Summerfest 2015
cum

Annual Presentation of B.Sc. (Speech & Hearing Sciences)
Fourth Year Dissertations

29th May 2015
Rayson Huang Theatre, Main Campus
University of Hong Kong

Co-organizers
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**Plenary 5 – Chair: Professor Brendan Weekes**
16:00 – 16:30 Analysis of neurogenic disordered discourse in Chinese<br>Dr Anthony Kong<br>University of Central Florida, USA
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### Annual presentation of B.Sc. (Speech & Hearing Sciences)
Final year dissertations: Oral presentation

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Abstracts

09:30 - 09:42
Logographeme Independence and Character Frequency Effect- a Behavioral and Event-Related Potential Study
Ko Sin

The logographeme has been suggested to be a functional sublexical processing unit in Chinese output processing during writing (Han, Zhang, Shu, & Bi, 2007; Law & Leung, 2000). The study investigates whether the logographeme is also represented during Chinese character recognition, and aims to establish its time course during the recognition process using both behavioral and event-related potential (ERP) measures. Characters were manipulated by logographeme independence (free-standing vs. non free-standing) and character frequency (high vs. low) and 34 typical adults were recruited to participate in a lexical decision task.

Electrophysiological results showed a significant P1 sensitivity to logographeme independence in which non free-standing logographemes elicited a greater positivity. No significant logographeme effects were found at the N170, P200 and N400 components. The study provides evidence that logographemes are processed at the early orthographic visual analysis stage and thus are functional units in Chinese character recognition. Based on theoretical models of Chinese character recognition, it is proposed that logographemes are represented between the level of strokes and radicals (Perfetti, Liu, & Tan, 2005; Taft, Zhu, & Peng, 1999).

09:42 – 09:54
Modulation of Musical Experience and Prosodic Complexity on Lexical Pitch Learning
Tang Yee Ching

Linguistic and non-linguistic factors, such as native language background and musical experience, were shown contributing to second language acquisition. The current study compares not only native tonal and non-tonal language participants, but also tonal languages with different prosodic complexities (high versus low), thus, examines the impact of prosodic complexity and musical experience on non-native tone identification and tone word learning. Native tonal language with higher (Cantonese) and lower (Mandarin) prosodic complexity, and non-tonal language (English) participants, with and without musical experience, attended non-native (Thai) tone word training. They also completed non-linguistic pitch perception, pre-training tone identification and tone word discrimination tasks. It is striking that the individual effects and interaction of prosodic complexity and musical experience vary across different contexts and stages of learning, whereby prosodic complexity effect was found to be the most consistent. Moreover, tone identification scores, but not pitch perception scores, were significantly correlated to tone word learning performance. The findings illustrated prosodic complexity and musical experience carry dynamic roles in influencing tone identification and different stages of tone word learning.

09:54 – 10:06
Sub-lexical phonological processing during Chinese characters reading among L1 and L2 Chinese readers using cross-modal homophone judgment
Wong Hoi Ching

This study studied the regularity effect during Chinese character reading among native first language Chinese readers (L1) and foreign second language Chinese learners (L2) using behavioral measures. Twenty local L1 proficient Chinese readers and eighteen L2 Chinese learners reading alphabetic script as their first language participated in the study. The L2 participants have reached a local Primary 2 Chinese reading proficiency. The participants completed a cross-modal homophone judgment task (HJ). They were asked to judge whether a prime syllable played via earphones matched with the pronunciation of a later visually displayed Chinese character. Manipulations were made in character regularity and the Match/Mismatch relationship between the prime syllable and character. Accuracy results demonstrated regularity effect in L2. Response latency results suggested regularity effect in both L1 and L2 participants. Most importantly, both group of participants judged the Irregular/Mismatch condition significantly slower than the Regular/Mismatch condition, and they judged the Irregular/Mismatch condition more slowly than the Irregular/Match condition. This could be explained in terms of the competition between the orthographic representations of the target character and that activated by the prime syllable. The results provided first time evidence of sub-lexical phonological processing in L1 proficient readers and L2 Chinese learners.
10:06 – 10:18
The Role of Prosodic Reading in Reading Comprehension among Cantonese-English Bilingual Children
Fung Shing Chun Leo

The study targeted to examining the role of prosodic reading in reading comprehension both within the same language and across two languages among Cantonese-English bilingual children. Spectrographic analysis of prosodic features, namely pitch pattern and pause structure, on targeted syntactically complex structures were carried out. We examined the relationship between prosodic features (pitch pattern and pause structure), word reading skills (text reading fluency and word reading efficiency) and reading comprehension. Our within-language analyzes showed that both pitch patterns and pause structures in Cantonese prosodic reading predicted Chinese reading comprehension whereas only pause structure in English prosodic reading predicted English reading comprehension. The cross-analyzes showed that only English prosodic reading predicted Chinese reading comprehension but not the vice versa. Moreover, pitch pattern, compared to pause structure, was more readily transferable in bilingual reading context. These findings provide new insights into the application of automaticity theory in bilingual context and demonstrate a significant link between reading prosody and reading comprehension in young Cantonese-English bilingual readers.

10:18 – 10:30
The role of semantic radical in meaning access during character recognition using a semantic categorization task
Wong Sai Yu Johnson

This study reports an investigation on the role of semantic radical in meaning access during character recognition. Previous studies believed that semantic transparency has an effect on radical processing and retrieval of meaning. A semantic category judgment task was conducted. Behavioral data of accuracy rate and response time were recorded and analyzed. Three-way factorial design was adopted to investigate the effect of two categories used – inanimate object and human action, response type and transparency. In the design, both transparent and opaque characters were included in both “yes” and “no” categorical judgment, creating four character types. Facilitation of transparent characters on categorical judgment was expected (i.e. Transparent characters would be recognized and responded faster than opaque characters). Moreover, imageability was taken into consideration, which was hypothesized that imageability effect may have explained the difference in terms accuracy and response time between transparent and opaque characters. The present findings suggested that no significant transparency effect was found when imageability was taken into account and controlled across conditions. Characters in the category of object were responded faster and more accurately than action.

