

Part C. Project Details

(Revised)

Goals and Objective*Short term (those attainable within the project period)*

1. To develop a school-based, theory-driven read-Chinese programme for South Asian students at primary 2 level.
2. To develop a teacher-friendly manual for this school-based remedial programme for the 28 designated schools.
3. To testify the effectiveness of the education programme in different kinds of schools (private, designated and main-stream schools) through comparing pre-, post-programme tests, continuous weekly probe test, questionnaires to teacher and students and the maintenance of effect of the programme across semesters.
4. To establish a digital hub as a supporting resource for schools using this programme to download teaching materials, to upload treatment data and to sharing teaching experience.

Long term (those attainable beyond the project period)

1. Through data collection and professional sharing at the digital hub, continued modification of the current educational programme to suit the needs and existing constraints of different kinds of schools serving South Asian students.
2. To equip teachers with better theoretical knowledge regarding learning Chinese as a second language for the better dissemination of their professional duties.
3. To create a platform for further research to be done in the area of L2 learning and teaching Chinese as a second language as well as efficacy study of different educational programmes aim at helping South Asian students.

Background: evaluation of the present situation that leads to the need for this project*The need of an educational read-Chinese programme for South Asian students*

The difficulties of teaching South Asian students to read Chinese (and/or English) in Hong Kong has surfaced to become one intriguing pedagogical issues recently. On one hand it is a problem to be solved. On the other hand, it creates a platform for researchers to verify reading theories relating to L2 learning and specifically, learning Chinese as a second language.

Learning to read is learning to translate what spoken form is represented by a written word, so that the already existing lexicon can be accessed (Taft, 1991). This process involves orthography-to-phonology transformation (OPT) (Lee, Tsai, Kuo, Yeh, Wu, Ho, Hung, Tzeng & Hsieh, 2004). The difficulty of learning OPT depends on the transparency of the orthographic-phonological relationship of a particular language.

One parameter to describe the orthographic-phonological relationship is its “regularity”. In alphabetic languages, the orthographic-phonological relationship can be represented by the set of Grapheme-Phoneme Conversion (GPC) rules (Coltheart & Leahy, 1992; Rastle & Coltheart, 1999). Regularity describes the degree of which the pronunciation of a word conforms to the grapheme-phoneme rules. A regular word is pronounced according to the grapheme-phoneme rules, i.e., ‘the phoneme is the most typical pronunciation of the grapheme’ (Taft, 1991, p.74). For example, the grapheme ‘oo’ is typically pronounced as /u:/, the words ‘stool’, ‘pool’ and ‘boom’ are regular words while ‘blood’, ‘book’ are irregular or exception words. Regular words were found to be read faster than irregular or exception words (Baron & Strawson 1976; Stanovich & Bauer, 1978), especially when the words are of low frequency (Andrews, 1982; Hino & Lupker, 2000; Seidenberg, 1985).

Another parameter to describe the orthographic-phonological relationship is its “consistency”. The analogy-based account proposed by Glushko (1979) and computational models developed through learning algorithms (Seidenberg & McClelland, 1989; Plaut, McClelland, Seidenberg & Patterson, 1996) suggested word reading depends on other words and exposure to words. Using this account, consistent words are ‘words with letter patterns which are always pronounced the same way whenever they appear in a word (e.g. ‘-ust’ in ‘dust’)’ (Jared, 2002, p.764). The word body ‘-eet’ is consistent as it is pronounced the same way in all the words with ‘-eet’, for example, in ‘meet’ and ‘beet’, while the word body ‘-eat’ is inconsistent as it is not always pronounced in the same way, for example, in the words ‘seat’ and ‘threat’. To be more specific, the consistency account reflects a mechanism that is sensitive to the statistical relationship among distributed representation developed through repeated word exposure (Seidenberg, Waters, Barnes & Tanenhaus, 1984; Taraban & McClelland, 1987; Plaut et al., 1996).

In alphabetic scripts, children employ both GPC rules and analogizing (reading with reference to neighbours or words with similar orthographic form) to learn to read (Frith, 1985; Goswami and East, 2000). In Chinese, due to the fact that there is no corresponding graphemic unit for phoneme, GPC is not possible. Instead, the development of Orthographic Phonologic Correspondence strategies (OPC rules: Fang et al., 1986; Hue, 1992; Lee et al., 2004; Lee et al., 2005; Tzeng et al., 1995) have been illustrated to be the self-learning device in learning to read Chinese.

Most of the South Asian children in Hong Kong speak in Hindi-Urdu language, which is alphabetical and is more transparent, when compared to Chinese. If they do not develop the OPC strategies that allow them to analyze the relationships between orthography, phonology and semantics, and to sort out the rules and apply them flexibly during reading, they have to resort to rote memorization in reading (Snowling, 2000). With minimal exposure to Chinese, especially written Chinese, South Asian students would find learning to read Chinese extremely difficult. Educational programme should be designed to foster the quick acquisition of the OPC strategies, as a powerful self-teaching device (phonological recoding) and a tool for their further explorations of the print environment in Hong Kong.

