Part B Project Summary

An Integrated Chinese-learning Programme for Junior South Asian Students in HK
香港南裔初小學生的綜合中文學習課程（QEF 2014/0754)

Name of Organization: Department of Chinese & Bilingual Studies, The Hong Kong Polytechnic University

(1) Goals and Objectives:

1. To develop a school-based, theory-driven Chinese reading programme for South Asian students at primary 2 level, through teaching them the necessary phonetic radicals, OPC rules and enriching their morphological awareness
2. To verify the effectiveness of the education programme in schools having high percentage NCS students through comparing the difference between control and experimental groups, pre-, post-programme tests, continuous weekly probe test, Chinese examination results
3. To verify the maintenance of effect of the programme.
4. To develop a teacher-friendly manual for this school-based remedial programme for schools with high percentage of NCS students.
5. To establish a digital hub as a supporting resource for schools using this programme to download teaching materials, to upload training data and to sharing teaching experience.

(2) Targets: Expected number of beneficiaries:

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

(3) Implementation Plan:

(i) Duration: 2 years (June 2016 – May 2018)

(ii) Process / Schedule:

Period	S1 2016-17	S2 2016-17	Summer 2016-17	S1 2017-18	S2 2017-18	Summer 2017-18
Schools	A & B	A & B	A & B	B & C	B & C	B & C
Activities	Training 1&2	Training 3 & Maintenance	Analysis & writing up manual	Training 1&2	Training 3 & Maintenance	Analysis & finalizing manual

Collaboration with other parties / partners:

Delia English Primary School (Mei Foo) (School A), Tung Chung Catholic School (Primary Session or Chinese Y.M.C.A. Primary School (School B), Li Sing Tai Hang School (School C), School D is to be confirmed.

(4) Products:

(i) Deliverables/outcomes:

A school-based Chinese reading training package consists of three phases of training will be developed. Sets of Phonetic radicals of Chinese characters, Chinese characters and multi-syllabic words, probe test materials and activities together with detailed manuals for users and training guidelines for teachers to train up parents and student helpers will be included in each package.

An e-learning platform 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.

(ii) Dissemination of deliverables / outcomes through seminars, workshop and internet.

(5) Budget:

Staff cost	504,000.00
Services	678,400.00
Equipment	48,200.00
General expenses	85,000.00
Total	1,315,600.00

(6) Evaluation:

1. Pre- and Post measurement of Chinese character naming abilities using the standardized Chinese Character Naming Test (CNT, Leung, Lai & Kwan 2008) and Chinese two syllable word Naming test (WNT).
2. Pre- and Post ranking of the participants' examinations scores of their Chinese subjects
3. Continuous assessment through using post session probe tests designed specifically for
   a. Phonetic radical training
   b. OPC training （regularity rule and consistency rule)
   c. Morphological awareness training (boundedness, semantic transparency and productivity)
4. Post maintenance scores
   a. CNT
   b. WNT
   c. Ranking of participants' examination scores of their Chinese subjects.

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Background: The need of a brand new integrated Chinese-learning programme for South Asian students

Teaching South Asian students to read Chinese has always been a pedagogical issue in Hong Kong. However, if South Asian students could learn Chinese according to linguistic strategies, which are designed specifically for them, we would very likely achieve a positive outcome. In order to further help the South Asian students to learn Chinese as a second language, experiences and results from previous projects have been studied and examined, to create a brand new Chinese-learning programme which integrates different linguistic strategies.

One of the linguistic strategies we have applied on South Asian students successfully in previous project (QEF 2011/0308) is the Orthographic Phonologic Correspondence rule (OPC rule: Fang et al., 1986; Hue, 1992; Lee et al., 2004; Lee et al., 2005; Tzeng et al., 1995). The OPC rule help develop the sense of 'regularity' and 'consistency' relationship between Chinese orthography and Chinese phonology. Nonetheless, to fully make use of the OPC rules of Chinese words, one must have a word bank which contains sufficient amount of phonetic radicals (象/zoeng6/ [elephant] of the character 橡/zoeng6/ [oak tree]). Therefore, building up the bank of phonetic radicals for South Asian students before teaching them to develop and apply OPC rules is necessary.

