者至家中進行訪調的家庭並不多，基於此，在研究參與者的

邀約工作上採滾雪球取樣法 (Robson, 2002)，研究者先透過國小教師及相關社福人員的引介找到符合研究條件且願意受訪的新住民家庭，再透過此家庭的推介來找到下一個參與研究的家庭。從教育部的「新住民子女就讀國中、小人數統計資料」中，就分布區域來看，國中、小新住民子女人數仍以北部地區占最多 (教育部, 2021)，而位處北部地區的臺北與新竹恰為研究者工作往返的主要城市，十二戶願意參與研究的新住民家庭中，六戶位在臺北市、一戶位在新北市、五戶位在新竹市。在這次研究中，這些新住民青少年年齡在十一歲至十六歲之間，共計有十二戶新住民家庭參與，十二位青少年中，八位為男性，另外四位為女性。參會人員基本資料如表 1 所示。十二戶新住民家庭資料如下：

表 1. 十二戶新住民青少年的簡要背景介紹

個案 (家庭)	參與者代稱	年齡	性別	母親的文化背景 *
1	新一	15	女	越南
2	新二	16	男	華裔印尼
3	新三	14	女	華裔越南
4	新四	12	男	華裔緬甸
5	住一	13	男	華裔越南
6	住二	13	男	泰國
7	住三	13	男	華裔馬來西亞
8	住四	12	女	越南
9	民一	13	女	華裔印尼
10	民二	13	男	華裔馬來西亞
11	民三	16	男	華裔印尼
12	民四	13	男	華裔印尼

* 每一戶個案之文化背景均為參與者自行說明。

二、研究設計

本研究採用多樣的質化研究方法，包括視覺研究法 (Pink, 2001; Rose, 2001) 及多重個案研究法 (Hancock & Algozzine, 2006; Stake, 2006)。視覺研究法強調視覺的紀錄影像或影片，不只是做為研究工具來記錄所要研究的現象、活動或事件，同時也是研究的原始材料，提供研究者更全面的訊息與依據 (Murray, 2008; Pink, 2001; Rose, 2001)。本研究計畫在於探究整體家庭混融的文化象徵氛圍營造 (Chang, 2011) 及跨族群婚姻家庭中青少年子

女對家中視覺文化的認識、解讀與詮釋，採視覺研究法所強調的視覺影像內涵與紀錄可達到以上的研究目的 (Goopy, & Lloyd, 2005 / 2006)。

在視覺研究法中，影視人類學學者 Sarah Pink (2001) 強調透過照片影像所掌握的視覺意涵能夠助於所蒐集文字與訪談資料的詮釋與分析。繼 Chris Jenks (1995) 所提出的觀看是參與詮釋行為之觀點，地理學家 Gillian Rose (2001) 更進一步提出批判的觀看方法，強調觀看者的自我反思批判態度以貼近觀看者的主體性。本研究在於探究新住民青少年對於家中視覺文化符碼的詮釋與其雙邊文化理解之關係，為達此目標，本研究採上述視覺研究方法，以如下三個部分進行：包括實地觀察、家中視覺文化之選擇拍攝與詮釋、影像符號分類與參與者訪談，以進入新住民家庭來了解新住民青少年如何發展與解釋日常生活經驗中的雙邊文化的概念與認同。

個案研究強調整體文化脈絡的理解，應用在本研究上，每一個單一家庭的個案研究均強調跨族群婚姻家庭在整體社會文化中的詮釋，並對此個案家庭從事一定時間的探看，同時由整體的觀點來進行描述與分析，此研究共包含十二戶單一個案，採用多重個案的設計是為對各個單一個跨族群婚姻家庭進行比較，每一個跨族群婚姻家庭中的東南亞裔母親與青少年子女對家中視覺文化的解讀與觀點形成一個單一的個案，本研究進行比較十二戶跨族群婚姻家庭中青少年子對於家中視覺文化符碼的詮釋與其雙邊文化認同發展的關係，因此採多重個案研究來增加資料的豐富與效度。