Innovation & Conceptual Framework: OPC educational programme for South Asian students

Reading takes years of training (teaching) in school before one reaches the level of literary skills demanded by society. Learning to read is more like learning to play a game where basic rules have to be mastered; once a child has grasped the corresponding orthographic knowledge of the orthography in question, the child has acquired a powerful self-teaching device which allows further explorations of the print environment (Alphabetic script: Gustafsson, Samuelsson & Ronnberg, 2000; Torgesen, Wagner & Rashotte, 1997; Chinese script: Ho and Ma, 1999; Ho, Wong & Chan, 1999). It is suggested that programme fostering OPC rules be implemented to ease South Asian students into the path of Chinese learning.

According to the *Chinese Language Curriculum Framework for Primary Schools*, children in Hong Kong learn about 3845 characters by Grade 6 (Leung & Lee, 2002). Simple non-divisible characters account for less than 10% of commonly used Chinese characters and the other are compound characters with more than one component (Wieger, 1965). Most of them are semantic-phonetic compounds, with 80% in adults’ repertoire, 74% in primary school curriculum of Hong Kong and 72% in elementary Chinese textbooks of Mainland China (Chen, 1996; Shu, Chen, Anderson, Wu & Xuan, 2003).

It has been shown that phonetic and semantic radicals would be activated in the recognition, reading aloud and reading comprehension of low frequency Chinese characters (e.g. Li & Chen, 1997; Wu & Liu, 1997; Yang & Peng, 1997). For example, the phonetic radical 象 /tsJN6/ [elephant] and semantic radical 木 /muk9/ of the character 橡 /tsJN6/ oak tree] may be activated for recognition and access to pronunciation and meaning of the character. This sub-morphemic processing in Chinese has been confirmed by studies on frequency effects of radicals, phonological regularity effect (regular characters read better than irregular characters), and phonological consistency effect (consistent characters read better than inconsistent characters) (e.g. Ho & Bryant, 1997; Hue, 1992; Shu, Zhou, & Wu, 2000; e.g. Taft & Zhu, 1997; Yang & Peng, 1997). The use of

regularity and consistency rules is better developed in advanced readers than in beginners (Kwok, 2003, Yip, 2004), and normal children applied the rules significantly more often than the children with reading difficulties (e.g. Ho, Wong & Chan, 1999; Snowling, 2000).

On top of the regularity or consistency rules, the flexibility in rule application is equally important. According to [redacted], regular consistent characters comprised less than 20% of all characters. If children apply the regularity and consistency rules in reading all semantic-phonetic compounds, they would get more than half of the characters wrong.

Grades	1	2	3	4	5	6
Regular Consistent	4%	5%	7%	8%	10%	15%
Regular Inconsistent	16%	18%	17%	17%	16%	13%
Irregular Consistent	2%	5%	7%	9%	12%	18%
Irregular inconsistent	26%	25%	24%	25%	23%	19%
Characters act as phonetic radicals	11%	12%	14%	16%	18%	21%

Table 1. Distribution of different categories of characters.

As shown in Table 2, if children apply regularity rule to all of the four types of characters, they would get only two of them correct (RC and RIC). They would get two characters correct if he only applies the consistency rule and one of them overlap with the regularity rule application (RC and IRC). To get most of the four characters right, children have to apply regularity rule to RC and RIC characters and apply consistency rules to RC and IRC characters. Reading accuracy is dependent on, first the awareness of regularity and consistency, and second the appropriate application of rules to different categories of characters, i.e. flexibility.

	Regular consistent (RC)	Regular inconsistent (RIC)	Irregular consistent (IRC)	Irregular inconsistent (IRIC)
Example characters	爐 /lou21/[stove]	完 /jyn21/[finish]	溉 /k ^h ɔi33/[irrigation]	冠 /kun33/[champion]
Phonetic radical:	盧 /lou21/[cottage]	元 /jyn21/[dollar]	既 /kei33/[given]	元 /jyn21/[dollar]
Family	爐 /lou21/[stove]	冠 /kun33/[crown]	概 /k ^h ɔi33/[summary]	冠 /kun33/[champion]
	驢 /lou21/[donkey]	玩 /wun33/[play]	溉 /k ^h ɔi33/[irrigation]	玩 /wun22/[play]
	顛 /lou21/[skull]	完 /jyn21/[finish]	概 /k ^h ɔi33/[generous]	完 /jyn21/[finished]
	鱸 /lou21/[sea perch]	頑 /wan21/[naughty]		頑 /wan21/[naughty]
Regularity rule	Correct	Correct	Wrong	Wrong
Consistency rule	Correct	Wrong	Correct	Wrong

Table 2. The effect of applying regularity and consistency rules on reading different categories of characters

Normal readers learn to apply phonological regularity and consistency rules flexibly without explicit instructions in learning Chinese characters (Shu & Anderson, 1999). To develop the regularity awareness of a character (e.g. 爐 /lou4/ [stove]), one must know the phonetic radical of the character (e.g. 盧 /lou4/ [cottage]). The understanding of phonological consistency also requires the knowledge of characters in the family (e.g. 驢 /lou4/ [donkey], 顛 /lou4/ [skull] and 鱸 /lou4/ [perch]). The much reduced character repertoire of South Asian children further jeopardizes the development of the required awareness. However, if OPC rules are mastered, children would be able to learn about 70% of the character with minimal effort and they can remember those characters longer with this OPC self-learning device through phonological recoding.