10:30 – 10:42
From Pitch to Word: Perception and Learning of Novel Words with Lexical Tone and Lexical Stress in Cantonese-English Bilingual Children
Lee Man Kit

Word learning may not be as simple as it is seemed to be. It has been shown that word learning involving at least three dynamic cognitive processes: triggering, configuration and engagement. The three cognitive processes refer to different stages of learning. However, previous fast mapping and word learning studies mainly used picture naming and picture matching tasks as measures of learning performance, without considering any measures to differentiate learning into triggering, configuration and engagement. The current study aimed at investigating the three cognitive processes underlying word learning in both Cantonese and English in three groups of Cantonese-English bilingual preschoolers with different language dominance: Bilingual Cantonese Dominant, Balanced Bilingual and Bilingual English Dominant. The relationships between word learning and lexical pitch sensitivity were also examined. Our findings suggest that the three cognitive processes operate under different mechanisms and that within- and cross-language relationships are shown differentially in different cognitive processes. Based on the results from the current study, we propose a new theoretical bilingual word learning model.
Abstracts

11:00 – 11:12
Phonetic imitation and sound change: Evidence from individuals with high-functioning autism
Chuk Kai Him

Sound changes have long been an interest for historical linguists. Numerous studies have investigated the origin and the mechanism of the propagation of the phenomenon. Some recent studies suggested phonetic imitation, a process that converges the phonetic or acoustic features of interlocutors, as a contributor to the propagation of sound changes. Individuals with autism spectrum conditions were shown in some recent studies to be more prone to demonstrate stronger phonetic imitation and more sound variants. The current study investigated the differences between the phonetic imitation tendencies and occurrences of sound changes between ASD individuals and their neurotypical counterparts and the correlation between autism spectrum quotient, phonetic imitation and the likelihood of having sound changes. The ASD group showed significantly higher tendency in phonetic imitation and more phonetic variants. Yet, no significant association between AQ, phonetic imitation and sound changes was shown in the current study. Possible reasons for the lack of predicted associations between the factors may be the specificity of the phonetic imitation and the possible discrepancy between the manner of the change in VOT and the sound changes in Hong Kong Cantonese.

11:12 – 11:24
A reliability study of a clinical evaluation and Coordinate Mapping protocol for Videofluoroscopic Swallowing Study analysis by inexperienced judges
Cheng Pui Pui Joanna

Videofluoroscopic Swallowing Study (VFSS) has been widely used in clinical settings for evaluating swallowing dysfunctions. Past studies that investigated clinicians’VFSS interpretations reported varying reliabilities. The analysis of VFSS required subjective judgments that might be affected by the clinical knowledge and experience of the clinicians. It was suggested that additional clinician trainings could improve the reliability of VFSS judgments. In 2014, Thompson and colleagues reported excellent reliabilities in using the quantitative Coordinate Mapping protocol for VFSS analysis (Thompson et al., 2014). This study aimed at investigating the effect of training on improving the intra- and inter-rater reliabilities of VFSS analysis; and comparing the intra- and inter-rater reliabilities of a Clinical Evaluation (CE) protocol and a Coordinate Mapping (CM) protocol for analyzing VFSS. Forty inexperienced judges received training to perform VFSS judgments using either evaluation protocol. Results revealed that training significantly improved the intra- and inter-rater reliabilities of both protocols. In addition, the CE group achieved significantly higher intra- and inter-rater reliabilities in one out of three rating parameters than the CM group after training. It was recommended that resources could be allocated in providing clinician trainings and promoting the CM protocol, in order to improve the reliabilities of current subjective evaluation protocols for VFSS.

11:24 – 11:36
Dose-effect relationships between swallowing structures and long-term dysphagia in post intensity-modulated radiotherapy nasopharyngeal cancer survivors: A case-series
Ng Ka Wai, Karen

This study was a case series for dose-effect relationships between dysphagia/aspiration-related structures (DARS) and chronic dysphagia in post intensity-modulated radiotherapy (IMRT) of nasopharyngeal cancer (NPC) survivors. Three participants were recruited for analysis. The four DARS identified were glottis and supraglottic larynx (GSL), parotid glands, anterior oral cavity and tongue base. The swallowing outcome measurements used were Functional Oral Intake Scale, patient self-reported dysphagia-specific questionnaires, M. D. Anderson Dysphagia Inventory and Head-and-Neck cancer Survivors Assessment of Mealtimes, instrumental Fiberoptic Endoscopic Evaluation of Swallowing Examination and clinician-directed bedside swallowing examination. The results support present literatures of the head and neck cancer survivors, and suggestive that higher dose to the DARS would induce higher risk of chronic dysphagia in NPC survivors.
Validation of the Cantonese version of the Speech, Spatial, and Qualities of Hearing Scale (SSQ) in Cantonese-Speaking Adults with and without Hearing Impairment
Lee Yan Kee Alice

Given the complexity of real-life listening situations in Hong Kong, this study adopts the Cantonese version of the Speech, Spatial and Qualities of Hearing Scale (the Cantonese SSQ) in evaluating the self-reported daily listening abilities among Cantonese-speaking adults. The questionnaire was administered to 170 normal-hearing adults and 50 hearing-impaired adults. Preliminary analysis on the construct validity, internal consistency reliability and the discriminant validity of the Cantonese SSQ were conducted. The Cantonese SSQ responses were analyzed and compared to those obtained from overseas. Results revealed that the overall internal consistency reliability was very good while discriminant validity was suggested as reduced audibility was related to greater hearing disabilities. Future re-analysis of the construct validity is warranted with a larger sample size. This study also showed that hearing-impaired listeners reported significantly greater hearing disabilities than normal-hearing listeners. Hearing-impaired listeners in this study also reported greater hearing disabilities than those studied in overseas. It is hoped that the present result would guide future refinement of the Cantonese SSQ which could be a valuable clinical tool in addressing hearing disabilities in daily situations that are not sufficiently revealed from clinical audiometric tests.

Oral Bacteria and Dental Hygiene in Individuals with Dysphonia
Tai Lok Kan

The association of oral bacteria with various kinds of systemic diseases has been well studied, especially for pneumonia. With a close physical proximity between lung and vocal folds, a possibility of bacterial involvement in development of vocal fold lesion among dysphonic patients is proposed. Along with past research that supported a linkage between poorer oral hygiene and less satisfactory glottal efficiency, this study aimed to be the first paper in investigating the discrepancy in oral bacterial composition, dental hygiene condition and habit across dysphonic and vocally healthy subjects. *Actinomyces naeslundii* , a kind of common oral pathogenic bacteria known to associate with periodontitis and some cases of vocal fold actinomycosis, was chosen to be the target of analysis in this current study. The results shown that the bacterial count of *A. naeslundii* was significantly higher in the dysphonic group, along with a poorer periodontal condition and lesser number of people engaged in the habit of using dental floss. Indications of these factors are discussed.