本研究建立在上述文獻探討，邀約參與的十二戶新住民母親與青少年子女選取家中對其生活而言具特殊意義或最喜好的十件重要物件並拍攝紀錄，並就所拍攝影像進行訪談與詮釋，經由「觀察」、「家中日常視覺物件選取拍攝」與「訪談及其對拍攝影像之詮釋」的三個部分相互交叉比對及印證，探看新住民混融日常視覺文化符碼之內容與詮釋，進而提出在家中非正式的日常視覺文化學習經驗對發展新住民青少年雙邊文化認同的影響，以及日常視覺文化學習經驗融入學校藝術教育助於發展新住民青少年雙邊文化認同的觀點。

三、資料蒐集

為探看新住民青少年子女的雙邊文化認同建構與家中日常視覺文化間的關係，本研究資料蒐集採觀察、視覺物件選取拍攝與訪談。研究者在造訪新住民的家時即展開觀察，說明溝通此研究目的之後即將紀錄影像用的數位相機交給受訪者，讓受訪者選取家中對其生活而言具特殊意義或最喜好的十件重要物件並拍攝紀錄，待拍攝畢即針對受訪者所選之重要物件的紀錄影像來展開訪談及蒐集受訪者對物件之影像的詮釋，研究者在等待受訪者拍攝物件期間亦持續進行觀察並與現場其他受訪者家人進行非正式訪談，訪談畢研究參與人員後，研究者亦會徵詢新住民參與者是否同意對其家中物件進行拍攝，以增益研究資料的對照與分析。

（一）觀察

每次進行新住民家庭的訪談活動時，即同時展開觀察的活動，在資料蒐集方法中，觀察常被視為強化其他資料蒐集的方法 (Robson, 2002)。有時透過觀察所獲得的資料，可做為核驗訪談內容的重要參酌，研究者將自己置身於特定研究場域進行相當時間的觀察，將助於更整全的掌握蒐集來的資料及更充分了解各種資料間的關聯性。

（二）選取與拍攝物件

在進行訪談前，先邀約參與者（新住民家中父母及青少年子女）選取對成長或生活經歷中，是重要的、具意義性或珍愛的家中日常物件，同時使用研究者提供的數位相機拍攝記錄這些所選擇的視覺文化物件 (Pink, 2001)。待參與者完成選擇珍愛的物件並拍攝紀錄完畢後，研究者才會展開訪談的工作。

（三）訪談

為深入了解新住民青少年子女對家中混融著兩種以上的文化物件與影像對其發展雙邊文化認同的可能影響，本研究對新住民參與者進行訪談並蒐集受訪者對所選擇物件之影像的詮釋，訪談採一對一方式並做全程錄音，每位受訪者訪談時間約為 50 分到一個小時，訪談面向包括三部分：基本背景資料、參與者選取家中視覺文化物件之原因及所拍攝之影像內容與詮釋、文化認同與視覺文化之關係探看。第二項目主要依據新住民家庭中參與者所拍攝家中重要物件之照片影像來進行訪談並蒐集其對影像所做的詮釋。

四、資料處理

本研究採用持續性比較法及批判的視覺方法學 (critical visual methodology) 來分析研究參與者所選取物件的影像詮釋與訪談資料 (Rose, 2001)。先針對研究參與者所選取物件的影像詮釋與訪談資料進行開放性編碼，透過不斷比較與評論來進行概念命名及類別的歸納，並依據資料屬性及面向來發展出類別，接著採用主軸編碼來做進一步資料的類別比較與評論，以檢視和建立影像詮釋與文化學習之間的各種聯繫，並發掘資料中各個部分之間的關聯 (Robson, 2002)。根據英國地理學家 Gillian Rose (2001) 所提出批判的觀看方法，影像是由知識、慣行和技術所建構，強調觀看者的自我反思批判態度，以探究視覺的文化意義、社會現實及權力等議題。本研究亦參考 Pink (2001) 的「反射的途徑」(reflective approach) 概念來分析研究參與者所選取拍攝之影像資料，以探究視覺物件影像選取與詮釋背後的意識形態、觀點與文化理解，研究進行中系統性且詳實的整理研究參與者的背景資料包括年齡、性別、居住地及雙邊文化背景，並將研究參與者所選擇拍攝之家中視覺物件影像進行編碼與分類，基於研究倫理的考量，每一位研究參與者皆以代稱（表 1）來呈現。