Applicants' Capability

Based on the pilot work done by our team member [redacted], we are well-prepared to conduct the proposed research.

The applicants consist of one professor and one lecturer from the Department who have their expertise in corpus linguistics, dyslexia treatment and teaching Chinese as second language. The principal investigator has played a key role in the development of the

which are widely used resource for professionals such as speech therapists and educational psychologists to designing treatment programme for Chinese children with dyslexia.

Three schools, one private, one mainstream and one designated school for Non Chinese Students have agreed to collaborate in the project. We share the same interest with the investigators in developing a theory-driven educational programme for South Asian students in Hong Kong. They are highly committed to the implementation of this proposed project. The research team includes developmental experts from both collaborators, including speech language therapists, experienced teachers and educators. They can provide both strong theoretical backup as well as clinical and practical support to the research project.

Project Description

Four major goals of the present project

The first goal is to develop a school-based, theory-driven educational programme for South Asian students at primary 2 level. Primary 2 students are chosen because at the beginning of primary 1, the levels of students vary widely according to the time they arrived Hong Kong and their pre-school (kindergarten) training. These might affect the reliability of pre-treatment assessment and thus the starting level of the programme. The programme consists of four stages. To proceed to the next phase of training, each participant has to acquire the skills targeted in the previous stage. The successful completion of a stage is detected by the results of a weekly post-session probe test conducted after each treatment session. Stage I focuses on the learning of phonetic radicals which can act as a standalone characters. In Stage II (RC characters), the awareness of regularity and the application of the regularity rule are fostered. After the application of regularity rule is consolidated, Stage III (IRC characters) aims at fostering the awareness of consistency and the application of consistency rules. Stage IV (RIC & IRIC characters) focuses on the flexible application of regularity and consistency rules. Treatment materials needed for each of the phases and post-treatment probe test will be prepared in a way that all materials can be re-used.

The second goal is to develop a teacher-friendly manual for school-based educational programme. Three school-based teams will be set up based on the availability of existing resources and constraints of individual schools. We plan to implement a 10-week, two-hour per week training making use of the existing resource in school for South Asian students with poor Chinese reading ability. It is expected that one to two teachers, parents of the targeted children (dependent on their availabilities), student helpers from primary six or primary five, school-based social worker, psychologist and teacher assistant/learning support assistant will participate in the programme. Once the stimulus materials and the programme plan are ready, all participants will be trained to implement the remedial programme. On top of the weekly two-hour training, student helpers are expected to run two review sessions, 10 to 15 minutes each within the week. The running of the programme will be monitored through regular evaluation sessions. Children are taught a set of stimulus characters each day in a well-ordered sequence that exemplifies critical phonological, orthographic, semantic and orthographic principles. After each session, each participating helper (teacher and student helpers) will fill in an evaluation form that aims at gathering their feedback on their participation and the programme. The data collected will be used for the construction of training provided for the participants and for the modification of the remedial programme. A teacher manual will be written up and be distributed to all designated schools to ensure the sustainability of the programme.

The third goal is to set up a hub for teachers to download teaching materials and to upload treatment data for interpretation for inter-professional sharing of teaching experience.

The fourth goal is to testify the effectiveness of the education programme in different kinds of schools (private, designated and main-stream schools) through comparing pre-, post-programme tests, tracing the results of weekly probe test, analysing regular questionnaires to teacher and students and South Asian students. The sustainability of the programme will be verified through results collected through maintenance exercises across semesters at different participating schools.

Subjects

A total of 60 primary 2 (P2) South Asian students, 20 from each of the following kinds of schools: a private school, a main-stream school and a designated school, who are having (Leung, Lai & Kwan, 2008) scores at least 1.5 SD below mean, will be recruited. Raven's Standard Progressive Matrices (Raven, 1986) will be administered to control

for their cognitive abilities. Out of the 20 students from each of the schools, 10 will be randomly assigned to the treatment group and 10 to the control group, who receive no treatment.

Programme schedule

A school-based team will be set up in each of the participating schools. One teacher and/or student guidance teacher (SGT) or student guidance personnel (SGP) and volunteers student helpers will be recruited. The project team will provide the training for teachers, SGT/SGP who will in turn train up their student helpers at start.