A Preliminary Study of the Effects of Lexical Tone and Aspiration on Articulatory Contact Pressure Associated with Cantonese Plosives
Ng Chak Ming Jeffrey

The current study investigated the relationship between Cantonese plosives and articulatory contact pressure. In particular, how lexical tone and aspiration may affect articulatory contact pressure in plosive production was examined. CV syllables formed by the unaspirated and aspirated bilabial and alveolar stops followed by the vowel /a/ produced at the six different Cantonese tones were obtained from thirty adult native Cantonese speakers. During the experiment, bilabial and alveolar contact pressure values were measured by using a pressure measuring system. Data revealed that both bilabial and alveolar contact pressures were significantly higher in unaspirated bilabial plosives. These findings are in line with the previous studies based on English voiced and voiceless bilabial stops. Yet, mean alveolar contact pressure was significantly higher for syllables of higher tone (Tones 1 - 3), but lower for syllables of lower tone (Tones 4 -6).
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Plenary 3 – Poster Session I (12:15 – 13:20)

Abstracts

01
Chinese children with cleft lip/palate: Factors associated with hearing disorders
Li Yue Wing

The aim of this study was to examine the hearing status of Chinese children with nonsyndromic cleft lip/palate (NSCL/P) by investigating factors associated with hearing loss and comparing results with earlier studies in Western countries. The case history profiles and audiological data of 148 Chinese children with NSCL/P who attended the Cleft Lip and Palate Clinic Center in Beijing Stomatology Hospital from July 2012 to September 2013 were reviewed. The audiological status of the participants was analyzed based on their examination results for pure tone audiometry, tympanometry and acoustic reflex thresholds. Factors including age, gender, cleft type, residential locality and school achievements were examined in relation to hearing health status. The results revealed that 17% of participants had current hearing impairment. Age, gender, residential locality and school achievements were found to have no relationship with the type and severity of hearing loss. Cleft type was found not to be related to type of hearing loss. However, children with cleft lip showed a significantly lower severity of hearing impairment than the cleft palate or cleft lip and palate groups. Racial factors were considered to be a major contributing factor accounting for the discrepancies between the current results and Western studies.

03
Examining the Production of Cantonese Passive Construction Using Sentence Recall
Leung Kit Yu

In this study, the production of Cantonese passive construction was examined by sentence recall. Forty-eight children in three groups, aged 3;6 to 3;11, 4;0 to 4;5 and 4;6-4;11, recalled 33 sentences including the active construction and four different types of passive constructions. The result showed that children developed knowledge of the production of the active construction first, followed by the indirect passive and the direct passive – actional verb, then the direct passive – nonactional verb. The most difficult one was the complex passive. Children aged 4;6 were almost proficient to produce all the above types of passive constructions except for the complex passive. For all types of constructions across age group, the children had the most problem with thematic roles. Implications of these findings were discussed.

05
Investigating bei2 constructions in Cantonese-speaking children using sentence recall
Wong Wai Ling

The study investigated the development of bei2 constructions in Cantonese-speaking children. Fifty-eight children (27 boys and 31 girls) ranging from 2;05 to 4;02 (year; month) were recruited from four kindergartens. They were in three groups: the youngest (2;05-2;11), the middle (3;0-3;07) and the oldest group (3;08-4;02). They participated in a sentence recall task involving three types of bei2 constructions, namely the permissive, the dative and the passive. Generally speaking, older children performed better than younger children in the different bei2 constructions. Besides, children were the least accurate in the production of the passive construction while their performance in the permissive and the dative was similar. Diverse error patterns were observed in different age groups and construction types. Most children in the youngest and the middle group simplified the syntactic structures. In the oldest group, this error type became less frequent but they were not able to make a distinction between the lexical and the grammatical function of the bei2 form. Comparing across construction types, simplification of structures was the major error in the permissive and the dative construction. In the passive construction, errors in the aspect marker were frequently observed, suggesting difficulty in understanding the grammatical function of bei2 as an agent marker.
07 Intonation and Sentence-final Particles in Narrative Production in Cantonese-speaking Adults with High-functioning Autism
Chan Ka Ling

This study compared the intonation pattern and the use of sentence-final particles (SFPs) in narratives produced by Cantonese-speaking adults with and without high-functioning autism (HFA). Nineteen adults with HFA (18;11-33;5) were matched with 19 neurotypical (NT) peers on age, sex, and educational level. Participants retold a story and the narrative samples were transcribed verbatim and analyzed acoustically. For the intonation, the HFA group demonstrated significantly increased fundamental frequency (F0) variation in terms of standard deviation (SD) of F0. For the use of SFPs, both groups showed similar SFPs token but the HFA group produced significantly fewer types of SFPs. The HFA group showed a moderate correlation between intonation and the average types of SFPs produced while such a relationship was absent in the NT group. The present study supported that atypical intonation pattern in Autism Spectrum Disorder (ASD) is a universal feature as it also presented in a tone language where the role of intonation is less salient. Group differences in use of SFPs also highlighted that certain symptoms of ASD can be culturally and linguistically specific.

09 Trilingual Language Experience and Executive Functions: A within-group analysis
Lin Kwan Ling

Speaking two or more languages has been shown to engage executive functions (Bialystok & Feng, 2009; Colzato, Bajo, DenWildenberg, & Paolieri, 2008; Jurado & Rosselli, 2007; Soveri, Rodriguez-Fornells, & Laine, 2011). As a consequence of this daily practice, bilingual speakers often out-perform their monolingual peers on tasks of executive functions (Bialystok & Feng, 2009; Costa, Hernandez, Costa-Faidella, & Sebastian-Galles, 2009; Costa, Hernandez, & Sebastian-Galles, 2008; Soveri et al., 2011). The current study explored how language experiences predict performance on executive function tasks in trilingual adults in Hong Kong. Seventy-two right-handed young adults participated in the study. Their native language was Cantonese. They learned their second language (L2), English, and third language (L3), Mandarin, before the age of seven. They completed two computerized tasks that tap the executive functions of inhibition and shifting using modified versions of the Attention Network Task (ANT) and Wisconsin Card Sorting Test (WCST), respectively. Questionnaires were used to elicit information about their language background and language switching experience. This information was used as the predicting variables in statistical analysis. A series of multiple regression analysis were carried out to identify to what degree background factors and switching factors predicted performance on the ANT and WCST. Overall, the results show that the models did not statistically predict performance on the executive function tasks, which may be due to little variance in the predicting variables.