肆、分析與討論

視覺研究法強調視覺影像內涵與紀錄，根據研究參與者所選取物件的影像詮釋與訪談資料整理歸納出「類別編碼」(表 2)，研究參與者之影像詮釋與訪談資料的文本編號採簡化的號碼，例如青少年編號為 A1、A2 等，母親則為 M1、M2 等(表 3)。

表 2. 類別編碼

青少年家中視覺文化內涵	生命中重要家中物件 (影像數量)
一、生活裡的東南亞文化	(一) 節慶與休閒 (4)
	(二) 生活用品 (1)
	(三) 語言 (1)
二、東南亞回憶	(一) 返鄉旅遊照片 (6)
	(二) 服飾與紀念物 (6)
三、飲食中的東南亞風味	(一) 食物 (5)
四、在地日常生活	(一) 一般生活物品 (74)
	(二) 科技產品 (20)
	(三) 家庭生活照片 (3)
母親家中視覺文化內涵	生命中重要家中物件 (影像數量)
一、生活裡的東南亞文化	(一) 節慶與休閒 (3)
	(二) 生活用品 (7)
	(三) 語言 (7)
二、東南亞回憶	(一) 返鄉旅遊照片 (15)
	(二) 服飾與紀念物 (19)
三、飲食中的東南亞風味	(一) 食物 (5)
四、在地日常生活	(一) 一般生活物品 (43)
	(二) 科技產品 (12)
	(三) 家庭生活照片 (9)

表 3. 參與者訪談文本編號

個案（家庭）	參與者代稱	青少年文本編號	母親文本編號
1	新一	A1	M1
2	新二	A2	M2
3	新三	A3	M3
4	新四	A4	M4
5	住一	A5	M5
6	住二	A6	M6
7	住三	A7	M7
8	住四	A8	M8
9	民一	A9	M9
10	民二	A10	M10
11	民三	A11	M11
12	民四	A12	M12

根據研究結果，儘管新住民青少年所選擇拍攝之生命中重要家中物件有八成是一般青少年的日常生活物品、科技產品與家庭生活照片，新住民母親們所選擇拍攝之生命中重要家中物件也有超過五成是一般母親會選擇的生活物品、科技產品與家庭生活照片，但從研究結果中僅佔青少年重要家中物件兩成及佔了新住民母親們將近五成的東南亞文化相關影像詮釋與訪談資料中，仍可窺見東南亞裔母親透過日常的實踐所進行的文化傳承與文化延續，這些日常視覺文化顯現母親藉由生活實踐的各類文化教育活動，在新住民青少年對物件或生活經歷的敘述中，亦可瞭解到對東南亞裔母親原生文化的詳實深刻回憶，即使有兩位參與研究的新住民青少年成長後沒有回訪過母親故鄉，僅在二至三歲幼兒階段被母親帶回家鄉一次，然而藉由後續訪談，仍可對應幼時回訪所拍照片描述其印象及表達對母親原鄉事物的感受與記憶，在談及母親原生國文化相關影像內容時亦表達出對母親原鄉事物感到興趣。這些新住民青少年藉由生活中日常視覺文化的學習體驗，能更佳地理解雙邊文化特徵和意涵，而這些學習體驗過去鮮少被研究人員探究過，參與研究的新住民青少年之日常視覺文化展示了豐富的臺灣／越南、臺灣／印尼、臺灣／緬甸、臺灣／泰國和臺灣／馬來西亞的文化內涵，這些日常的雙邊或多元文化傳承、文化學習與文化教育可以做為發展含融多元文化之藝術教學模型。

這項研究的主要結果有三個面向。首先，研究中的大多數新住民青少年能夠藉由日常實踐來認識與識別文化特徵。其次，多數新住民青少年能透過回訪母親原生國來更好地了解母親的原生國文化。第三，他們經由體驗母親烹製或從原生國帶來的原鄉食物來更佳認

