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ABSTRACT

This document contains the May and November 2000 issues of "New Horizons in Education," with articles in English and Chinese. The May issue includes the following articles: "A Key to Successful Environmental Education: Teacher Trainees' Attitude, Behaviour, and Knowledge" (Kevin Chung Wai Lui, Eric Po Keung Tsang, Sing Lai Chan); "Critical Comments on Putonghua Proficiency Test" (Dan Lu); "A Comparative Study of Status and Trends of Educational Research in Thailand and Japan" (Tisana Khemmani); "Fostering a Broader View of Creativity: Reinterpreting Creative Thinking" (Xiaodong Yue); "Compulsory School Education: Curriculum Scholars View" (Kwok Keung Ho, Wai Shing Li, Sze Yin Yeung, Kam Wing Chan); "An Analysis of Component of 'Subjective Reaction' Expressed in the End of Narrative Text" (Xin Hua Zhu); "Mode of Assessment of Putonghua Listening and Spoken Language Abilities in Hong Kong Primary Schools" (Sau Hung Cheung); "Analysis of the Errors in Compiling Elementary School Mathematical Questions" (Ying Xiu Yang); "Toward a Vocabulary for Third-Wave Critical Thinking" (John H. Bryant); and "Research and Application of Learning Guidance" (Yu Dong Dai). The November issue features: "A Preliminary Study of the Staff Development Programmes in Hong Kong Schools" (Ping Man Wong and Chung Kee Wong); "Economies of Education and Collaboration of Educational Exchange" (On Shing Choi); "Primary Chinese Language Curriculum and Instruction: Student Perspectives" (John Chi-kin Lee, Henry Chun-wai Leung, and Regina Mo-lin Ko); and "Cognitive Psychology Theories and Children's Reading Development" (Hua Shu and Alice Cheng Lai). Bar charts, pie charts, tables, diagrams, and references are provided throughout the text as appropriate. (KFT)

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New Horizons in Education, 2000

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NEW HORIZONS
In Education

No. 41 May 2000

教育曙光

第四十一期
二零零零年五月

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香港教師會
教育學報

JOURNAL OF EDUCATION
HONG KONG TEACHERS' ASSOCIATION

香 港 教 師 會

香港教師會於一九三四年成立，以促進教育同工之間的密切合作、提高教育專業人員的地位、維護會員的權益、增進會員的福利、加強國際間的了解為宗旨。香港教師會除了是本港一個教育團體外，同時亦是多個國際性組織的會員，如世界教師專業組織聯合會及國際閱讀協會會員。

香港教師會的週年學術活動有：(一)教育研究大會，如一九九七年舉辦的「優質教育新挑戰：愉快的教與學」研究大會、一九九八年舉辦的「質素保證視學如何提升學校教育質素？」研究大會、及一九九九年籌辦的「邁向2000年教師何去何從？」研究會等；(二)本港教育專題研討會，如「幼稚園、小學與中學的銜接研討會」、「特殊學校音樂教育研討會」、「如何為成績稍遜的學生提供有效學習研討會」、「教室管理的科學與藝術」及「母語教學問題及解決方法研討會」等；(三)定期出版教育曙光。近年舉辦的國際學術活動，則有一九九二及一九九九年主辦的海峽兩岸四地學術研究會及一九九八年主辦第三屆東北亞教育論壇。

教 育 曙 光

*教育曙光*是一份香港教師會出版的教育學報，每期均請專家評審；每年五月及十一月出版，分發全港幼稚園、小學、中學及大專院校。

*教育曙光*以促進專業發展與教學實踐為宗旨，每期均刊登具實踐和研究價值的文章。文章的範疇包括專題探討本港當前教育問題的剖析，教學、輔導及學校行政的研究，教育新趨勢和新意念的介紹等。

歡迎教師、學校行政人員、輔導工作者、教育學者及研究人員投稿。詳情請參閱每期刊登的徵稿啟示。

*教育曙光*歡迎各教育機構免費訂閱。請將訂閱表格及郵費寄來香港教師會。

HONG KONG TEACHERS' ASSOCIATION

The Hong Kong Teachers' Association (HKTA), founded in 1934, aims at developing close cooperation among educational workers, promoting the professional status of teachers, protecting the rights and improving the welfare of its members and strengthening international understanding of teacher organizations. Apart from being a Hong Kong-based educational body, HKTA is also a member of international organizations such as Education International and the International Reading Association.