11 A vocal hygiene program for school-age children and parents in Hong Kong
Wong Chak Yuen Billy

This study investigated the effectiveness of a vocal hygiene program for school-age children and parents in Hong Kong. A total of seventy-three parents and thirty-seven children participated in the study. Fifty-six parents attended a seminar on vocal hygiene and twenty children participated in four half-hour sessions about vocal hygiene on a weekly basis. The control group consisted of seventeen parents and their children. Parents' perception on voice use knowledge, attitude and practice, children's voice use knowledge and voice quality were evaluated. Analysis of results revealed significant improvement in children's voice use knowledge, significant decrease in the acoustic parameter: jitter (RAP) and shimmer (APQ) in Experimental group. Similar results were found in the Control group that there were significant improvement in knowledge score and significant decrease in noise-to-harmonic ratio. However, parents in the Experimental group showed similar performance to the Control group after attending the talk in their knowledge, attitude and practice toward voice care. The results suggest that school-age children may improve their knowledge of vocal hygiene by receiving informative leaflets instead of interactive workshops. Also, one single seminar may not be sufficient to change parents' knowledge, attitude and practice toward voice care. More sessions including sharing sessions or discussion can be provided to parents.
13 Development of the Voice Risk Calculator
Luk Wing Yin

Reducing or eliminating risk factors associated with a disease is an important concept in disease prevention (World Health Organization, 2002). The present study developed and validated a 16-item questionnaire that assesses the risks associated with the development of phonotraumatic voice problem. The questionnaire has 3 subscales which covered (1) vocal health, (2) behaviours related to increasing voice risks, and (3) psycho-emotional status. The questionnaire provided an aggregated score that reflected the total degree of risk out of a total score of 64. This questionnaire is called the Voice Risk Calculator (VRC). Seventy-seven Chinese-speaking subjects (42 dysphonic and 35 non-dysphonic subjects) participated in this study. Good test-retest reliability ($r_s = .97, p < .0001$) and internal consistency ($\alpha = .88$) were found. The concurrent validity of the VRC was supported by its moderate correlations ($r_s = .62, p < .0001$) with the Voice Handicap Index (VHI-10). A cut off score of 20 was found which differentiated between subjects with phonotraumatic voice disorders ($\geq 20$) and non-dysphonic subjects ($< 20$). The sensitivity of the VRC was 76% with specificity 63%. The VRC has satisfactory reliability and validity that would serve as a useful clinical instrument for assessing risks related to the development of phonotraumatic voice problem.

15 Psychometric Validation of a Swallowing Related Quality of Life Questionnaire for Head and Neck Cancer Survivor: Head-and-Neck Survivor Assessment of Mealtimes
Siu Yeuk Lung

This is a cross-sectional survey study which validated a swallowing-related quality of life (QOL) self-administered questionnaire Head-and-Neck cancer Survivor Assessment of Mealtimes (HNSAM). The purpose of HNSAM, based on the International Classification of Functioning, Disability and Health (ICF) framework, was to assess the impacts of swallowing difficulties on the QOL of head-and-neck cancer (HNC) survivors. Seventy-five HNC survivors were recruited to complete HNSAM. HNSAM and M. D. Anderson Dysphagia Inventory independently. Functional Oral Intake Scale was used to assess participants’ swallowing impairment severity. HNSAM sections were demonstrated to have strong internal consistency and test-retest reliability. Good content, criterion, construct and clinical validity were also established. The validation of HNSAM offers a new means for demonstrating treatment outcome and allows for broader understanding of the impacts of swallowing related QOL in HNC survivors.

17 From Oral Vocabulary to Text Reading Comprehension: The Role of Working Memory
Ng Sze Ki Kathleen

The present study attempted to examine the role of WM in oral vocabulary and text reading comprehension in Cantonese-English bilingual children. A group of 64 Chinese-English bilingual grade 2 children was assessed on measures of working memory (Chinese competing language processing task and operation span), Cantonese and English oral vocabulary (receptive vocabulary breadth, expressive vocabulary breadth, vocabulary depth), and Chinese and English text reading comprehension. Using structural equation modeling analyses, we found that working memory significantly contributed to oral vocabulary and text reading comprehension in both Chinese and English while taking into working memory. Oral vocabulary predicted unique significant variance of text reading comprehension in both Chinese and English while taking into account of working memory. More importantly, the contribution of working memory to reading comprehension is partially mediated by oral vocabulary in both Chinese and English. In addition, there was a transfer of Cantonese oral vocabulary to English text reading comprehension, and such transfer was fully mediated by the English oral vocabulary. Together, these findings extended the theory of simple view of reading and lexical-quality hypothesis in Cantonese-English bilinguals.
19
Logographeme and Radical Effects in Reading Chinese Pseudo-characters: An Event-Related Potential Study
Liu Pik Kei

Evidence from writing errors patterns of Chinese dysgraphic patients has advocated for the existence of the logographeme, a representational unit lying between the stroke and radical level in character processing (e.g. Law & Leung, 2000). To investigate whether logographemes qualitatively differ from radical representations, this study simultaneously examined radical independence (independent vs non-independent) and logographeme independence (independent vs non-independent) during pseudo character recognition in a lexical decision task with thirty six native Cantonese participants. A radical or a logographeme is defined as independent if it is an existing real character. Behavioral data revealed strong radical and logographeme independence effects, in which non-independent radicals or independent logographemes yielded higher accuracy and shorter latency than independent radicals or non-independent logographemes. In event-related potential (ERP) results, smaller right hemisphere positivity at the P100 and greater negativity at the N170 components were found for independent radicals, whereas greater right hemisphere negativity at the N170 component was identified for non-independent logographemes. No effects were observed at the later P200 or N400 components. The findings suggest that logographeme representational units are extracted during lexical processing, and that radicals impact on pseudo character recognition at an earlier stage of visual-orthographic processing than logographeme independence.

21
An ERP study of neural representation of visual processing of Chinese characters among L1 and L2 Chinese readers using a repetition detection task
Lee Cheuk Fung

This study examined the visual-orthographic processing (lexicality effect, radical position effect and radical legality effect) of first language Chinese readers (L1 readers, aged from 19-23) and second language Chinese readers (L2 readers, aged from 15-21) by using event-related potential (ERP). Eighteen L1 readers and eighteen L2 readers were recruited. The Chinese reading proficiency of L2 readers were all around/above Primary 2 level. ERPs results revealed that in both of the participant groups, lexicality effect and radical position effect occurred in P100 component, but not in N170 and P200 component. Besides, left lateralization in P100 component was also shown. No radical legality effect was shown in any of the components. The lexicality and radical position effect found in L2 readers contributed to the development of pedagogy in Chinese learning.