識母親原鄉文化。

一、日常實踐中的文化交融

這項研究的結果顯示，大多數參與的新住民家庭並沒有在客廳展示許多母親原生國文化影像或物品，然而，幾乎所有參與的母親都留存有家庭照片、自己年輕時在原生國的生活照片及孩子成長影像或帶孩子回訪原生國的照片。從影像資料可以看到，這些新住民家庭裡都會有一些從母親原生國家帶回臺灣的物件、器具或食材，有些物件或器具還保存的很好，有些則到現在也還會使用，並且這些家中仍存有母親原生國相關器具的青少年們還會向母親學習使用方式，這也說明了新住民青少年家中日常視覺文化對於青少年們在學習與瞭解雙邊文化的關聯性。

這些家庭相冊、生活中使用的母親原生國帶來的廚具、傳統服飾、樂器、玩具和紀念品，不僅成為新住民媽媽們緩解思鄉之情的重要物品，也成為她們在臺灣出生的孩子與原生國文化聯繫起來的珍品，猶如社會文化學者 (Clarke, 2001; Edensor, 2002; Grauer, 2003; Hecht, 2001; Miller, 2001) 所強調的家中物質文化深刻影響家庭成員的文化認同發展。這些新住民青少年透過日常在家接觸雙邊文化的經歷，瞭解了母親的原鄉文化特徵，雖然他們不將母親的原鄉文化視為日常生活的重要組成部分，但當他們談論與母親文化相關物件或影像時，顯現了他們的跨文化體驗與認識。住三的馬來西亞裔母親帶著他玩兩人對弈的 Mancala 手工木製魚型播棋遊戲 (圖 1)，並一起開發了簡易版的 Mancala，住三透過與母親一起玩馬來西亞的傳統播棋遊戲並共同設計出適合攜帶的東南亞播棋遊戲 (圖 2) 而更瞭解母親原生國文化並建立緊密連結。

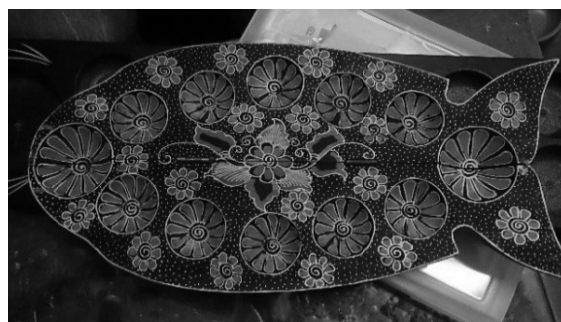


圖 1. 馬來西亞裔母親帶著住三玩家鄉的 Mancala 手工木製魚型播棋遊戲

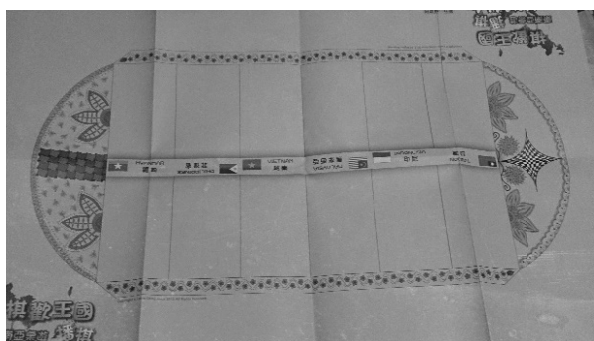


圖 2. 住三與母親共同設計出適合攜帶的東南亞播棋遊戲

民四也會與印尼裔母親玩印尼桌遊 Congklak（圖 3），與住三馬來西亞裔母親帶著他玩的 Mancala 類似，而 Congklak 是民四所選取拍攝的珍愛物件之一，他表示母親教他玩，他很快就學會並經常是獲勝者，他也曾與母親一起到學校介紹給其他學童玩，民四認為 Congklak 是他擅長且珍愛的印尼文化。



