

Research Assessment Exercise 2020
Impact Case Study

University: The Hong Kong Polytechnic University

Unit of Assessment (UoA): 33 Linguistics & Language studies

Title of case study: Improving speech therapy services in Hong Kong and the Greater Bay Area

(1) Summary of the impact

About 5 percent of the local population in the Great Bay Area (GBA) are suffering from various communication disorders. The Speech Therapy Unit (STU) at PolyU researches aspects of communication disorders while also providing ST services in major cities within the area. Specifically, the research described in this case study has had significant and far-reaching impact on the training and continuing professional development of speech therapists; the delivery of ST services to patients in need, ultimately leading to better quality of life for them and their families; and, among the general population, enhanced awareness of communication disorders and how they can be addressed. The research has impacted positively on speech therapy practice not only in Hong Kong, but also in the GBA and beyond.

(2) Underpinning research

Speech therapy helps alleviate the adverse impact on quality of life resulting from various communication disorders in individuals from infants to elderly people. About 5 percent of the local population are suffering from various communication disorders, ranging from literacy disorders in children to acquired communication disorders in adults with Parkinson's or stroke; these can severely affect the quality of life of the individuals and their families. In Hong Kong and the Greater Bay Area (GBA), those affected face particular challenges due to the bilingual or trilingual nature of their social environment. An added challenge is a lack of resources (e.g. norm references, assessment, and treatment) particularly on the Mainland.

It is this need that the Speech Therapy Unit (STU) at PolyU sets out to address through a three-pronged approach: research, practitioner training and provision of speech therapy for end users. Research in communication sciences is one of the strengths in the Department of Chinese and Bilingual Studies (CBS). The team of research-active academic staff include LEUNG Man-Tak (Associate Professor since 2011, specializing in literacy and pre-school language development); CHAN Wing Shan Angel (Associate Professor since 2009, multilingual language development); and LAU Dustin Kai Yan (Assistant Professor since 2013, literacy development and disorders). In addition, the team has collaborated with Anthony Pak Hin KONG (acquired language disorders) based at the University of Central Florida in the US. All research described here was carried out between 2008 and 2018.

Literacy

LEUNG and LAU are two speech therapists who pioneered the research in Chinese literacy development and disorders in Hong Kong. Their work on Chinese reading and writing disorders has defined the scope of practice of ST in Hong Kong in this area. Particularly, their work showed that through focused exposures, poor readers' morphological processing skills could be promoted and their reading acquisition improved [5]. In another study [3] using handwriting measures, they observed that, whereas controls were flexible in using both small and large grain size units in writing, a poor writer in Chinese used only small grain size writing units. The results indicated the need to assess Chinese poor writers using handwriting measures. Finally, in another study [4], LEUNG and LAU reported the different manifestations of Chinese reading difficulties. The results proved significant in terms of assessment and treatment of developmental reading disorders.

Language development and disorders

One perennial challenge of ST practice in Hong Kong is its bilingual context. CHAN's work on language development in multilingual contexts [1] offers unique contributions in this area. This research examined how trilingual Cantonese (L1)-English (L2)-Mandarin (L3) children process relative clauses in the two Chinese languages. The findings showed that in Cantonese, these trilinguals comprehend object relative clauses significantly worse than monolinguals, with negative transfer from English to Cantonese. LEUNG's work on the Cantonese LARSP [6] (Language Assessment, Remediation and Screening Procedure, which relates to grammatical disability) and CHAN's work on relative clause processing by children [1] are also major resources for assessment and treatment of developmental language disorders in Hong Kong.

Acquired communication disorders

Finally, LAU collaborated with KONG to establish the traumatic brain injury (TBI) bank, a database that documents over 2,000 audio clips with transcriptions of discourse performance of patients suffering from TBI in Guangzhou. [15] Not only did the narrative assessment protocol they used become an invaluable clinical tool for the assessment of language of TBI patients [2], but this database has also proved to be an invaluable resource tool for research, education and clinical purposes. The finding that TBI speakers have impairment in both global and local coherence in their narratives [2] also pinpointed the direction of intervention for these clients.