Another linguistic strategy we have successfully applied on local primary students with dyslexia is to promote their morphological awareness (QEF 2009/0334). Morphology awareness refers to the ability to manipulate the constituent morphemes of multi-character words. Morpheme usually refers to the basic meaningful unit of a language. In Chinese, morpheme is usually represented by one character. For example, the multi-character word 食堂 /sik6 tong4/ [*restaurant*] is formed by two morphemes, 食/sik6/ [*eat*] and 堂 /tong4/ [*hall*].

It is hypothesized that an improved morphological awareness of South Asian students is going to help them learn and understand new compound Chinese words. In the past decades, a lot of linguistic studies indicate that beginning readers and poor readers have poorer morphological awareness than good readers (Carlisle & Fleming, 2003; Leong, 1999; Shu, et al., 2006). For example, when a child were asked to read aloud 潔/git3/ [*clean*], very often they demonstrated selection errors, where 潔/git3/ was read as 清/cing1/ [*clear*]. This error suggested that the phonological form of the corresponding multi-character word 清潔/cing1git3/ [*clean*] was stored holistically, and the child selected to read aloud the first component syllable instead of the syllable represented by the target character. It is hypothesized that if the morphological awareness of students improves, they can make use of the more effective analytic approach in their learning of new words. Consequently, their reading abilities can be dramatically improved.

Based on the review above, an integrated educational programme to learn Chinese for South Asian students should consist of three parts: 1. Building up the bank of phonetic radicals; 2. Establishing OPC rules and 3. Elevating the morphological awareness of Chinese.

Applicants' Capability

Based on the pilot work done by our team members Dr. [redacted] and Dr. [redacted] of HK PolyU, we are well-prepared to conduct the proposed research.

The applicants consist of one professor and one lecturer from the Department of Chinese and Bilingual Studies who have their expertise in corpus linguistics, training students who suffer from dyslexia and teaching Chinese as second language specializing in teaching NCS students Chinese. The principal investigator has played a key role in the development of the Hong Kong Corpus of Primary School Chinese (Leung & Lee, 2002, Leung, 2006, Lau & Leung, 2014) and Standardized Graded Character Naming test (Leung, Lai & Kwan, 2008) which are widely used resource for professionals such as speech therapists and educational psychologists.

Dr. ~~Yuen Chun Wah, David~~ has been involved in providing training to teachers to deal with students learning Chinese as a second language. His experience in running education programme for teachers and the front line application of education programme is an indispensable member of the team. David will be heavily involved in the design of the educational programme and in the execution of the programme. His connections with schools providing education to NCS students ensures an efficient and productive link between participating schools and our team.

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.

Goals and Objective

Short term (those attainable within the project period)

1. To develop a school-based, theory-driven Chinese reading programme for South Asian students at primary 2 level, through teaching them the necessary phonetic radicals, OPC rules and enriching their morphological awareness
2. To verify the effectiveness of the education programme in schools having high percentage NCS students through comparing the difference between control and experimental groups, pre-, post-programme tests, continuous weekly probe test, Chinese examination results
3. To verify the maintenance of effect of the programme.
4. To develop a teacher-friendly manual for this school-based remedial programme for schools with high percentage of NCS students.
5. To establish a digital hub as a supporting resource for schools using this programme to download teaching materials, to upload training 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.

Targets: Expected number of beneficiaries:

South Asian non-Chinese speaking Primary students with difficulties in learning Chinese as a second language, more than 300 primary teachers, 300 plus speech therapists and educational psychologists who are involved in with primary students with Chinese reading difficulties.

Innovation & Conceptual Framework

The whole project is designed in a way that the end product can be used to establish a school-based programme for South Asian students with difficulties learning Chinese. The programme can be divided into three parts: 1. Enriching students' bank of phonetic radicals; 2. Introducing the OPC strategies and 3. Strengthening students' morphological awareness of Chinese.

First of all, according to the experience we had in the previous QEF project (QEF 2011/0308), the biggest obstacle in learning Chinese for South Asian students is their insufficient repertoire of characters, especially those characters which can act as phonetic radicals, when compared to local students of same age. From our observation, most of the South Asian students' problems in understanding and applying the Chinese linguistic concepts and strategies to the Chinese words and vocabulary are manageable, once they have recognized enough basic Chinese character. The first step of the programme, hence, is to enrich their repertoire of phonetic radicals up to the level sufficient for their learning.