The educational programme will be conducted once in each participating school across three semesters (March to May 2013, Oct to Dec 2014 and March to May 2014). All sessions will be run by existing personnels at school plus student helpers with the assistance from an experienced speech therapist. A total of three 10-week programs, one in each of the three participating schools, as well as refresher programmes will be conducted according to the following schedule:

Primary school-A

Date	Activities	People involved	Remarks
Apr 2013 - Apr 2013 (2 teaching week)	Pre-treatment assessment & trainer's workshop	NCS students, Research assistant, Teachers	
			Pre-treatment measurement
Apr 2013 - Jun 2013 (10 teaching weeks)	Treatment period plus post-treatment assessment	NCS students, Research assistant, Teachers	10 probe test measurement and questionnaires
	Post-treatment assessment	Research team	Post-treatment measurement 1
Sep 2013 - Dec 2013 (2 teaching weeks)	Maintenance programme	NCS students, Research assistant, Teachers	
	Post-treatment assessment	Research team	Post-treatment measurement 2
Jan 2014 - May 2014	Maintenance programme	NCS students, Research assistant, Teachers	
	Post-treatment assessment	Research team	Post-treatment measurement 3

Primary school-B

Date	Activities	People involved	Remarks
Sep 2013 - Oct 2013 (2 teaching week)	Pre-assessment & trainer's workshop	NCS students, Research assistant, Teachers	
			Pre-treatment measurement
Oct 2013 - Dec 2013 (10 teaching weeks)	Treatment period plus post-treatment assessment	NCS students, Research assistant, Teachers	10 probe test results and questionnaires
	Post-treatment assessment	Research team	Post-treatment measurement 1
Feb 2014 - May 2014 (2 teaching weeks)	Maintenance programme plus assessment	NCS students, Research assistant, Teachers	
	Post-treatment assessment	Research team	Post-treatment measurement 2

Primary school-C

Date	Activities	People involved	Remarks
Jan 2014 - Feb 2014 (2 teaching week)	Pre-assessment & trainer's workshop	NCS students, Research assistant, Teachers	
			Pre-treatment measurement
Feb 2014 - May 2014 (10 teaching weeks)	Treatment period plus post-treatment assessment	NCS students, Research assistant, Teachers	10 probe test results and questionnaires
			Post-treatment measurement 1

Date	Activities	People involved	Remarks
Jun 2014 - Oct 2014	Data analysis	Research team	

Oct 2014 – Dec 2014	Research report writing	Research team and teachers	
Jan 2015 - Mar 2015	Teaching kits production and distribution of teaching kits	Research team and teachers	

The above educational programme will be conducted once in each of the participating school followed by maintenance procedures in two schools according to the following schedule:

Period	S2 2012-13	S1 2013-14	S2 2013-14	Summer 2014	Oct 2014 – Mar 2015
Activities	School A <i>Educational Programme</i>	School A <i>Maintenance 1</i>	School A <i>Maintenance 2</i>	Teaching materials <i>preparation</i>	Distribution of manual and teaching materials
		School B <i>Educational Programme</i>	School B <i>Maintenance 1</i>	Teaching Manual <i>preparation</i>	Opening of the Resources & Support centre
			School C <i>Educational Programme</i>	Resources Hub <i>preparation</i>	

Implementation manuals for teachers and other related participants will be distributed to individuals at different stages of the programme. A finalized manual will be produced at the end of the project.

Regarding the e-learning centre, an experimental webpage will be set up by Sep 2014. Through trial runs in the two schools by different participants, the e-learning centre will be finalized by Dec 2014.

Materials and stimuli

All treatment stimuli will be selected from the (Leung & Lee, 2000) with reference to the school-based materials used at the individual schools. The contains all Chinese characters from the Chinese and general-study textbooks used in Primary schools in Hong Kong. All the character frequencies mentioned below refer to the number of occurrence of the characters in the children's Chinese and general-study textbooks calculated cumulatively according to the different grades. Each character is coded according to its phonological regularity and phonological consistency. As the development of phonological awareness is closely related to the set of characters to which the children are being exposed, each stimulus character will be chosen on the basis of their phonological regularity and consistency to foster the development of metalinguistic awareness described above.

Budget

Budget with detailed breakdown; whether there are matching contributions or other sponsorship and if so, the details

	year 1	year 2	total
Salary			
Project officer (\$15,000 (5% MPF included) X 24 months)	180,000.00	180,000.00	360,000.00
Training officers (for training of teachers and students) (5% MPF included)	42,840.00	21,420.00	64,260.00
Supply Teachers (for providing drilling of students) (\$1,023 (5% MPF included)X16 for year 1; X8 for year 2)	17,186.40	8,593.20	25,779.60 (25,780.00)
Student research assistants (for treatment and training)	2,500.00	2,500.00	5,000.00
Plotter for design and drawing of character cards	15,000.00	15,000.00	30,000.00
Technical assistant		25,000.00	25,000.00
			Subtotal: HKD 510,040.00
Equipment			
<i>Hardware</i>			
Data Base workstation x 2 (17500@)	35,000.00		35,000.00
Digital video camera x 2 (2,500@)	5,000.00		5,000.00
Printer x 2	2,000.00		2,000.00
Audio recording pens x 10 (400@)	4,000.00		4,000.00
Memory sticks 4 (200@)	800.00		800.00
Hard disk x 2 (1,500@)	3,000.00		3,000.00
<i>Software</i>			
(for database) x 4	5,000.00		5,000.00
			Subtotal: HKD 54,800.00
General expenses			
Consumables (paper, bags/packs for carrying testing stimuli, stationeries)	6,950.00	2,000.00	8,960.00
Expenses relating to manual printing		7,500.00	7,500.00
Expenses relating to seminars		4,000.00	4,000.00
Audit expenses		5,000.00	5,000.00
			Subtotal: HKD 25,460.00
			Grand total: HKD 590,300.00