23
Clinicians’ Involvement in Evidence-Based Practice (EBP): A Survey Of Hong Kong Speech Therapists and Audiologists
Chan Wai Ching

Evidence based-practice (EBP) summarises what we know and what we do not know during decision-making of intervention. It promotes the integration of research evidence, clinician’s expertise and client’s preferences during decision-marking. Currently, little is known about local speech pathologists’ and audiologists’ attitudes to EBP, their confidence and understanding in implementing EBP and perceived barriers in Hong Kong. Method: A questionnaire asking information regarding these issues was sent by Hong Kong Association of Speech Therapists (HKAST) and Hong Kong Society of Audiology (HKSA) to their current members. Results: The questionnaire was completed by 104 participants. Speech pathologists and audiologists were positive about EBP with a majority of them believing that EBP could improve their clinical practice (71.1%) and intended to read relevant literature to update knowledge (75%). Most of the participants were confident in applying information to individual cases (82.7%). Lack of time, evidence and access to research literature were perceived as the major barriers to adoption of EBP. Conclusion: Speech pathologists and audiologists stated that they had a positive attitude about EBP and were planned to read more literature so as to achieve EBP implementation.
25 Cantonese tone perception in noise in young and aged healthy adults  
Cheung Man Shan, Sonia  
Listening in noise is a common difficulty in elderly. This study aimed to compare the performance of young and aged adults with normal-hearing in Cantonese lexical tone perception in quiet and in noise. Two-male-talker babble, two-female-talker babble, speech-shaped noise and ten-talker babble were adopted to investigate the relative effect of energetic and informational masking. The effect of noise level was investigated by presenting the stimuli at signal-to-noise ratios of 0dB and -6dB. Twenty young and 20 aged adults who were healthy and native Cantonese speakers repeated the monosyllabic words they heard in different conditions. The experimenter rated the tones the listeners produced. Results showed that (1) two groups performed similarly in quiet but aged adults experienced greater difficulties in noise (2) both groups experienced similar difficulties when noise level increased (3) tone perception in noise with substantial amount of energetic and small amount of informational masking was more challenging than in noise with pure energetic masking, and that in large amount of informational masking was the least challenging (4) the masking effect of speech-shaped noise and ten-talker babble would be more prominent with increased noise level. This study also provided indications for further study by increasing noise levels.

27 Acoustic cues on Cantonese tone perception in quiet and in noise  
Cheng Sheung Ting  
The present study systematically investigate the effect of the three temporal cues, including the amplitude contour cue, the periodicity cue, and the temporal fine structure cue, on Cantonese tone perception with different number of frequency bands in quiet and in different types of noise. Synthesized stimuli with all possible combinations of these three cues were presented for identification to twenty young normal-hearing listeners, all native speakers of Cantonese. Results showed that listeners had more difficulty in identifying tone height than tone shape in the original stimuli, particularly in noise condition. Masking effect in two-talker babble is also found to be greater than that in speech-shaped noise. The results of our study also suggested the strength and weakness of each temporal cue for Cantonese tone perception. Temporal fine structure cue is the best cue among the three but its superiority deteriorated with increasing number of bands. Neither periodicity cue nor amplitude contour cue is an effective cue due to their low accuracy rates and high susceptibility to noise. Yet they are better than TFS for the perception of falling tones in quiet. Hence characteristics of cues should also be taken in consideration when designing cochlear implant processing strategies for Cantonese-speaking users.

29 Segmental Contribution to the Intelligibility of Ideal Binary-masked Mandarin Sentences  
Kwok Alexander Siu Tai  
Many studies have shown the advantage of using ideal binary mask (IdBM) to improve the intelligibility of speech masked by interfering voices. Considering the fact that vowel segment contains many important acoustic cues for sentence intelligibility, the present work further investigated the segmental contribution to the intelligibility of the IdBM-processed sentences. Three types (i.e., vowel-only, consonant-only, and vowel-consonant transition) of Mandarin IdBM-processed stimuli were generated by using a noise-replacement paradigm to preserve the selected segments and replace the rest with noise. Normal-hearing subjects participated in listening experiments to recognize the IdBM-processed sentences. Experiment results showed that the recognition score of the vowel-only IdBM-processed sentences was significantly higher than that of the consonant-only IdBM-processed sentences. Vowel centers contained rich intelligibility information. While consonants and vowel-onset carried little intelligibility information, adding a small proportion of vowel-consonant transition significantly improved the recognition score of the consonant-only and vowel-onset IdBM-processed sentences.
# Annual presentation of B.Sc. (Speech & Hearing Sciences)
## Fourth-year dissertations: Poster presentations

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Plenary 3 – Poster Session II (13:20 – 14:25)

Abstracts

02
Utility of wideband tympanometry in a paediatric outpatient clinic
Hui Man Chun

Conventional tympanometry (CT) testing at 226 Hz is widely used for diagnostic assessments of middle ear disorders in clinical settings. However, the use of wideband tympanometry (WT) is advocated by many researchers, especially for paediatric population, because it tests from 250 Hz to 8000 Hz, which takes high frequency ear acoustics into account. This study aimed at comparing the tympanometric results of CT and WT to determine whether WT will help provide significantly different diagnoses. In addition, the results of CT and WT were compared with clinical diagnoses based on cases histories, pneumatic otoscopy and transient-evoked otoacoustic emissions. In this study, 43 participants were recruited, who were referrals from a paediatric otorhinolaryngology department to the audiology clinic in a large Chinese children's hospital. Based on the statistical results, there were significant differences in the findings based on CT and WT procedures and the percentages of correct diagnoses were higher for WT in the participants who had otitis media with effusion with or without cleft lip and/or palate. In conclusion, this study confirms that WT can provide additional information to make more accurate diagnoses of the middle ear conditions in paediatric population, especially children with otitis media with effusion.

04
Investigating the development of relative clauses in Cantonese school-aged children using sentence recall
Tam Ka Wing, Erica

The study investigated the acquisition of Cantonese-Chinese relative clauses (i.e. subject, agent, patient, indirect object, oblique and genitive relatives) in school-age children as an extension of a previous preschool study (Lau, 2006). The presence of a subject- or an object-gap advantage for the acquisition was also investigated. Thirty-two children from two age groups (i.e. 6;00 – 7;00 and 8;00 – 9;01) were recruited from three different settings. They were required to do a digit span task and a sentence recall task. Recall accuracy, measured in terms of the Levenshtein Distance score, was compared between the two age groups and their error patterns were also analyzed. The results showed a trend of development across the two age groups and across the six types of relative clauses. The elder group significantly outperformed the younger group in the agent, the indirect object and the genitive relatives. A subject- or object-gap advantage could not be universally applied to the three pairs of relative clauses compared in this study, but the subject-gap advantage was found in two out of three pairs of comparisons (i.e. agent versus patient relatives and the SS and SO types of oblique relatives). The distribution of error patterns echoed with the quantitative findings.