The second step is to introduce the OPC rule to the students. Once a student has grasped the corresponding orthographic knowledge of the orthography in question, the child would acquire 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; Ho, Chan, Tsang, & Lee, 2000). The analysis of the data we collected in our previous QEF project shows promising results. Participating students who have learned the OPC rule did have improvement in word recognition and the effect was sustainable across time. However, data also show that the improvement is not reflected in the results of their Chinese examinations at school.

The possible reason is that the improvement at Chinese character level could not generalize to morphological level where characters are combined to form compound words. For local students, they learn up to around 3800 Chinese characters at Primary 6 (Leung and Lee, 2002). Those 3800 characters can form more than 40,000 two-character words; if we account for three-character, four-character words, the number will be even higher (Lau & Leung, 2014). For local Primary 6 students, they still have to learn more than 8,000 two-character words according to the data corpus of HK primary text. It is almost impossible to learn all of them only by memorization. Local students, with good Chinese morphological awareness and a fair understanding in Chinese word formation, could self-learn and memorize new multi-character words through a process called phonological recoding mechanism (Joam & Share, 2008). For example, the character 王/wong4/ [king] and the character 國/gwok3/ [kingdom] can form the word 國王/gwok3 wong4/ [king of the kingdom] and 王國/wong4 gwok3/ [kingdom of the king]. Understanding the meaning of the two characters and the word formation rules can help students self-learn the two words, with least effort of memorization.

Therefore, the third step would be focusing on strengthening students' morphological awareness of Chinese. Elevating students' morphological awareness of Chinese can help them eliminate errors that occur in recognizing, understanding and reading Chinese, which can further facilitate them in understanding Chinese phrases and sentences.

The morphological awareness and the understanding of the meaning of multi-character words are related to the constituent morphemes, and are affected by the following three key factors:

The first factor is the semantic transparency of the complex words. Semantic transparency concerns the contribution of the meanings of the constituent morphemes to the meaning of the complex word. Transparent words are those where the whole word meanings can be directly derived according to the meanings of the constituent morphemes, while opaque words cannot. An example of a transparent word in Chinese is 手錶/sau2 biu1/ [*hand-watch*] because the whole word meaning can be directly derived from the meaning of the first morpheme 手/sau2/ [*hand*] and the second morpheme 錶/biu1/ [*watch*]. An example of an opaque word in Chinese is 馬上/ma5 soeng6/ [*immediately*] because the meanings of the first morpheme 馬/ma5/ [*horse*] and the second morpheme 上/soeng6/ [*up*] do not contribute to the

whole word meaning. For children to understand that the meanings of complex words are related to those of the constituent morphemes, the multi-character words concerned must be semantically transparent. The introduction of opaque words, on the other hand, would hinder the development of morphological awareness.

The second factor is the boundedness of the constituent morphemes. Boundedness concerns whether a morpheme can be used independently as a word. Free morphemes are those that can be used independently as words (e.g. 手/sau2/ [*hand*]) while bound morphemes are those that cannot (e.g. 故 /gu3/ [old]). It can be deduced that to understand the relations between the whole word meanings and the constituent morpheme meanings of multi-character words formed by free morphemes should be easier for children than with bound morphemes because direct comparisons between the meanings can be achieved. Multi-character words formed by bound morphemes, on the other hand, are more difficult because the meanings of bound morphemes are not immediately available. The meanings of bound morphemes have to be extracted from the intersection of the meaning of the words in which it occurs (e.g., the meaning of the bound morpheme 故 must be obtained through the meanings of the words containing this particular morpheme such as 故事/gu3 si6/ [*story*] and 故人/gu3 jan4/ [*old friend*]).

The third factor is the productivity of the constituent morphemes. Productivity concerns the number of words that are formed by a particular morpheme. Productive morphemes are those that generate lots of words while non-productive morphemes are those that only generate a few words. An example of non-productive morphemes will be 翔/coeng4/ [*fly*] because it only generates limited number of words. An example of a productive morpheme is 飛/fei1/ [*fly*]. Similar to the reason quoted in our discussion of boundedness, understanding the relations between whole word meanings and constituent morphemes meanings of complex words formed by productive morphemes should be easier because the occurrence of a productive morpheme in a large number of words with shared meanings should allow the reader to deduce the specific meaning of the morpheme through comparisons between whole word and constituent morpheme meanings.