The academic activities of HKTA include: (1) the annual education conference, such as and the 1999 Conference on Towards 2000 the Right Way for Teachers; the 1997 Conference on New Challenge of Quality Education: Pleasurable and Effective Teaching and Learning, the 1998 Conference on Promoting Quality Assurance Inspection and School Quality, (2) Seminars on local educational issues such as: "Continuity in Preschool, Primary and Secondary Education", "Music Education in Special Schools", "Effective Learning for the Less Able Students", "The Science and Arts of Classroom Management" and "Seminars on the Problems and Solutions of Mother-Tongue Teaching", and (3) the publication of New Horizons in Education. In 1992 and 1999 HKTA is proud to be the chief organizer and the host for The First and Fifth Educational Conference of China, Taiwan, Hong Kong & Macau and hosted the 1998 Third North-East Asia Teachers' Forum.

NEW HORIZONS IN EDUCATION

New Horizons is a refereed journal of education published in May and November by HKTA. It is distributed to kindergartens, primary and secondary schools and teriary institutions in Hong Kong.

New Horizons is intended as a forum to stimulate and enhance professional development and practice in education. We publish papers that speak directly to practical school and classroom concerns as well as papers that are based on systematic inquiries into educational issues and practices, including those related to the announced theme(s). We also publish presentations of new developments and innovative ideas tried out in schools, in Hong Kong or elsewhere.

Submissions are invited from teachers, school administrators, persons with pastoral duties, educationists and researchers. General information about submissions can be found in the Call for Papers in each issue of the journal.

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教　育　曙　光

第四十一期，二零零零年五月

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* 用英文撰寫

New Horizons In Education

No.41, May 2000

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編者語

今年是本刊值得紀念的日子，因為開始每年出版兩期了。上半年共收到23篇來稿，經過雙重不記名的評審後，能被接納而又趕及在付印前修正寄回的稿件不及一半。本刊今期來稿的評審需時平均為八星期，最長的要五個月，最快的一星期便可知道結果，主要視乎個別評審者的效率及合作程度，編者盡力做的只是多和評審者溝通及催促。

讀者能在美國教育研究資源中心(ERIC)的光碟系統及在萬維網中閱讀本刊各期文章的摘要。(網址： http://www1.fed.cuhk.edu.hk/en/nh/nhindex.htm)

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From the Editor

This year is a memorable year for our journal. We are going to publish 2 issues per year from now on. For the first half of the year, we received a total of 23 manuscripts from authors around the world and China. Only 10 could pass the double blind review process and were revised in time. The average reviewing period was about 8 weeks in this issue, actual time ranging from 1 to 20 weeks, depending on individual reviewer's cooperation.

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A Key to Successful Environmental Education: Teacher Trainees' Attitude, Behaviour, and Knowledge

Kevin Chung Wai LUI Eric Po Keung TSANG Sing Lai CHAN

Hong Kong Institute of Education

The present study is unique in being one of the few conducted with the teacher trainees in Hong Kong to gather and analyze relevant data related to environmental education. In this regard, this study aims to investigate (i) the environmental worldviews, (ii) the environmental dispositions, (iii) the perception on the urgency of major local and global issues, (iv) perception towards various environmental protection issues, (v) various aspects of green behavior, (vi) environmental knowledge and (vii) the related academic background, of the teacher trainees of the Hong Kong Institute of Education. The research method adopted is basically quantitative, in which a set of questionnaire serves as the measuring instrument to access the teacher trainees' environmental attitudes, behavior and knowledge. These findings will provide useful information for curriculum development purposes such as developing relevant and appropriate teaching content, strategies and methods for new and existing environmentally related modules.

環境教育成功的關鍵：師範學員之態度、行為及知識

本文旨在分析準教師對環境教育的看法，類似的研究在香港似乎甚少。研究重點在探討香港教育學院學員 (i) 對環境的世界觀，(ii) 對環境的性向，(iii) 對本土及世界環境問題緊急性的看法，(iv) 對環保問題的觀點，(v) 對綠色行為的不同態度， (vi) 對有關環保的知識，和 (vii) 有關的學業背境。研究基本上採用數量分析法，派發問卷以調查師範學員對環保之態度、行為及知識。研究結果有助修訂教學內容、教學策略和教學法，以便改進與環境有關的新舊課程。