圖 3. Congklak 播棋是民四所選取拍攝的第一個珍愛物件

住二的泰國裔母親所拍攝最珍愛物件中，有一張年輕時在泰國短期出家剃髮穿白色服裝受齋戒的照片，她指出在泰國有短期出家的文化，另因她喜歡唱歌，她也將參加新住民歌唱比賽所獲獎杯與獎狀納入最珍愛物件中，或許因她平時喜歡在家運用伴唱機唱歌，住二也因此會自行關注泰國知名流行歌手，從他開啓電腦中一個集結了母親所收集泰國歌曲資料夾並分享一位他喜歡的泰國流行歌手音樂影片可看出（圖 4）。

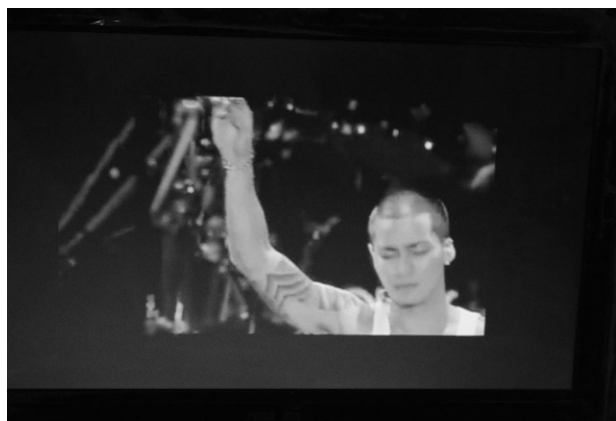


圖 4. 住二分享他喜歡的一位泰國流行歌手影像

這項研究的一項結果顯示，多數新住民家庭的母親最初否認家中的視覺物品對其孩子的文化理解和文化認同的發展有任何影響。然而，這些新住民青少年的母親在述說了他們所珍視的家居用品的相關故事或事件後，意識到他們下意識地或本能地將特定的原生國視覺文化帶入了家中，或者在家裡使用了特定的族群物品，這些物品或影像成為孩子

們區分東南亞文化與主流文化、識別更多母親原生國文化特徵的直接來源。一如人類學者們 (Clarke, 2001; Miller, 2001; Pink, 2004) 所提出的，從生活空間中日常物質文化的實踐經驗，能呈顯與掌握特定文化意涵、美感經驗與傳統。一些參與的母親起初認為，學習母親原生國語言和參與多元族群活動有助於孩子了解東南亞文化，這些母親們最初忽略了學習語言和參與多元族群活動涉及學習語言和文化習俗所必需的各種文化物件，此則呼應了社會學界 (Bourdieu, 1990; Emmison & Smith, 2000; Halle, 1993) 所說的私人生活空間之物質文化影響文化認同形塑與發展，這些母親在參與研究過程中出人意料地意識到，她們日常生活中的各種視覺文化一方面維繫了原鄉族群文化，另一方面亦藉此讓孩子們產生文化聯繫。

二、原鄉回訪為重要的文化學習

儘管三分之一的參與家庭屬於經濟弱勢，但幾乎每個新住民母親及其孩子都有機會回訪母親的東南亞原生國，其中有幾位青少年會定期回訪母親故鄉並旅遊，這些在母親原鄉的生活與旅遊經驗，都助益於新住民青少年對母親原生文化的體認與瞭解，新住民青少年也因回訪母親原鄉的經歷而帶回了他們對母親原生國回訪的回憶，除了留存他們旅行的照片外，旅行中帶回的一些紀念物品也成為了令人難忘的在地文化印記，例如民三的印尼裔母親所拍攝珍愛物件中包括了從印尼帶回的一台縮小的流動麵攤及一部電動三輪車模型玩具 (圖 5)，她提及民三每次回訪外婆家皆會與親戚小孩簇擁流動麵攤買麵吃，另外，與母親一起搭電動三輪車的經驗也讓民三印象深刻。住一還記得他最喜歡的刨冰加奶油凍和咖啡，這是他在暑假拜訪母親原鄉時外婆買給他的。熱愛數位產品與電腦遊戲的新四表示在與他的母親和妹妹一起返回緬甸時，印象最深刻的是緬甸的豌豆粉，至今回想起來仍覺得美味好吃。在學習印尼傳統舞蹈的過程中，民一觀察到印尼女孩在出生時就打了耳洞，當她回到她母親的家鄉時，她也被帶去打了耳洞，民一母親所拍攝記錄珍愛物件中，有一件是幫民一從印尼帶回的一整套扮家家酒的精巧玩具 (圖 6)，其中還包含了印尼家庭日用調味料、餐飲、零嘴等，母親說這是民一小時候最愛的玩具。這些新住民青少年透過偶爾回到母親的原生國與原鄉親戚一起生活，從旅行中帶回文化體驗的記憶與一些紀念物品來留存旅行的印記，並由此對母親原生國的本土文化有了更多的認識與體驗。