Job descriptions of the research assistant (RA), student research assistant (student RA) and technical assistant

Project Officer (FT):

Contacts of personnel involved in the project (teachers, parents and training officers, etc);
 Assist in organizing training for teachers, parents, student helpers, teaching assistants, social workers, and psychologists;
 Assist in organizing and administer pre-treatment assessment of subjects;
 Organize the collection of data before, during and after the implementation of the programme;
 Data analysis.

Training officer (PT):

Prepare Chinese character stimulus for P2 and P3 programme (it involves selecting appropriate Chinese characters for treatment from the data corpus);
 Run training workshop for teachers, parents, student helpers, teaching assistants, social workers,;
 Organize and administer pre-treatment assessment of subjects;
 Data analysis; and Drafting the treatment packages for future users.

Supply Teachers (PT)

Monitor training workshop for drilling practice to student helpers and target students;
 Organize and administer pre-treatment assessment of subjects;
 Data input and filling progress report of target students.

Plotter (PT):

Responsible for designing and drawing of pictures in character cards according to the requirement of the training officer and research team members.

Student RA (PT):

Work on data collection and data entry;
 Assist in assessment of subjects; and
 Assist training parents, teachers, school-based personnel and primary student helpers.

Technical assistant (PT):

Establishing a hub on the internet for uploading and downloading materials required for the project and to establish up a e-learning site for teachers and professional to refresh their understanding of the underlying theory of the programme.

Justifications for the monthly salary of project officer (PO):

A PO will be employed under the regulations set by . The monthly salary for a project officer is \$15,000.00 in the 1st year and the 2nd year. It is expected that the PO should have some years of experience in the field of Teaching Chinese to Non-Chinese speaking students and can handle database.

Justification for the salary of Training officers:

Training officers are professional speech therapists and educational psychologists, the hourly rate is HKD \$600 per hour.

Justification for the salary of Supply Teachers:

Supply Teachers are Primary schools teachers (graduate). Their daily salary is 1023/day (Degree level).

Justification for the salary of Plotter:

The salary of plotter will be on a project based. He/she is needed in the designing of teaching kits and a series of word cards with hand-drawings.

Justification for the hourly rate for student RA and technical assistant:

The hourly rate for relatively senior student RA is HKD 50.00 per hour. Two student RAs will be needed. Each of them will work for about 50 man-hours in each year (total 100 man-hours) for the training and maintenance work after the implementation of the programme.

Technical assistant will be employed using the same salary scale. An estimation of a total 500 hours of work is needed for the webpage establishment and the video editing for the manuals.

Expected number of beneficiaries

South Asian non-Chinese Primary students with learning difficulties in learning Chinese, (6,480*) plus more than 300** primary teachers, 200 plus speech therapists and educational psychologists who are involved in with primary students with Chinese reading difficulties.

Extent of teacher and principals involvement in the project

The school principal, teacher, student guidance teacher (SGT) / student guidance personnel (SGP), teacher assistants/learning support assistant, parent volunteers and primary student helpers will be involved in all four phases of the programme as well as uploading result to the hub and to download materials from the hub for the project.

For each educational programme, it is estimated total of 70 hours of work is required from each participating teacher. The nature of participation will include the recruitment /assessment of students, the training of student helpers, the preparation of treatment materials, the training on the theoretical background, the implementation detail of the programme.

It is also expected that teachers and principals of participating schools would assist the dissemination and explanation of the results of the present study.

Expected deliverables and outcomes

A school-based Chinese reading remedial package for P.2 and P.3 will be developed. Each package will include sets of Chinese characters stimuli, word stimuli, probe test materials and activities specific to P.2 and P.3 levels. The package will come with detailed manuals for users (teachers, parents, student helpers and other related professionals) with training guidelines for teachers to train up parents and student helpers. A video demonstration on the implementation of the programme will also be included in the manual.

An e-learning centre on the Internet will be available for users to share their teaching materials developed and their implementation experiences and for those relevant professional who would like to learn to use the remedial programme.