Introduction

There has been wide recognition of the need for teacher education in environmental education (e.g. UNESCO, 1980). Recently, UNESCO has even referred to teacher education as "the priority of priorities" in environmental education (UNESCO-UNEP, 1990). This is argued on the basis that the key to successful environmental education is the classroom teacher. If teachers do not have the knowledge, skills and commitment to environmentalize their curriculum, it is unlikely that environmentally literate students will be produced." (Wilke, 1985). In support of this, Tilbury (1992) and Fien (1993) argued that environmental education within pre-service teacher education, which aimed at improving environmental education competencies of teachers, was critical. In Hong Kong, there were a number of studies conducted on environmental education in teacher education institutions. Stimpson (1997) looked at recent curricular development in environmental education in Hong Kong and the degree to which they were supported by present practices in teacher education. He remarked that the efficacy of teacher education in facilitating change was insufficient and was attributable to the style of teacher education in Hong Kong. Lee (1997) had a close look at environmental education in schools in Hong Kong. He reported that environmental emphasis in schools had been primarily subject-based and institutional commitment to environmental education had been unsatisfactory. There were needs for policy reforms, teacher education curriculum reforms and improved curriculum strategies such as resource provision and in-service education. In HKIEd, initial efforts have been demonstrated by Science

Department staff to develop new environmental modules or revise current ones to improve environmental educational competencies of various groups of teacher trainees. The road is still long and tortuous. It needs staff dedication and Institute support. It seems that we need to have a better understanding of our teacher trainees' environmental attitudes, behavior and knowledge before we can develop relevant teaching strategies and meaningful activities for the existing modules and new environmental modules in future programs at appropriate levels. The present study is unique in being the first conducted with HKIEd teacher trainees to gather and analyze relevant data related to environmental education. Based on the findings, recommendations will be made as to (a) develop new environmentally-related modules or environmental components in relevant modules in HKIEd programs, (b) implement up-dated and appropriate strategies in existing modules with environmental components.

Method

Questionnaire Design

Previous relevant research studies in literature are used as references (Albrecht et. al. 1982; Arcury et. al., 1986; Dunlap et. al., 1978, Green Power, 1995; Ng, 1991) for the design of the questionnaire used in this study. Attitude tests were used to measure the environmental worldview and environmental dispositions of the respondents. Questions not only measured a person's attitude position but also included intensity on a five-point scale. The survey also included questions to elicit respondent's perceptions on environmental issues, and their green behaviour. Also a test on their understanding of basic environmental concepts was included.

In essence, the questionnaire consisted of the following **seven sections:**

1. Teacher trainees' environmental worldview - assessed by the 12-item New Environmental Paradigm (NEP) scale.
2. Environmental dispositions of teacher trainees - assessed by the Environmental Response Inventory (ERI) scale.
3. Teacher trainees' perception on the urgency of major local and global issues - measured by the Urgency Index (UI).
4. Teacher trainees' perception towards various environmental protection issue.
5. Teacher trainees' various aspects of green behavior.
6. Teacher trainees' environmental knowledge.
7. Background information of teacher trainees.

In the present context, the term **environmental worldview** is used to describe the beliefs, values, and the concepts that collectively make up an individual's perception of the environment and humankind's relation to it (Desinger and Toman, 1995). The environmental worldview of teacher trainees was assessed by the New Environmental Paradigm (NEP), scale developed by Dunlap and Van Liere (1978). The items in the test measured three distinct domains - 'balance of nature', 'limits to growth' and 'man over nature'. The mean NEP score has a possible range of 1.0 to 5.0 in which 1.0 represents the strongest anti-environment worldview while 5.0 indicates the strongest pro-environmental worldview.

The **environmental disposition** referred to individual differences in the ways people think about and relate to everyday physical environment. The environmental dispositions of trainees were assessed by adopting some of the items from the Environmental Response Inventory (ERI) scale developed by Mckechnie (1974). The ERI was designed to tap environmental disposition areas such as pastoralism, urbanism, environmental adaptation etc. This survey intended to discern the value orientation of trainees concerning the 3 above-mentioned disposition areas. Similar to the NEP score, the higher the ERI score (on a 5-point scale), the greater was the agreement of the respondent on the respective theme.

In this survey, teacher trainees were asked to evaluate the **urgency of major local and global environmental issues.** The indicator used to measure trainees' perceived urgency of environmental problems was the urgency index (UI). The urgency index was the mean score of the degree of perceived urgency of the issue in question. It was measured on a 5-point scale with 1.0 indicating not urgent at all and 5.0 as very urgent; and the median along the scale is 3.0.

A section of this survey was designed to investigate teacher trainees' **perception toward a number of environmental protection issues**, including conflict between environmental protection and economic growth, life-style change and environmental protection policy.