圖 5. 民三母親從印尼帶回一台流動麵攤及一部電動三輪車模型玩具



圖 6. 母親為民一從印尼帶回一整套富含在地飲食文化的扮家家酒玩具

三、飲食助於文化傳承

在這項研究中，幾乎每位新住民青少年都嚐過母親料理的家鄉食物，這些新住民媽媽帶回了越南咖啡豆、燕窩飲料、煉乳、糕點、泰國的美祿、泰式酸辣湯、各種印尼香料、印尼蝦餅、印尼發酵黃豆餅天貝、緬甸豌豆粉、馬來西亞餅乾和做飯用的蝶豆花等各種母親原鄉文化所熟悉的食物或香料。研究者去新一家時，她的母親為研究者泡了一杯從越南帶回的即溶咖啡，並表示她的臺灣岳父很喜歡越南咖啡。新二的母親所拍攝珍愛物件中，包含了她從印尼帶回的各式廚房常用香料及一盤以樹薯做好的料理，她甚至帶回了整套做甜點的鍋具（圖 7）。民四母親所拍攝記錄珍愛物件中，有一件是印尼磨研香料的石頭研磨器及一盤剛煎好的家庭零嘴黃豆餅（圖 8），民四並示範了他的母親如何使用石頭研磨器來製作印尼發酵黃豆餅，民四和他的哥哥都表示他們喜歡印尼菜的味道，並很樂意參與協助母親製作印尼料理。當研究者和研究助理訪問民一家時，她的母親特別為我們準備印尼風味的餅乾，儘管受訪青少年們不見得完全接受這些母親們帶回的家鄉食物或料理，但這些日常的飲食體驗與實踐也都成為對母親原生文化風貌的延續（康諾頓，2000），而它們也成為除了相片影像之外，撫慰母親們思鄉情懷的重要日常文化，這些家鄉食物或料理不僅成為這些新住民家庭維繫東南亞文化連結的一種手段，也緩解了這些新住民母親的思鄉之情並提供她們一種歸屬感。



圖 7. 新二的母親從印尼帶回各式香料及做甜點的鍋具



圖 8. 民四協助母親使用石頭研磨器來製作印尼家庭零嘴發酵黃豆餅

伍、結論

本研究結果顯示，這些新住民青少年的家中視覺文化具豐富而廣泛的臺灣／越南、臺灣／印尼、臺灣／緬甸、臺灣／泰國、臺灣／馬來西亞的文化特徵和審美實踐，這些臺灣／東南亞日常視覺文化是具體可運用的教學資源，可做為發展多元文化跨域美感教育的參酌依據。將家中視覺文化和學生的生活經驗融入藝術課程的設計中，將可以促進對多元文化習俗、美感、價值觀、傳統和信仰的認識與理解。文化認同的發展源於共同的文化經驗如傳統、價值觀和信仰等，這些元素主要表現在家居用品上，如同社會學界 (Bourdieu, 1990; Emmison & Smith, 2000; Halle, 1993) 與人類學界 (Clarke, 2001; Miller, 2001; Pink, 2004) 透過實地民族誌田野研究所強調的，從生活空間中日常物質文化的實踐經驗裡，往往可以掌握特定的文化意涵、信仰、品味、美感經驗與傳統，因此，這些存在於新住民青少年家庭生活空間中的視覺文化，做為青少年們發展個人文化認同的管道是非常重要的。