Asset Usage Plan

Category (in alphabetical order)	Item / Description	No. of Units	Total Cost	Proposed Plan for Deployment (Note)
audio and video equipment	Audio recording pens	10	4,000	For use by _____ in other projects run by the Speech Therapy Unit. Especially for the collection of language sample during clinical practicum
	Digital camera	2	5,000	
computer hardware	Database workstation	2	35,000	For use by _____ in the maintenance of the result of the project and for the related educational purposes.
computer software	FileMaker Pro	4	5,000	For use by _____ in managing the databases thus created.
office equipment	Hard Disk	2	3,000	For use by _____ in the storage of AV materials thus created and related educational purposes.
	Printer x2		2,000	
Others	Memory stick	4	800	For use by _____ in other projects run by the Speech Therapy Unit.

Note: for use by school / organization / in other projects (please provide details of the department / centre to which the asset will be deployed and the planned usage of the asset in activities upon project completion).

Report Submission Schedule

My organization commits to submit proper reports in strict accordance with the following schedule:

Project Management		Financial Management	
Type of Report and covering period	Report due day	Type of Report and covering period	Report due day
Progress Report 01/04/2013 — 30/09/2013	31/10/2013	Interim Financial Report 01/04/2013 — 30/09/2013	31/10/2013
Progress Report 01/10/2013 — 31/03/2014	30/04/2014	Interim Financial Report 01/10/2013 — 31/03/2014	30/04/2014
Progress Report 01/04/2014 — 30/09/2014	31/10/2014	Interim Financial Report 01/04/2014 — 30/09/2014	31/10/2014
Final Report 01/04/2013 — 31/03/2015	30/06/2015	Final Financial Report 01/04/2013 — 31/03/2015	30/06/2015

Project Impact***Evaluation parameters and method***

To examine the effectiveness of the treatment approach and to measure the efficacy of the current programme, the following information will be obtained:

1. Post-treatment evaluations and the evaluation forms of different participants after each remedial session;
2. The results of probe tests administered after each remedial session;
3. The pre- and post-treatment scores as well as the post maintenance scores on standardized tests - (Leung, Lai & Kwan, 2008);
4. The pre- and post- treatment relative academic positions (Chinese subjects) in class:
 - i. The nearest academic examination results before the treatment
 - ii. The nearest academic examination results after the treatment
 - iii. The second nearest academic examination result after the treatment.
 - iv. The third nearest academic examination result after the treatment.
5. Questionnaires to teachers, student helpers, parents and other participants to capture their feedback on the administration of the programme and the usefulness of the draft manuals across semesters

The data obtained should allow us to examine the effect of the treatment and changes of effect size as well as the strategies used in reading across time. The difference between groups having treatment in 1st semester vs group having treatment in 2nd semester would review the best time to conduct the programme. The changes of effect size across time will inform us about the maintenance of treatment effect.

How the project would benefit the education sector as a whole

According to our pilot research (), the poor level of Chinese reading ability seriously hinders the learning of Chinese in various aspects. Moreover, a research done in 2008 (Yu-ka Wong & Ling-Po Shiu, Chinese Language Attainment of Ethnic Minority Primary School students in Hong Kong) even showed that the Chinese reading comprehension ability of Ethnic Minority students in Primary 4 is even lower than that of local Primary one students. We hope this school based training programme will help Non-Chinese students to build a firm foundation in reading Chinese words. The outcome of this project will be a cost effective training programme (it involves minimal efforts from paid staff with the participation of parents and student helpers) for Non-Chinese students with learning difficulties in reading Chinese. It also serves to equip teachers with a theory-driven training programme for teaching Non-Chinese students in Hong Kong.

Integrating Non-Chinese students in the local education system and enhancing school reforms to support an inclusive education has become a major trend in Hong Kong since 2004. To accommodate Non-Chinese students in classes, teachers are needed to be equipped with better theoretical knowledge and a school-based training programme for students with Chinese learning difficulties. Given the structure of the remedial programme (once a week for 12 weeks), it fits particularly well to

the Tier III of the “3-Tier Reading Model for Elementary Schools” (Vaughn Cross Center for Reading and Language Arts, University of Texas) which suggests a 10 to 12-week intervention plan, with the help of specialized reading teacher and other existing resources available to school. The result of the present proposed project should contribute constructively to the inclusive education reform and to the services provided to Non-Chinese students in Hong Kong.

The result of the current study should provide an informative basis for the review of current language mainstream syllabus, textbooks to enhance the integrative effectiveness of the training programme to help Non-Chinese students to learn Chinese in various schools in Hong Kong.

How the outcomes of the project can be sustained beyond the completion of the project

Materials developed from the project are designed for P.2 and P.3 Non-Chinese students who are having difficulties in reading Chinese. In theory, the package can be reused year after year for those P.2 and P.3 students. Teachers, student helpers, other school-based personnel and parents who have participated in this project should be able to implement the same programme to P.2 and P.3 students in the coming years. As long as the curriculum for primary school remains about the same, the school-based programme can be run in other schools, year after year.