The teacher trainees' **basic environmental knowledge** was investigated by objective multiple-choice questions which were designed to test the trainees' understanding of the key

concepts, events and processes related to environmental protection and conservation.

Pilot Study

The first draft of the questionnaire was conducted to 40 HKIEd teacher trainees of Certificate and BEd levels. On the basis of the pilot test result, the draft questionnaire was subsequently revised into a final questionnaire for the main study.

Main Study

The target populations of this study were the teacher trainees of the Hong Kong Institute of Education. The revised questionnaire was administered to HKIEd teacher trainees during the period of April to June, 1999. They were essentially of 3 groups: F/t Certificate trainees, 4 Year BEd (Primary) trainees and In-service (Primary) trainees. All teacher trainees were invited to complete the questionnaires during class on a voluntary basis and the completed questionnaires were collected immediately after class. A total of 435 copies of questionnaires (about 10% of total student population) were received for further analysis. Ultimately, the data were coded and analyzed by the SPSS statistical software.

Result

A. Green attitudes and behavior of teacher trainees of HKIEd

The teacher trainees' green attitudes and behavior are the focal point of this section. It is divided into 5 sub-sections: (1) teacher trainees' environmental worldview; (2) their environmental dispositions; (3) their perception on the urgency of major local and global issues; (4) their perception towards various environmental protection issues; (5) teacher trainees' various aspects of green behavior.

(1) Teacher Trainees' Environmental worldview

The scale used to evaluate the teacher trainees' environmental worldview is the New Environmental Paradigm, denoted as NEP. Such scale was developed by Dunlap and Van Liere (1978) and was used as an indicator to reflect the degree of acceptance of the pro-environment New Environmental Paradigm worldview. It consists of twelve items. The valid range of the mean NEP score is from 1.0 to 5.0 in which 1.0 indicates the strongest anti-environmental worldview whereas 5.0 indicates the strongest pro-environmental worldview.

The green attitudes of teacher trainees with respect to their environmental worldview are displayed in Chart 1 and the more detailed calculations are tabulated in Table 1. The twelve items are further divided into 3 main themes, namely "Balance of Nature", "Limits to Growth" and "Man over Nature". The table exhibits the results in terms of percentage, the NEP score for each of the twelve items, the mean NEP score of the three themes and the overall mean NEP score.

Chart 1 Teacher Trainees' Environmental Worldview

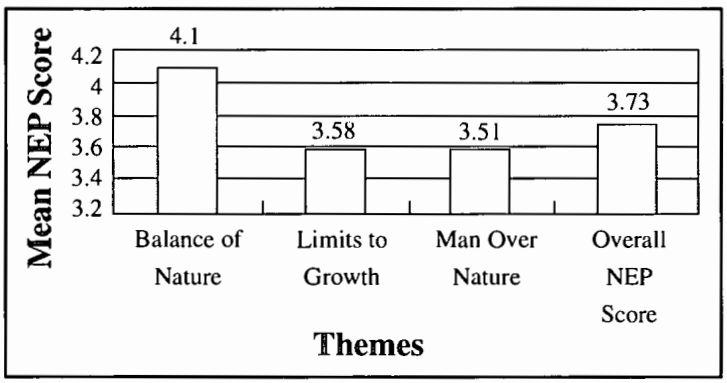


Table 1 Teacher Trainees' Environmental Worldview

Items	SDA	DA	N	A	SA*	NEP+	SD
	(percentage)#						
Theme 1: Balance of Nature							
Human must live in harmony with nature in order to survive.	0.5	2.5	8.5	41.8	46.2	4.29	0.77
When humans interfere with nature it often produces disastrous consequences.	2.3	2.3	5.3	46.7	43.2	4.26	0.85
Mankind is severely abusing the environment.	2.3	3.7	6.7	46	40.5	4.17	0.89
The balance of nature is very delicate and easily upset.	0.7	7.4	25.7	47.6	17.5	3.71	0.86
Mean NEP score for "Balance of Nature" = 4.1							
Theme 2: Limits to Growth							
We are approaching the limit of the number of people the earth can support.	0.9	8.7	21.1	52	16.8	3.74	0.87
The earth is like a spaceship with only limited room and resources	2.1	6	25.5	47.1	18.9	3.74	0.9
To maintain a healthy economy we will have to develop a "steady-state" economy where industrial growth is controlled.	1.4	6	41.1	44.4	6.9	3.49	0.77
There are limits to growth beyond which our industrialized society cannot expand.	2.1	12.6	40.5	35.9	8.7	3.36	0.89
Theme 3: Man Over Nature							
Mean NEP score for "Limits to Growth" =3.58							
Humans need not adapt to the natural environment because they can remake to suit their needs.	21.6	50.3	15.9	11	1.1	3.8	0.94
Mankind was created to rule over the rest of nature.	20	36.8	26.2	14.3	1.8	3.56	1.02
Humans have the right to modify the natural environment to suit their needs.	14.7	29.2	37.5	17.2	0.9	3.38	0.97
Plants and animals exist primarily to be used by humans.	14.5	31	32	17	4.8	3.31	1.07
Mean NEP score for "Man Over Nature" = 3.51							
Overall mean NEP score = 3.73							