根據本研究結果，引導與包容每個學生在課堂上所創造的多元文化象徵氛圍，將可以更好地連接學生們在學校內和學校外的學習，學生們在非正式學習環境中的日常實踐可以影響他們在正式學習環境中的學習表現。從這個新住民青少年雙邊／多元文化學習的多重個案研究中，家中視覺文化在促進文化學習和東南亞文化傳承上發揮著至關重要的作用，這讓新住民青少年們能夠與母親的原生國文化建立聯繫。

根據上述結果及討論，本研究提出拓展連結學校內與學校外學習資源之藝術教育的重要，期能協助新住民子女對雙邊文化的學習與瞭解、提昇融入東南亞文化的跨域藝術課程開發，並促進培育具多元文化素養及國際競爭力。

一、拓展校內與校外資源連結之藝術教育

從本研究結果中，新住民家中富含各種形式的母親原生國文化，另也因資訊科技發達，處於社經條件弱勢的新住民父母仍盡可能提供與滿足其子女在數位產品的使用，從新住民家庭中收集整理出的多樣東南亞裔日常文化，不管是原生國所拍照片、回訪母親原鄉

的旅遊印記、或是母親從原生國帶回臺灣的食品、日常生活器具與物件等，都可讓新住民家庭參與研究者與研究人員更貼近東南亞文化的內涵，這些結合時間、空間與實踐要素的視覺文化，應該更有效轉化成藝術教育教師的教學材料，豐富的日常生活現場之活素材應可供各級教育現場工作者們妥善運用與融入既有跨域美感相關課程內容中，同時結合跨學科的課程整合讓活素材不至成爲片面單一的資訊，藝術教育教師們可發展出連結家中學習與學校學習以促使所學知識的靈活運用，並在藝術教育中融入這些新住民子女家中豐富母國文化素材，例如在藝術課程中發展系列「國際日」或多元文化日」等相關主題活動，讓學生有機會學習到各種形式的新住民家中母親原生國文化包括從母親原鄉所帶回的繪本、童玩、樂器、傳統服飾等，發展出可以連結新住民學生與一般學生學校內與學校體制外學習經驗的課程方案，一方面拓展學生視野，同時也讓新住民青少年展現家中雙邊文化，以協助培育其多元文化能力。

二、開發融入新住民文化的藝術教育

針對新住民子女的學習表現探討中，相關研究者指出新住民子女的學習問題主要來自於社會結構因素，而非完全來自於個人資質所致（許誌庭、姜添輝，2015；吳瓊洳、蔡明昌，2017），因應當前新住民子女入學率的佔比，加強師資的多元文化知能、促進學生的多元文化學習、及增加社區居民對新住民文化的認識與關注等，是當今教育的重要議題，因此藝術教育教師如具備新住民子女教學與輔導相關知能，定可藉由藝術課程設計來轉化此不利社經處境與家庭教養條件。藝術教師可在課程中發展東南亞文化相關主題的學習活動，彈性運用課堂時間或搭配學校活動安排規劃外籍新住民家長的母語及原生文化教學，讓東南亞裔新住民家長有機會進入班級，善用社區人力資源，提供課堂時間分享她們的固有文化，安排跨文化知識和藝術相關體驗活動，亦可從新住民家庭生活中，包括食、衣、住、行、育、樂各層面來開發出系列藝術活動方案，營造一個認同及尊重的學習環境，提供學生認識與學習多元文化，增加交流與接觸認識之機會，進而促使接納、包容與尊重。

家中日常視覺文化是文化認識與詮釋之所在，也是培養文化認同及文化學習的重要素材之一，藝術教育教師在開發跨領域美感課程時，應可規劃教育活動納入這些新住民日常生活場域中豐富多元文化，發展融入東南亞文化的跨領域課程。依據本研究結果，新住民青少年家中視覺文化具豐富雙邊文化素材，善用這些資源，鼓勵學校教育融入東南亞文化的跨域與跨文化內涵，提升多元文化的認識、交流、接納與欣賞。目前社會大眾對於新住民文化的態度仍趨負面，甚至視其母國文化爲低階文化而未能鼓勵新住民子女掌握其多元文化學習優勢，期許此研究所展現的多層次與多面向文化內涵，能促進含融東南亞文化的跨域藝術課程的開發與實踐，進而藉以落實文化層面的多元化及跨文化交流的社會功能。

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