The establishment of an Internet platform for schools using this or related programmes to share teaching materials and teaching experience enable further modification of the programme to suit different needs specific to individual schools. This will improve the quality and thus sustainability of the educational programme

Dissemination/publicity methods

1. A school-based remedial programme package for helping Non-Chinese students learning to read Chinese will be prepared for dissemination to schools and interested educators.
2. Training and sharing sessions will be organized for teachers and parents of schools interested in this programme.
3. The results of the study will be posted in the E-learning centre established in HK PolyU.
4. Dissemination of findings in various international conferences.
5. Publications in relevant international journals.

Participating/ supporting schools:

1. Private school- (School A)
2. Main stream schools- (School B)
3. Designated schools- (School C)

Reference

- Andrews, S. (1982). Phonological recoding: Is the regularity effect consistent? *Memory & Cognition*, 10, 565-575.
- Baron, J., & Strawson, C. (1976). Use of orthographic and word-specific knowledge in reading words aloud. *Journal of Experimental Psychology: Human Perception and Performance*, 2, 386-393.
- Chen, M.J. (1996). An overview of the Chinese writing system. *Asia Pacific-Journal of Speech, Language and Hearing*, 1, 43-54
- Chung, F.H-K., & Leung, M-T. (2006) A theory-driven treatment for Chinese developmental dyslexic children: preliminary results on the training of metalinguistic awareness. *Hong Kong Special Education Forum*, 8, 1-20
- Coltheart, V. & Leahy, J. (1992). Children's and adults' reading of nonwords: Effects of regularity and consistency. *Journal of Experimental Psychology*, 18, 718-729.
- Fang, S. P., Horng, R. Y., & Tzeng, O. J. L. (1986). Consistency effect and pseudo-character naming task. In S. K. Lao, & R. Hoosain (Eds.), *Linguistics, psychology and the Chinese language*. Hong Kong: University of Hong Kong Center of Asian Studies.
- Glushko, R. J. (1979). The organization and activation of orthographic knowledge in reading aloud. *Journal of Experimental Psychology: Human Perception and Performance*, 5, 674-691.
- Goswami, U., & Bryant, P. (1992). Rhyme, analogy, and children's reading. In P.B. Gough., L.C. Ehri, & R. Treiman (Eds.) *Reading acquisition*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Gustafsson, S., Samuelsson, S., & Ronnberg, J. (2000). Why do some resist phonological intervention? A Swedish longitudinal study of poor readers in grade 4. *Scandinavian Journal of Educational Research*, 44, 145-162.
- Hino, Y., & Lupker, S. J. (2000). Effects of word frequency and spelling-to-sound regularity in naming and without preceding lexical decision. *Journal of Experimental Psychology: Human Perception and Performance*, 26, 166-183.
- Ho, C. S.-H., & Bryant, P. (1997). Learning to read Chinese beyond the logographic phase. *Reading Research Quarterly*, 32, 276-289
- Ho, C. S.-H., & Ma, R. N-L (1999). Training in phonological strategies improves Chinese dyslexic children's character reading skills. *Journal of Research in Reading*, 22, 131-142.
- Ho, C. S.-H., Wong, W.-L., & Chan, W.-S. (1999). The use of orthographic analogies in learning to read Chinese. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, 40, 393-403
- Hue, C. W. (1992). Recognition processes in character naming. In H.C. Chen, & O. J. L. Tzeng (Eds.), *Language processing in Chinese* (pp.93-107). Amsterdam: North-Holland.
- Kwok, E. C.-M. (2003). *The discrepancy in the studies on the change of regularity effect in Chinese characters reading across grades: methodological differences?* Unpublished bachelor dissertation. University of Hong Kong, Hong Kong, Division of Speech and Hearing Sciences, Faculty of Education.
- Lee, C.-Y., Tsai, J.-L., Kuo, W.-J., Yeh, T.-C., Wu, Y.-T., Ho, L.-T., Hung, D.-L., Tzeng, O. J.-L., & Hsieh, J.-C. (2004). Neuronal correlates of consistency and frequency effects on Chinese character naming: An event-related fMRI study. *NeuroImage*, 23, 1235-1245.
- Lee, C.-Y., Tsai, J.-L., Su, E.C.-I., Tzeng, O. J.-L., & Hung, D. L. (2005). Consistency, regularity and frequency effects in naming Chinese characters. *Language and Linguistics* 6, (1), 75-107.
- Leung, M.T. (2006). 語音在中文閱讀的角色. *協康會四十週年紀念文集* pp.153-164.
- Leung, M.T., Ching-Lai, A., & Kwan, E.S.M. (2008). *The Hong Kong Graded Character Naming test*. Centre of Communication Disorder, HKU.
- Leung, M.T., & Lee, A. (2002). *The Hong Kong Corpus of primary School Chinese*. Paper presented at the ninth meeting of the International Clinical Phonetics and Linguistics Association. Hong Kong.
- Li, W.-L., Anderson, R. C., & Nagy, W. (2002). Facets of metalinguistic awareness that contribute to Chinese literacy. In Li, W.-L., Gaffney, J. S., & Packard, J. L. (Eds). *Chinese children's reading acquisition: theoretical and pedagogical issues* (pp.87-106). Boston : Kluwer Academic Publishers.
- Li, H., & Chen, H.-C. (1997). Processing of Radicals in Chinese Character Recognition. In Chen, H.-C. (Ed.), *Cognitive processing of Chinese and related Asian languages* (pp.141-160). Hong Kong: Chinese University Press
- Lundberg, I. Frost, J., & Petersen, O.P. (1988) Effects of an extensive programme for stimulating phonological awareness in pre-school children. *Reading Research Quarterly*, 33: 263-84.
- Lundberg, I., Olofsson, A., & Wall, S. (1980). Reading and spelling skills in the first school years predicted from phonemic awareness skills in kindergarten. *Scandinavian Journal of Psychology*, 21, 159-173.