* SDA = strongly disagree, DA = disagree, N = neutral, A = agree, SA = strongly agree.

\# The percentage may not add up to 100 because of a small number of non-response (ranging from 0.2-1.1%).

\+ New Environmental Paradigm (NEP) score (n=435).
NEP is calculated by this formula:
% in SDA/100*1 + % in DA/100*2 + % in N/100*3 + % in A/100*4 + % in SA/100*5

** The overall mean NEP score of teacher trainees of HKIEd is 3.75 on a 5-point scale.

(a) Balance of Nature

The mean NEP score for this theme is 4.1, which rated the highest among the 3 themes being studied. The majority (over 88%) believed that human must live in harmony with nature in order to survive. The overwhelming proportion of the teacher trainees (nearly 90%) conceived that when humans interfered with nature, disastrous consequences might often be resulted. The finding also indicated that most of them (87%) agreed that mankind had been severely abusing the environment. In addition, about two-third considered the balance of nature very delicate and easily upset.

In short, the results reflected that HKIEd teacher trainees, on the whole, did show their concern on the issue of balancing the nature.

(b) Limits to Growth

3.58 is the mean NEP score for this theme. More than two-third (69%) of the respondents perceived that the size of human population was approaching the limit of the number of people the earth can support. They (66%) were supportive of the idea that the earth was like a spaceship with only limited room and resources.

Over 40% of the teacher trainees agreed that we would

have to develop a "steady-state" economy in order to maintain a healthy economy and that there were limits to growth beyond which our industrialized society could not expand. However, no less than 40% of them maintained the "neutral" position. In this sense, they might not know how to make decision on these issues.

(c) Man Over Nature

Table 1 Teacher Trainees' Environmental WorldviewAll items in this theme are expressed in such a way that the disagreement with the statement in each item corresponds to the acceptance of the NEP worldview. As a result, the NEP scores in this section have been calculated after reverse coding. The mean NEP score (NEP=3.51) in this theme is about the same as that of the above-mentioned theme. The majority of teacher trainees (71%) inclined to disagree with the assertion that human beings needed not adapt to the natural environment because they could remake to suit their needs.

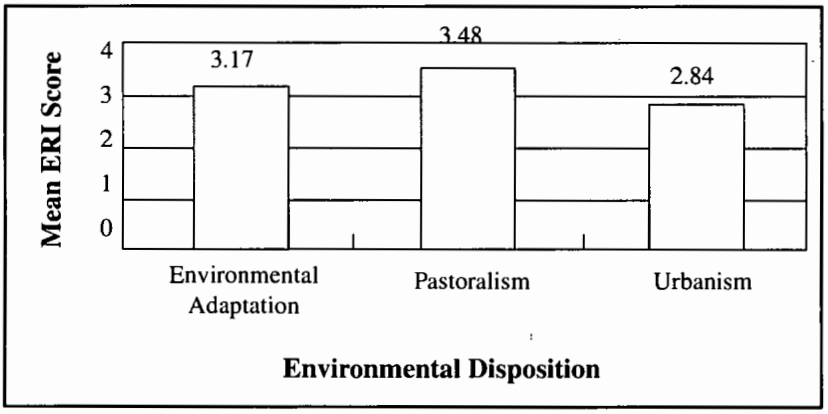
Over half of them disavowed that mankind was created to rule over the rest of nature. Moreover, 43% of the respondents opposed the idea that human beings had the right to modify the natural environment to suit their needs. They did not strongly regard plants and animals existed primarily to be used by humans.

(2) Environmental Dispositions of teacher trainees

The assessment tool used in this section was Environmental Response Inventory (ERI) scale, which was developed by McKechnie (1974). The original ERI scale consists of a set 184 statements tapping attitude toward a wide array of environmental themes in 8 disposition areas. In this study, only 15 statements were selected from three disposition areas, which included Environmental Adaptation, Pastoralism and Urbanism.