To improve students' morphological awareness of Chinese, there are two necessary steps. The first step is to introduce a large number of morphemes to students. The second step is to introduce a large number of multi-character words that are formed by these morphemes. In contrast with the limited number of multi-character words found in Hong Kong textbooks, Xing (2006) identified 8822 multi-character words in textbooks used in the Mainland China. It is highly likely that we can find sufficient multi-character words from Xing's (2006) database in additional to the existing words used in Hong Kong textbooks on which to base our training programme. After modifying the characters to make them suitable for the usage and learning habits of Hong Kong students, we can then establish a database that serves as a useful resources database for selection of teaching material either for training or many other educational purposes. One of the possible applications is the present proposed training programme where teaching materials are selected through using the database developed.

Furthermore, we would try to raise the non-local students' exposure to Chinese in order to enhance their morphological awareness and help them immerse in a Chinese environment. Just as the vehicle of character is word, the vehicle of word is sentence, and the vehicle of sentence is passage. The teaching of Chinese characters should be conducted in the form of words, and the teaching of Chinese multi-character words should therefore be conducted in the form of sentences and passages. In this sense, we would conduct different kinds of Chinese activities in each lesson, such as reading exercise, storytelling and story retelling, and both electronic and self-designed games, in order to help students expose to and immerse in the Chinese environment. At start the professional team will design those activities involved in the training. Later NCS students will be asked to join in to co-design those activities under the guidance of the team.The resultant stories, games, activities and reading materials can serve as a resource for schools interested in the programme.

With combination of the steps of establishing a bank of phonetic radicals, learning the OPC rule and strengthening of the morphological awareness, South Asian students should have better chance of generalizing the learned skills to the improvement of their literacy abilities.

Implementation plan with Timeline

The programme consists of three parts, 4 lessons of teaching phonetic radicals, 10 lessons of introducing OPC strategies split into 4 stages, and 10 lessons of strengthening morphological awareness of Chinese split into 3 stages, with which there are 24 lessons in total, and every lesson lasts for 90 minutes.

The first part is to teach the students various phonetic radicals that suit the Chinese level of primary 2 students in 4 lessons. This part will prepare them with adequate phonetic knowledge that allows them to absorb and acquire the linguistic concepts which are going to be introduced in the following two parts.

The second part is to introduce the OPC strategies in four different 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 training 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. Training materials needed for each of the phases and post-training probe test will be prepared in a way that all materials can be re-used.

The third part is to increase the morphological awareness of Chinese in three stages. The first stage is to foster morphological awareness with exposing students to two-character words consisting of productive free morphemes (e.g. 醉酒/zoey3 zau2/ [drunk]). After they can successfully manipulate the constituent productive free morphemes in two-character words, they will be promoted to the second stage where non-productive free morphemes and productive bound morphemes of two-character words will be introduced (e.g. 階級/gaai1 kap1/ [rank], <non-productive free>; 統治/tung2 zi6/ [to rule], <productive bound>). At this stage two-character words will be constructed by combining one productive free morpheme learned in the first stage and a non-productive free morpheme or a productive bound morpheme introduced in this stage. Up to here, students will be instructed to make use of the whole word meaning and that of the learnt constituent productive free morphemes to infer the meanings of the non-productive free morphemes and the productive bound morphemes within the target bi-morphemic words. Training will proceed to the third phase which introduces non-productive bound morphemes (e.g. 承諾/sing4 nok6/ [promise]) after the students can achieve the target of the second phase. Bi-morphemic words consist of one learnt morpheme and one non-productive bound morpheme introduced in this third phase will also be introduced. The students will be instructed to, again, make use of the whole word meanings and that of the learnt morphemes to infer the meanings of the non-productive bound morphemes.

Also, throughout the programme, students have to join the school-based Chinese activities such as Chinese reading, storytelling and Chinese games, specifically designed by participating teachers, in order to develop the sense of speaking and using Chinese. The part of Chinese activities would last for 15 minutes every lesson. After this programme, the South Asian students should be able to self-learn and decode Chinese characters and compound words at primary 2 level.