- Nagy, W., & Anderson, R.C. (1999). Metalinguistic awareness and literacy acquisition in different languages. In D. Wagner, R. Venmexky, & B. Street (Eds.), *Literacy: An international handbook* (pp. 155-160). Boulder, CO: Westview Press.
- Plaut, D. C., McClelland, J. L., Seidenberg, M. S., & Patterson, K. (1996). Understanding normal and impaired word reading: Computational principles in quasi-regular domains. *Psychological Review*, *103*, 56-113
- Rastle, K., & Coltheart, M. (1999). Serial and stratgic effect in reading aloud. *J of experimental Psychology*, *25*, (2), 483-503.
- Raven, J.C. (1986). *Hong Kong Supplement Guide to the Standard Progressive Matrices*. Hong Kong: Education Department.
- Matrices*. Hong Kong: Education Department, H.K.
- Seidenberg, M. S. (1985). The time course of phonological code activation in two writing systems. *Cognition*, *19*, 1-30.
- Seidenberg, M. S., Waters, G. S., Barnes, M. A., & Tanenhaus, M. K. (1984). When does irregular spelling or pronunciation influence word recognition. *Journal of Verbal Learning and Verbal Behavior*, *23*, 383-404
- Seidenberg, M. S., & McClelland, J. L. (1989). A distributed, developmental model of word recognition and naming. *Psychological Review*, *96*(4), 523-568.
- Shu, H., & Anderson, R. C. (1999). Learning to read Chinese: The development of metalinguistic awareness. In J. Wang, A.W. Inhoff, & H. C. Chen (Eds.), *Reading Chinese script: a cognitive Analysis* (pp.1-18). Mahwah: LEA.
- Shu, H., Zhou, X., & Wu, N.-N. (2000). Utilizing phonological cues in Chinese characters: a developmental study. *Acta Psychologia Sinica*, *32*, 164-169.
- Shu, H., Chen, X., Anderson, R. C., Wu, N.-N., & Xuan, Y. (2003). Properties of school Chinese: Implications for learning to read. *Child Development*, *74*, 27-47.
- Stanovich, K. E., & Bauer, D. W. (1978). Experiments on the spelling-to-sound regularity effect in word recognition. *Memory & Cognition*, *6*, 410-415.
- Snowling, M.J. (2000). *Dyslexia (2nd edition)*. Oxford: Blackwell Publishers.
- Taft, M., & Zhu, X. (1999). Positional specificity of radicals in Chinese character recognition. *Journal of Memory and Language*, *40*, 498-519.
- Taft, M. (1991). *Reading and the mental lexicon*. Hove, UK: Lawrence Erlbaum Associates.
- Taraban, R., & McClelland, J.L. (1987). Conspiracy effects in word pronunciation. *Journal of Memory and Language*, *26*, 608-631.
- Torgesen, J., Wagner, R., & Rashotte, C. (1997). Approaches to the prevention and remediation of phonologically based reading disabilities. In B. Blachman (Ed.), *Foundations of Reading and Dyslexia: Implications for early intervention*. London: Lawrence Erlbaum.
- Tzeng, O. J.-L., Lin Z.-H., Hung, D.-L., & Lee, W.-L. (1995). Learning to be a conspirator: A tale of becoming a good Chinese reader. In B. de Gelder, & J. Morais, (Eds.), *Speech and Reading: a comparative approach*, pp 227-246. Hove, East Sussex: Erlbaum Taylor & Francis.
- Wieger, L.S.J. (1965). *Chinese characters*. N.Y.: Pragon Book Reprint Corp. Dover Publications, Inc.
- Wu, J.-T., & Liu, I.-M. (1997). Phonological Activation in Pronouncing Characters. In Chen, H.-C. (Ed.), *Cognitive processing of Chinese and related Asian languages* (pp.47-64). Hong Kong: Chinese University Press
- Yang, H., & Peng, D.-L. (1997). The learning and naming of Chinese characters of elementary school children. In Chen, H.-C. (Ed.), *Cognitive processing of Chinese and related Asian languages* (pp.323-346). Hong Kong: Chinese University Press
- Yip, H. K.-L. (2004). *The effect of phonological consistency on reading Chinese characters*. Unpublished bachelor dissertation. University of Hong Kong, Hong Kong, Division of Speech and Hearing Sciences, Faculty of Education.