(3) **References to the research**

1. Chan, A., Chen, S., Matthews, S. & Yip, V. (2017). Comprehension of subject and object relative clauses in a trilingual acquisition context. *Frontiers in Psychology* 8: 1641. doi: 10.3389/fpsyg.2017.01641
2. Kong, A.P.-H., Lau, D.K.-Y., & Cheng, C.Y.-Y. (2019). Analysing coherence of oral discourse among Cantonese speakers in Mainland China with traumatic brain injury (TBI) and cerebrovascular accident (CVA). *International Journal of Speech-Language Pathology*, 21, 1-11. DOI:10.1080/17549507.2019.1581256
3. Lau, D.K.-Y. (2019). Grain Size Units of Chinese Handwriting: Development and Disorder. *Clinical Linguistics and Phonetics*, vol. 33, no. 10-11, pp. 899-914. DOI:10.1080/02699206.2019.1584723
4. Lau, K-Y.D., Leung, M-T., Liang, Y., & Lo, J.C.M. (2015). Predicting the naming of regular-, irregular-, and non-phonetic compounds in Chinese. *Clinical Linguistics & Phonetics*, 29(8-10), 776-792.
5. Lau K-Y.D. & Leung, M-T. (2014). Relationship between morphological awareness and Chinese reading development: A treatment study. In: K. Chung, K. Yuen & D. McInerney (eds.), *Understanding developmental disorders of auditory processing, language and literacy across languages: International perspectives*. Charlotte, NC: Information Age Publishing, pp. 229-248.
6. Leung, M-T. & Li, H-L. (2016). Cantonese LARSP: Developing a preschool language measure of syntactic ability – a procedure of assessment and remediation for Cantonese-speaking children. In: P. Fletcher, M. Ball & D. Crystal (eds.), *Profiling grammar: More languages of LARSP*. Bristol: Multilingual Matters, pp. 172-197.

Research Grants awarded:

7. GRF – PolyU 156083/18H	Relations between Theory of Mind, Mental State Terms, and Presuppositions in Cantonese-speaking Children with and without Autism Spectrum Disorders (HK\$ 578,746)
------------------------------	--

8. QEF 2014/0754	An integrated Chinese-learning programme for Junior South Asian students in Hong Kong (HK\$ 1.3 million)
9. FH Bureau 2015 – 2017	Poly Kids – a multi-disciplinary parent training programme to support parents of preschool children with developmental delay (HK\$ 7,566,269)

(4) Details of the impact

The key beneficiaries of our research in communication sciences include speech therapists – notably through training based on our findings - and by extension patients suffering from communication disorders and their families. We are also able to demonstrate changes in the delivery of speech therapy in different locations within the GBA, as well as improved public awareness of the role of speech therapists among the general population.

In the past, locally there was no formal training in the use of clinical assessment and treatment tools for children with developmental dyslexia. Between 2011 and 2019, LEUNG and LAU were invited to conduct seminars in all four speech therapist training programmes in Hong Kong to introduce the assessment and treatment developed for individuals suffering from reading and writing difficulties. Since the MST programme was launched in 2013, all MST graduates have at least 30 hours of supervised direct clinical contacts delivering treatment to children suffering from reading difficulties in Chinese [19]. We have also offered training workshops to local speech therapists since 2011 to introduce the assessment protocol and treatment programmes developed by LEUNG and LAU on the basis of their research – all unique clinical tools used by local speech therapists to assess and promote Chinese reading abilities of school-aged children. In 2013-2019, we trained up over 200 local speech therapists who are all qualified providers of assessment and treatment methods developed by us. Many of them expressed their appreciation of the training because it allows them to “deliver assessment and treatment to children with dyslexia systematically” [15,16,19]. The recognition of LEUNG and LAU’s work by local speech therapists was evidenced by the fact that the two researchers were invited by the Hong Kong Association of Speech Therapists [15] (HKAST) to participate in the production of the HKAST video series for public awareness on reading and writing disorders. The series was published in February 2019.