Subjects

A total of 80 primary 2 South Asian students, Raven score within normal range (Raven, 1986), will be recruited from four primary schools. From each school, 10 students will be randomly

assigned to the training group in which they would receive full training including learning phonetic radicals, OPC rules and morphology, and joining the Chinese activities at the same time. Another 10 students from each school would be randomly assigned to the control group, who receive no training but have to join the Chinese activities. Every lesson would last for 90 minutes, in which 15 minutes would be assigned to the Chinese activities. There would be 40 students for training and 40 students for control in this programme. Raven progressive matrix will be administered to participants to control for their non-verbal intelligence.

Programme schedule

School A + School B

Date	**Activities**	**People involved**	**Remarks**
June 2016	Preparation for the programme	Research team	
July-Aug 2016	Pre-training assessment & trainer's workshop	NCS students, Research team, Teachers	
	Ranking scores of Chinese subjects 1		Pre-training measurement
Oct 2016 (4 teaching weeks)	Training period of part 1 plus post-training assessment	NCS students, Research team, Teachers	4 probe test measurement and questionnaires
	Post-training assessment	Research team	Post-training measurement 1
Nov 2016 - Jan 2017 (10 teaching weeks)	Training period of part 2 plus post-training assessment	NCS students, Research team, Teachers	10 probe test measurement and questionnaires
	Post-training assessment	Research team	Post-training measurement 2
Jan - Mar 2017 (10 teaching weeks)	Training period of part 3 plus post-training assessment	NCS students, Research team, Teachers	10 probe test measurement and questionnaires
	Post-training assessment Ranking score of Chinese subjects 2	Research team	Post-training measurement 3
Apr 2017 (3 teaching weeks)	Maintenance programme for Schools A & B	NCS students, Research team, Teachers	
	Post-training assessment Ranking scores of Chinese subjects 3	Research team	Post-training measurement 4
Apr - Jun 2017	Data analysis	Research team	

School C + School D

Date	**Activities**	**People involved**	**Remarks**
May - Jun 2017	Pre-training assessment & trainer's workshop	NCS students, Research team, Teachers	
	Ranking scores of Chinese subjects 1		Pre-training measurement
Sep 2017 (4 teaching weeks)	Training period of part 1 plus post-training assessment	NCS students, Research team, Teachers	4 probe test measurement and questionnaires
	Post-training assessment	Research team	Post-training measurement 1

Oct 2016 - Dec 2017 (10 teaching weeks)	Training period of part 2 plus post-training assessment	NCS students, Research team, Teachers	10 probe test measurement and questionnaires
	Post-training assessment	Research team	Post-training measurement 2
Dec 2017 - Feb 2018 (10 teaching weeks)	Training period of part 3 plus post-training assessment	NCS students, Research team, Teachers	10 probe test measurement and questionnaires
	Post-training assessment Ranking scores of Chinese subjects 2	Research team	Post-training measurement 3
Mar 2018 (3 teaching weeks)	Maintenance programme for Schools A, B, C & D	NCS students, Research team, Teachers	
	Post-training assessment Ranking scores of Chinese subjects 3	Research team	Post-training measurement 4
Mar - May 2018	Analysis, distribution of teacher's manual and teaching materials	Research team	

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. Training workshops will also be organized around the end of the project.

Materials and stimuli

1. All training stimuli will be selected from the Hong Kong Corpus of Primary School Chinese (Leung & Lee, 2000) with reference to the school-based materials used at the individual schools. The Corpus 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.

2. The corpus will be enriched using Xing's (2006) database. This will be done according to the following four steps:
   1) Converting all the content of Xing's (2006) database from simplified Chinese into traditional Chinese
   2) Transforming the homographs (e.g. 后→後) in simplified Chinese but not in traditional Chinese according to their meaning
   3) Identifying all the words in Xing's (2006) database that are formed by morphemes that are used in textbooks in Hong Kong
   4) Excluding words that are not applicable to Hong Kong children due to cultural differences from the words identified in step 3

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Extent of teachers' and principals' involvement in the project

The school principal, teacher, teaching assistants/learning support assistant, parent volunteers from participating schools and senior primary students who perform better in their Chinese learning will be recruited to participate in the programme. Their major role is to participate actively in the games designed by the team and to motivate the participants to work hard on the task given to them.