06
Effects of prior discourse on argument realizations in Cantonese-speaking preschool children
Chow Hiu Yan

This study investigated the effect of prior discourse on the choice of referential expressions in Cantonese-speaking preschool children. Participants consisted of 68 Cantonese-speaking children aged 2;6 to 4;11. Twenty adults were recruited as the control group. The experimental design was adopted from the research of Matthew et al. (2006). Child participants were asked to comment on videos with characters performing transitive and intransitive actions. The listener could not see the videos. Referents were prior mentioned in the noun-given condition but not in the null-noun condition. Mean proportion of different response types was calculated. Children aged 3;6 and older used significantly more full nouns and fewer argument omissions in the null-noun condition than in the noun-given condition. The discrepancy increased with age. This differential use of referential expressions reveals child’s early sensitivity to discourse and understanding of discourse effects on referencing. This implies that children are able to learn verb argument structure from parental input in pro-drop languages, like Cantonese, with frequent argument omissions, as they are able to recognize the implicit presence of arguments in discourse omitted for reason of accessibility. No significant effect of sentence construction was found. Further research is warranted to investigate its effect on referential choice.
Cross-linguistic transfer: Intervention on syllable structure in four multilingual children with speech sound disorders
Ho Lok Yin Sabrina

This study investigated cross-linguistic transfer in the treatment on syllable structure in four Cantonese dominant multilingual children who also learn English as a second language. All children showed evident phonological patterns in syllable structure including final consonant deletion and diphthong reduction in Cantonese. Minimal pair contrast therapy was undertaken using minimal pairs from English to target final consonants in English. After five to six sessions of therapy, two children showed significant improvement in percentage of final consonants correct (PFCC) in Cantonese, indicating cross-linguistic transfer of phonological knowledge about final consonants. Of these two children who showed transfer after treatment, only one could maintain transfer effect one month after suspension of treatment. In conclusion, cross-linguistic transfer occurred in some children with speech sound disorders under treatment condition. Clinical implications of this study for treatment on speech sound disorders in multilingual children were discussed.

Effect of speech rate on lip aperture, tongue tip and tongue dorsum kinematics during production of Cantonese plosives
Chan Tin Long Terrence

Abstract
The present study investigated the effect of speech rate on kinematics of lip aperture, tongue tip and tongue dorsum by examining the direct kinematic data of Cantonese plosives produced at different speech rate. Aspirated and unaspirated bilabial, alveolar and velar plosives (/pʰ/, /p/, /t/, /tʰ/, /k/ and /kʰ/) were produced at three speech rates (one syllable per second, three syllables per second and as fast as possible) by ten male and ten female native adult speakers of Cantonese. By using electromagnetic articulography (EMA), movements of the upper lip, lower lip, tongue tip and tongue dorsum were measured. The kinematic data revealed that faster speech rate was associated with shorter release displacement of articulators. This finding was in line with results previously reported on English. Besides, speech rate was also found associated with increase of articulator velocity in different degree among different plosives. In addition, interaction between aspiration and speech rate was revealed. The results shown that aspiration interacted with speech rate differently for different plosives. Further investigations in kinematics and aerodynamics on the effect of aspiration are suggested in order to draw a more concrete conclusion for aspiration effect.

Cross-cultural adaptation and validation of the Putonghua version of the Voice Activity and Participation Profile
Yip Chu Ho

The present study aimed at translating the Voice Activity and Participation Profile (VAPP) into Putonghua with evaluation of the validity and reliability so as to provide an alternative instrument to quantify the influence on the quality of life by dysphonia in Putonghua-speaking Chinese. Seventy-seven subjects were recruited from the Beijing Tong Ren Hospital, affiliated with the Capital Medical University. Among the subjects recruited, 45 subjects, who were diagnosed with various types of vocal pathologies, were assigned to the dysphonic group and the remaining 32 subjects were assigned to the non-dysphonic group. The results suggested that the Putonghua version of the VAPP contained items which were able to measure the impact on the quality of life by dysphonia in dysphonic subjects and the scores were found to have high correlation with the scores in the Putonghua version of the Voice Handicap Index-10. Also, the Putonghua version of the VAPP had high test-retest reliability and internal consistency. Therefore the Putonghua version of the VAPP would be a valid and reliability instrument in quantifying the impact on the quality of life by dysphonia in the Putonghua-speaking Chinese.
14
The relationship between Traditional Chinese Medicine Body Constitution and dysphonia
Ng Pui Shun Grace

Abstract

The study investigated the relationship between Traditional Chinese Medicine Body Constitution and dysphonia. Non-dysphonic and dysphonic subjects were recruited from voice clinics of the University of Hong Kong and some individuals voluntarily completed the questionnaire online in hope of finding out their TCM Body Constitutions. The severity of dysphonia and the subjects’ Body Constitutions were determined by a questionnaire addressing severity of dysphonia and preliminary diagnosis of Body Constitutions. The results showed that significantly higher proportion of dysphonic subjects exhibited dominant body Type than non-dysphonic subjects. Specifically, significantly higher proportion of mild-dysphonic subjects showed Qi-depressed Body Constitution; while significantly higher proportion of moderate-dysphonic subjects exhibited Wetness-heat Body Constitution. The significant differences and the possible justification would be discussed.

16
Effects of whole body vibration and vocal function exercises in women: Phonatory function, perceived vocal condition, and cortisol level
Tsang Chak Lam Candyce

Whole body vibration (WBV), the transmission of movement from a mechanical vibration source through the body, was explored as an alternative to vocal function exercises (VFE) to improve vocal function. Forty-five females with healthy voices were randomly assigned to one intervention group: WBV, VFE, or a combined intervention (WBV + VFE). The WBV group phonated /a/ on a vibrating platform. The VFE group performed vocal function exercises. The WBV + VFE group performed vocal function exercises on a vibrating platform. The aim of the study was to investigate the effects of the programmes on phonatory function (maximum frequency range, minimum/maximum frequency, maximum intensity), perceived vocal condition, and salivary cortisol levels. The results showed the VFE group significantly increased their maximum frequency range with increases in the maximum frequency after intervention (p < .05), with the WBV group showing the same trend. There was no statistically significant change in vocal intensity or salivary cortisol. On the self-rating of vocal condition, the WBV group rated it easier to phonate in the low frequency range after intervention compared to the WBV + VFE group (p < .05). The study suggests that WBV may be worth further exploring, as WBV showed similar gains in phonatory function as the well-documented VFE.