Our research findings were also rolled out to practitioners and patients through train-the-trainers practice in different GBA locations as part of our supervision of MST students during their placement in China. Due to the lack of training programmes for speech therapists in Mainland China, there is great demand for speech therapy service in various locations within GBA and beyond. Since 2014 we have implemented a two-tier model in rolling out our research results. Under our supervision, the MST students conduct the assessment and treatment we developed in different clinical settings in various GBA locations including Guangzhou, Guangdong, Shenzhen and others [17]. Our MST students also play a key role in supervising the trainers in these clinical settings, from implementing the assessment and treatment to interpreting the results. The impact has been demonstrated in these trainers’ use of the assessment and treatment methods designed by LEUNG and LAU as well as the assessment protocols in the TBI bank by KONG and LAU for assessing children with reading and writing difficulties and patients suffering from TBI respectively. Over 100 patients were reported to have received speech therapy service as a result. The trainers from GBA [17, 18] also expressed their appreciation that our training helped them to “deliver better speech therapy services to their clients”. Impact is also evidenced by the recruitment of six MST graduates as full-time speech therapists in Macau SAR in 2018. The employers, whilst culturally reluctant to provide direct testimonies, went to considerable trouble and expenditure to recruit these non-Macau citizens. These graduates now reportedly play a key role in implementing direct treatment and supervising other trainers in the workplace.

The majority of people in Hong Kong remain ill-informed about the nature of various communication disorders and the critical role played by speech therapists. In order to promote public awareness of communication disorders with a view to achieving early identification and intervention, the STU has contributed significantly to public education. Between November 2012 and April 2016, the STU was invited by the *Hong Kong Economic Journal* to submit short articles describing different types of communication disorders and sharing our research findings in its biweekly columns. Altogether, 75 such articles were published during the assessment period [10]. Between 2014-2015, at least 10% of applicants of our MST programme reported that they were inspired by these articles to become speech therapists [19]. In 2018, the STU was invited by Television Broadcasts Limited (TVB), arguably the most popular licenced broadcasting company in Hong Kong, to introduce the evidence-based treatment programme [5] for treating Chinese poor readers we developed in two of their TV programmes [11,12]. In addition, we also received an invitation from the Serviços de Saúde Macau to deliver seminars to promote our research work in reading and writing difficulties in Chinese. [13, 18] Two were delivered in 2018 and 2019, with 120 therapists attending in total. Over 75% of the attendants indicated that the seminars promoted their understanding of Chinese reading and writing difficulties. Thanks to these concerted efforts, public awareness of early identification of developmental dyslexia in Hong Kong and Macau has been raised. Since 2017, video clips posted on the STU Facebook page have attracted over 30,000 views [14].

(5) Sources to corroborate the impact

10. Column articles describing our service and research published in *Hong Kong Economic Journal* (11/2012 – 4/2016). <https://www.polyu.edu.hk/cbs/st/en/sharing/trainers-parents-sharing/hong-kong-economic-journal-column>
11. Introducing Speech Therapy in the TV show “職場制勝”, TVB (19/1/2018). <http://programme.tvb.com/news/successincareer/episode/20180119/>
12. Introducing the ARA, AMA and AWA training programme in the TV show “最強生命線”, TVB (10/2018). <http://programme.tvb.com/lifestyle/vitallifeline/episode/20181022/>
13. Seminar on Developmental Dyslexia organized by the Healthy Macau Association. (24/11/2018). <https://www.facebook.com/1777107962560629/posts/2233323926939028/> (澳廣視新聞) https://www.cyberctm.com/zh_TW/news/detail/2345683#.W_pOgxYRWaM (澳門日報)
14. Over 30,000 views of the videos posted on the STU Facebook page: www.facebook.com/speechtherapyunit
15. Mr. Joshua Lai, Chairperson of the Hong Kong Association of Speech Therapists. Lok1014@gmail.com
16. Ms. Jess Chan, Senior speech therapist of the Hong Kong Christian Service. jesschan@hkcs.org
17. Dr. Jie Zhu, Head of speech therapy team of the GuangDong Province Hospital for the Work Injuries. Zhujie-1979@163.com
18. Ms. Virginia Kong, Director of the Healthy Macau Association. Virginiakong@widex.com.mo
19. Ms. Jody Lam, speech therapist of the SAHK. jody_lpy@sahk1963.org.hk