It is estimated total of 72 hours of work is required from each participating teacher or assistant. The nature of participation will include the recruitment/assessment of students, the training of student helpers, the preparation of training materials, the training on the theoretical background and/or the implementation detail of the programme.

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

Budget

Budget with detailed breakdown:

	Year 1	Year 2	Total
Staff cost			
Project officer (To manage the project) ($21,000 (5% MPF included) X 24 months)	252,000.00	252,000.00	**504,000.00**
	Subtotal: HKD		**504,000.00**
Service			
Training officer (for training of teachers and students) （$600/hour x 357 hours x 2 years ）	214,200.00	214,200.00	**428,400.00**
Student research assistants (for treatment and training) ($50/hour x1,000 hours x 2 years	50,000.00	50,0000.00	**100,000.00**
Plotter for design and drawing of character cards and design of teaching manuals	25,000.00	25,000.00	**50,000.00**
Technical assistants	50,000.00	50,000.00	**100,000.00**
	Subtotal: HKD		**678,400.00**
Equipment			
Hardware			
Data Base workstation x 2 ($17500@)	35,000.00		**35,000.00**
Digital video camera x 2 ($3,000@)	6,000.00		**6,000.00**
Printer x 2 ($1,000@)	2,000.00		**2,000.00**
Memory sticks x 6 ($200@)	1200.00		**1,200.00**
Hard disk x 8 ($500@)	4,000.00		**4,000.00**
	Subtotal: HKD		**48,200.00**
General expenses			
Consumables (paper, bags/packs for carrying testing stimuli, stationeries)	10,000.00		**10,000.00**
Expenses relating to manual printing (Teaching packs & CDs)	50,000.00		**50,000.00**
Expenses relating to seminars	10,000.00		**10,000.00**
Audit expenses	15,000.00		**15,000.00**
	Subtotal: HKD		**85,000.00**
	Grand total: HKD		**1,315,600.00**

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 and reports writing.

Training officer :

Prepare Chinese teaching materials for P2 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.

Plotter :

Responsible for designing and drawing of pictures of text-books, exercise books and character cards according to the requirement of the training officer and research team members.

Student RA :

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

Technical assistants :

Work on the video editing for the manuals;
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 :

A PO will be employed under the regulations set by HKPolyU. The monthly salary for a project officer is $20,000.00 in the 1st year, 2nd year. It is expected that the PO should have some years of experience in the field of Teaching Chinese to Non-Chinese speaking speaking students and can handle database.

Justification for the cost of training officers:

Training officers are professional education consultants, who should have a speech therapist and educational psychologists qualifications, the hourly rate is HKD $600 per hour.

Justification for the cost of Plotters:

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 RAs and Technical assistants:

The hourly rate for student RA is HKD 50.00 per hour in PolyU. As the project needs to serve three partner primary schools and each school have a number of classes in each level (P2). A team of student RAs will be needed. In each year, a total 1,000 man-hours is needed for the training and maintenance work during and after the implementation of the programme.

Justification for Technical assistants

An estimation of a total 2,000 hours of work is needed for the webpage establishment and the video editing for the manuals.

Expected deliverables and outcomes

A school-based Chinese reading remedial package for P.2 will be developed. Each package will include sets of Chinese characters stimuli, word stimuli, probe test materials and activities specific to P.2 level. The package will come with detailed manuals for users (teachers, parents of NCS students, 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 English or Chinese. Also, training workshops will be held to train teachers and other related parties with the achieved knowledge and theories from this programme.

All of the teaching resources mentioned in the above paragraph will be uploaded into a server at PolyU. The remedial package which include the character stimuli, word stimuli, guideline of activities and teacher guides can be downloadable through the inter-face of a webpage. The webpage will be made available to all those who are interested in the programme.

Evaluation parameters and method

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

1. Pre- and Post measurement of Chinese character naming abilities using the standardized Chinese Character Naming Test (CNT, Leung, Lai & Kwan 2008) and Chinese two syllable word Naming test (WNT).
2. Pre- and Post ranking of the participants' examinations scores of their Chinese subjects
3. Continuous assessment through using post session probe tests designed specifically for
    a. Phonetic radical training
    b. OPC training （regularity rule and consistency rule)
    c. Morphological awareness training (boundedness, semantic transparency and productivity)
4. Post maintenance scores
    a. CNT
    b. WNT
    c. Ranking of participants' examination scores of their Chinese subjects.