18
Consistency in Phonological-Orthographic Binding: Electrophysiological Correlates of Feedforward and Feedback Consistency
Mak Tung Yi

The mechanism underlying lexical retrieval during reading has been focused in word recognition research. The recurrent theory proposed by Stone, Vanhoy and Orden (1997) suggests bidirectional activation of orthography and phonology during reading. It challenged the traditional unidirectional orthography-to-phonology activation perspectives (Glushko, 1979). To verify this theory, the effects of feedforward (print-to-sound) consistency and feedback (sound-to-print) consistency on reading were investigated in the present event-related potential (ERP) study using a homophone judgment task with native Chinese readers. Results showed that feedforward consistent characters elicited greater negativity at the N170 component and greater positivity at the P200 component when compared with feedforward inconsistent characters. In contrast, feedback consistent characters elicited a reduced N170 and P200 component, coupled with an enhanced negativity at the N400 component when compared with feedback inconsistent characters. Critically, the results captured neurophysiological differences between feedforward and feedback consistency effects, suggesting bi-directional flow of activation during word recognition which lent support to the recurrent theory and modifications to Chinese word recognition models. Additionally, these findings could have implications on word recognition models.
The Neurophysiology of Visual Word Recognition: Is the N170 component a marker of orthographic or phonological sensitivity?
Chan Ngai Ming

The N170 ERP component is frequently associated with visual word expertise. However, studies have also argued that due to the intimate orthography-to-phonology mapping in alphabetic scripts, the N170 is also an index of phonological access. Capitalizing on the arbitrary orthography-to-phonology mapping property of Chinese characters, this study aimed to tease apart whether the N170 component is modulated by the orthographic form or also automatically co-activates the corresponding phonological forms of a character. 25 right-handed native Cantonese speakers participated in a lexical decision task and (homophone or visual) matching judgment task. Stimuli consisted of lexical forms including random stroke combinations, non characters, pseudo characters and real characters. The real characters also varied in phonological regularity and consistency. ERP results revealed that all orthographic conditions (i.e. real, pseudo and non characters) elicited a greater N170 component than random stroke combinations regardless of task, suggesting that the N170 is responsive to word-like stimuli during orthographic processing. However, regularity and consistency effects were only found in the matching judgment task, suggesting that orthography-to-phonology mappings might be activated when phonology is explicitly demanded. These results indicate that orthographic processing is automatic at the N170 component, but phonological processing may not necessarily be engaged in Chinese.

A comparison of co-verbal gestures employment in oral discourse among normal speakers, speakers with fluent aphasia and speakers with non-fluent aphasia
Chak Wan Chi, Gigi

The present study compared gestures employment among normal speakers, speakers with fluent aphasia and speakers with non-fluent aphasia. Multimedia data of discourse samples from 23 normal speakers, 23 speakers with fluent aphasia and 21 speakers with non-fluent aphasia were extracted from Cantonese AphasiaBank. A gesture coding system which allows independent annotation of forms and functions was adopted for gestural analysis. While speakers with non-fluent aphasia were found to gesture at the significantly greatest rate, the rate of gesture use of speakers with fluent aphasia did not differ significantly from that of the controls. Different patterns of gesture functions in the 3 speaker groups revealed that the role of gestures in lexical retrieval among the speakers with aphasia is minor while the role of enhancing communication dominates. Among speakers with aphasia, percentage of complete sentences and percentage of dysfluency were found to be the 2 strongest factors to predict gesturing rate. The relationship between gesture production and linguistic abilities and any clinical implication in gesture-based language intervention for speakers with aphasia are discussed.

Cantonese Consonant Perception in Quiet and in Noise: A Comparison between Healthy Young Adults and Healthy Old Adults
Ip Wing Sum

This paper examined Cantonese consonant perception in quiet and in noise in young and old adults. Forty native Cantonese speakers, twenty healthy young adults and twenty healthy old adults without hearing loss, identified Cantonese consonants in monosyllabic words in quiet and in four types of noises with varying amount of energetic and informational masking. The results showed that (a) the aged adults perceived Cantonese consonants poorer than the young adults both in quiet and in noise and the effect of noise was larger on the aged group than on the young group; (b) among the three phonetic features of Cantonese consonants, place of articulation was the most affected by noise for both young and aged adults, followed by manner of articulation, and aspiration; and (c) for both groups of listeners, Cantonese consonant perception was the most difficult in noises with a combination of substantial energetic and informational masking, followed by noises with solely energetic masking, and then by noises with mostly informational masking.
Effects of prosodic and semantic contexts on Cantonese tone perception
Li Shuk Yee

This study examined the effect of prosodic contexts on Cantonese tone perception and how the prosodic effect could be compensated by referencing to the F0 in the preceding linguistic context and by the provision of semantic cues. The study involved four context conditions: no semantic contexts (MW), neutral semantic contexts (NC), high congruent semantic contexts (HC) and incongruent semantic contexts (IC). In MW condition, the target stimuli were presented in isolation. In NC, HC and IC conditions, the same target stimuli were attached to the final position of semantically neutral carriers, semantically related carriers and semantically incongruent carriers, respectively. Results revealed that there was a prosodic effect on the perception of level tones but not the rising tones. Listeners tended to lower the F0 of the category boundaries for the level tones when listening to the tones in utterance final position. This prosodic effect could be compensated by providing a mid-level tone as a reference or by the provision of semantic contexts. Similar results in NC and IC conditions revealed that the incongruent semantic context did not have a negative effect on level tone perception.

Relative contributions of amplitude and phase for speech perception
Chiao Chung Lun

This study investigated the relative contributions of amplitude and phase in speech perception using three types of stimuli: amplitude-based vocoded stimuli, phase-based vocoded stimuli and fine-structure (FS) stimuli. Listening experiments with normal-hearing participants showed consistent findings with previous studies that the intelligibility of both amplitude-based vocoded stimuli and phase-based vocoded stimuli increased with an increase in the numbers of channels in synthesizing the signals, while the intelligibility of FS stimuli decreased with an increase in the numbers of channels. This study also agreed with the previous findings that the success of speech perception was due to the temporal envelope cues recovered by the auditory system. After making pairwise comparison, the overall low intelligibility of phase-based vocoded stimuli and the large difference between phase-based vocoded stimuli and FS stimuli should be taken into consideration for the future study.
Plenary 4 - Student Presentation II (14:30 – 15:45)

Abstracts

14:30 – 14:42
The use of Lombard effect in post-laryngectomy speech rehabilitation
Tsang Chor Kiu

This study investigated the Lombard effect, which refers to the raise in vocal intensity under noise, in laryngeal (NL) and three types of alaryngeal speakers: esophageal (SE), tracheoesophageal (TE), and electrolaryngeal (EL). A total of 52 native Cantonese laryngeal and alaryngeal speakers were recruited for the study. Speakers performed an interactive speech task involving reading a Cantonese passage under two background conditions: quiet and with 100 dB white noise. Significant increase in intensity level was found in all speaker types under noise. The intelligibility associated with all speech samples was evaluated by 15 naïve Cantonese speakers. Results showed that the overall intelligibility under noise was improved for TE and NL speakers, while no significant difference were found for SE and EL speakers across two background conditions. The relationship between the changes in jitter and shimmer under noise with intelligibility rating was revealed. Clinical implications for the use of Lombard effect in post-laryngectomy speech rehabilitation were discussed.