    The measurements are designed to investigate the effectiveness of the programme in three different aspects:
    i. The continuous measurement and the difference between control and experimental group are for the demonstrate the learning of phonetic radical, the OPC rules as well as the morphological awareness
    ii. The post CNT and WNT and the difference between control and experimental group are for the demonstration of the generalization of those rules and awareness attained in i. to the decoding of single characters and words
    iii. The post maintenance scores are for the investigation on the maintenance of the learned skills and their generalization.

Sustainability of the Project outcomes

According to our pilot research (YUEN CW-2012-Comparison of Chinese Proficiency between South East Asian (SEA) students & local Chinese students in Hong Kong at Primary School level), the poor level of Chinese reading ability serious hinder 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 speaking students to build 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 student helpers) for Non-Chinese speaking students with learning difficulties in reading Chinese. It also serves to equip teacher with a theory-driven training programme for teaching Non-Chinese speaking students in Hong Kong.

Integrating Non-Chinese speaking students in 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 speaking 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. The result of the present proposed project should contribute to the inclusive education reform and to the services provided to Non-Chinese speaking students in Hong Kong.

The result of the current study should provide an informative basis for enhancing the integrative effectiveness of the training programmes to help Non-Chinese speaking students to learn Chinese in various schools in Hong Kong.

Materials developed from the project are designed for P.2 Non-Chinese speaking students who are learning to read Chinese. In theory, the package can be reused year after year for those 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 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. An e-learning platform 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

Research question to answer

The whole project is designed based on the following hypothesis. First, the Chinese reading problem of NCS students is a consequence of : The lack of knowledge of script-sound relations and the lack of morphological awareness in Chinese. The educational programme aims at improving the script-sound relations (regularity and consistency) and the morphological awareness. If the hypothesis is correct, then the participants' reading abilities will improve and the improvement will be generalized to non-target teaching items (items not being taught in the programme).

Dissemination/publicity methods

1. A school-based remedial programme package for helping Non-Chinese speaking students learning to read Chinese will be prepared for dissemination to schools and interested educators.
2. Training workshops and sharing sessions will be organized for teachers and parents of schools interested in this programme.
3. Dissemination of findings in various international conferences.
4. Publications in relevant international journals.

Participating/ supporting schools

1. Delia English Primary School (Mei Foo) 美孚地利亞小學 (School A)
2. Tung Chung Catholic School (Primary Session or Chinese Y.M.C.A. Primary School (School B),
3. Li Sing Tai Hang School 李陞大坑小學 (School C)
4. Islamic Dharwood Pau Memorial Primary School 伊斯蘭鮑伯濤紀念小學 (School D) [to be confirmed)

Asset Usage Plan

The Grantee should plan the deployment of assets that cost $1,000 or more per item upon project completion.

Category	Item / Description	No. of Units	Total Cost	Proposed Plan for Deployment(Note 1) & Justification(s) (Note 2)
audio and video equipment	DV camera	2	$6,000	*For use in the department of Chinese and Bilingual Studies, PolyU*
computer hardware	Database workstations	2	$35,000	*For use in the department of Chinese and Bilingual Studies, PolyU*
Others	Printer Memory sticks Hard disks	2 6 8	$2,000 $1,200 $4,000	*For use in the department of Chinese and Bilingual Studies, PolyU*

Note 1: 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).
Note 2: areas related to educational use / sustain the project impact.

Report Submission Schedule

The grantee commits to submit proper reports in strict accordance with the following schedule:

Project Management		Financial Management	
Type of Report and Covering Period	Report Due Date	Type of Report and Covering Period	Report Due Date
Progress Report 1/6/2016 - 30/11/2016	31/12/2016	Interim Financial Report 1/6/2016 - 30/11/2016	31/12/2016
Progress Report 1/12/2016 - 31/5/2017	30/6/2017	Interim Financial Report 1/12/2016 - 31/5/2017	30/6/2017
Progress Report 1/6/2017 - 30/11/2017	31/12/2017	Interim Financial Report 1/6/2017 – 30/11/2017	31/12/2017
Final Report 1/6/2016 - 31/5/2018	31/8/2018	Final Financial Report 1/12/2017 - 31/5/2018	31/8/2018