14:42 – 14:54
Comparison of Cantonese word-initial obstruents produced by different types of alaryngeal and laryngeal speakers of Cantonese - a spectral moment analysis
Yuen Ka Ying Sandy

This study investigated the use of spectral moment analysis (SMA) in comparing Cantonese word-initial obstruents produced by laryngeal (NL) and alaryngeal speakers: esophageal (SE), tracheoesophageal (TE) and electrolaryngeal (EL) speakers. Four spectral moments were obtained from the speech samples: M1 (centre of gravity), M2 (standard deviation), M3 (skewness) and M4 (kurtosis). A total of 40 native Cantonese laryngeal and alaryngeal speakers read aloud 13 monosyllabic CV Cantonese words formed by a word-initial obstruent /p, pʰ, t, tʰ, k, kʰ, kw, kwʰ, f, s, h, ts, tsʰ/ followed by the vowel /a/. Significant difference in M1 and M3 value was found for EL speakers, as compared to fricatives produced by NL speakers. Also, significant difference in M1 and M3 was found across manners of articulation. However, no spectral moment value differed significantly, when comparing stops with fricatives and affricates produced by EL speakers. In addition, there were significantly different M1 and M3 values, when comparing /p/ with /t/ and /k/. Nonetheless, no spectral moment measure could differ /t/ and /k/ significantly for SE and TE speakers. Results showed that M1 and M3 measures could be used to differentiate alaryngeal from laryngeal speakers in the same place of articulation, and distinguish across manner and places of articulation for each speaker group.

14:54 – 15:06
Voice therapy for hyperfunctional voice problems in school-age children
Wong Yat Cheong

This study investigated the effectiveness of a voice therapy program for school-age children in Hong Kong. Twenty-four school-age children (16 males and 8 females), aged between 6.4 and 11.7 years, with hyperfunctional voice problems were randomly assigned to either an experimental group or a no-treatment control group. The experimental group (N=14) received a voice therapy program which consisted of four sessions scheduled on a weekly basis. Interactive activities including use of cartoon illustrations, puppet drama and theme song were used to facilitate children's understanding of healthy voice production. Children in the control group (N=10) did not receive any form of voice therapy. Perceptual evaluation and acoustic analysis of voice quality were carried out before and after the therapy program to evaluate the effectiveness of the voice therapy program. Children's voice use knowledge, attitude and practice were also evaluated as outcome measures. This presentation will present the interactive voice therapy program and the preliminary findings of the study.

Keywords: pediatric voice, dysphonia, voice treatment, therapy outcomes
15:06 – 15:18
**Training vocal volume control in children: Visual analogy and real-time visual feedback**
Lee On Yee, Angie

The present study aimed to investigate children’s vocal volume control abilities over soft, medium, and loud volumes across language contexts, and to evaluate whether visual analogy and real-time visual feedback would be effective in training vocal volume control across language contexts for children. Twenty-two children were recruited and matched before being assigned into visual analogy and real-time visual feedback groups. The training stimuli included rote speech, reading aloud of sentence, and short self introduction. Before and after training, children’s vocal volume control abilities across language tasks were evaluated based on the percentage of time they could maintain their voice within a designated volume range on a soft-medium-loud scale. The results revealed that children generally exhibited vocal volume control problems more significantly in medium and loud conditions than that in soft condition, and in rote speech and introduction than that in reading aloud of sentence. The underlying reasons were proposed. Both visual analogy and real-time visual feedback were effective in improving control of loud volume. To train control in soft and medium volumes, real-time visual feedback may be more effective than visual analogy in general. Further research directions were proposed.

15:18 – 15:30
**A systematic review of Resonant Voice Therapy**
Lo Cheuk Ming

**Purpose** 1) To provide a systematic guideline on the contents of resonant voice therapy in terms of definition, variety of resonant voice therapy and the therapeutic steps involved. 2) To evaluate the level of evidence of the effectiveness of using resonant voice therapy in treating voice disorders.

**Method** Refereed journal papers between the years 1974 to 2014 were searched using the keywords “Humming, Resonant Voice Therapy, Resonant Voice” through data-base Elsevier ScienceDirect Complete, Medline & Proquest Medical Library New Platform. Quality of evidence was evaluated by using The GRADE Approach by students.

**Result** Nine studies met the search criteria. Only one was a randomized-controlled study and the other eight were observational studies. Types of resonant voice therapies commonly mentioned in the studies include Lessac-Madsen Resonant Voice Therapy, Y- Buzz, resonance therapy and humming. Overall level of quality of evidence was graded as “low”.

**Conclusion** There were limited studies that investigated the effectiveness of Resonant Voice Therapy. Most studies were small-scaled uncontrolled observational studies with the inclusion of only narrow populations. There is clearly a need for more large-scale randomized controlled studies with wider population to provide further evidence for the effectiveness of resonant voice training.

15:30 – 15:42
**Reliability of Oral Mechanism Examination on Children with and without Speech Sound Disorder**
Leung Sze Kei

Oral mechanism examination is one of the common types of assessment conducted by SLPs on children with suspected Speech sound disorder (SSD). The present study aimed at investigating the reliability of oral mechanism examination. Five experienced SLPs rated the oral mechanism ability of children with or without SSD based on samples of video-recording using a visual analogue scale. Intra-class correlations (ICCs) were calculated to examine the general inter- and intra-rater reliability. Results revealed that the intra-rater reliability was satisfactory and met criteria for clinical operation while the inter-rater reliability did not. Subgroup analysis of rating according SLP’s experience was also conducted. The result revealed that the more experienced group got slightly higher ICC value. More clinical practice may improve the reliability. Future study can involve a larger number of SLPs with a wider range of clinical experience and use the categorical rating scale with detailed descriptors which might improve the inter-rater reliability.

**KEY WORDS:** speech sound disorder, oral mechanism examination, reliability
Plenary 5

Abstract

Analysis of neurogenic disordered discourse in Chinese
Dr Anthony Kong
University of Central Florida, USA

Objective measurement of aphasic discourse as a part of a comprehensive assessment in English-speaking countries has been promoted (e.g., American Speech-Language-Hearing Association, 2004; Royal College of Speech and Language Therapists, 2005). Chinese is the most widely spoken language in the world, but there is great paucity of screeners and standardized batteries that are culturally appropriate for measuring language impairments in native Chinese speakers. In this presentation, existing approaches and resources for measuring oral discourse in Chinese will be reviewed and discussed.