The respondents were asked to express their attitudes toward these three environmental themes by indicating the extent to each statement. A 5-point scale was adopted with 1 indicating strongly disagree and 5 serving as strongly agree. The high ERI score reflects the great agreement of the teacher trainees on the respective theme. The teacher trainees' environmental dispositions are displayed in Chart 2 and the more detailed calculations are tabulated in Table 2

Chart 2 Environmental Dispositions of Teacher Trainees



Items	SDA	DA	N	A	SA*	ERI+	SD
	(percentage)#						
Theme 1: Environmental Adaptation							
Fertilizers improve the quality of food.	1.8	12.9	33.3	45.7	5.3	3.67	0.85
Machines increase man's freedom.	2.8	16.1	36.3	38.9	5.5	3.27	0.9
In spite of all the talk about pollution, the Earth is still a safe place to live.	3.9	17.9	33.3	38.4	5.7	3.22	0.95
Given enough time, science will solve most human problems.	2.3	16.6	40	36.3	4.1	3.21	0.86
There should be a law against skyscrapers.	3.2	12	52.2	24.6	6.9	2.77 R	0.86
Mean ERI score for "Environmental Adaptation" = 3.17							
Theme 2: Pastoralism							
I feel great attraction to the sea.	1.4	4.8	16.6	45.1	31.3	3.98	0.9
Hiking is boring.	26.2	40.5	21.8	9.2	1.6	3.78 R	0.98
Building projects which disrupt the ecology should be abandoned and the land returned to its natural state.	0.2	8.3	34.5	37.5	18.6	3.63	0.88
Our country parks should be preserved in their natural state, with roads and buildings prohibited.	0.7	12.6	26	42.3	17.7	3.62	0.94
I can identify many of the local flowers and trees.	11	48.7	30.6	8.3	0.7	2.37	0.82
Mean ERI score for "Pastoralism" = 3.48							
Theme 3: Urbanism							
Mental problems are more common in the city than in the country	1.6	5.7	15.6	48.3	27.1	3.89	0.9
The cultural life of big city is very important to me.	1.4	10.8	38.4	42.5	6.2	3.39	0.82
Life in city is more interesting than life on a farm.	3.9	22.5	46.4	21.8	4.4	2.97	0.86
I would enjoy riding in a crowded MTR.	32.9	40.7	14.3	8	2.3	2.01	1.01
I often feel uneasy in a large crowd of people.	0.9	4.8	11.5	51.5	30.8	1.92R	0.84
Mean ERI score for "Urbanism" = 2.84							

* SDA = strongly disagree, DA = disagree, N = neutral, A = agree, SA = strongly agree.

\# The percentage may not add up to 100 because of a small number of non-response (ranging from 0.5-1.8%).

\+ Environmental Response Inventory (ERI) score (n=435).

R The ERI has been calculated after reverse coding.

(a) Environmental Adaptation

The Environmental Adaptation (EA) scale measures **one's inclination on the modification of the environment to fulfil human desires and perceived needs**. The mean ERI score for EA scale is 3.17 on a 5-point scale. This generally indicated that teacher trainees agreed on modification of the environment to satisfy people's needs and desires. In particular, around half of them supported that fertilizers improved the quality of food. Over 40% of them believed that machines increased man's freedom.

(b) Pastoralism

The Pastoralism (PA) scale taps the respondents' appreciation of the natural environment. The higher the mean ERI score, the more favorable the respondents are towards the natural environment. Generally speaking, teacher trainees scored highest in this sub-scale and the mean ERI score of the pastoralism score was as high as 3.48. This comparatively high scoring implies that the majority of teacher trainees tended to show positive attitudes towards the natural environment. For instance, 76% of the teacher trainees felt great attraction to the sea and two-third disagreed that hiking was boring. It is of interest to note that they strongly agreed that the country parks should be preserved in their natural state.

(c) Urbanism

The urbanism scale was computed to assess **the attitude of the respondents on the appreciation of the man-made environment.**

The mean ERI score for urbanism scale (2.84) is below the median score, and this finding is in line with the high pastoralism score.

Obviously, teacher trainees showed little enjoyment on certain aspects of city life. In particular, nearly two-third disliked riding in a crowded MTR and they also felt uneasy in a large crowd of people. Less than half of them regarded the cultural life of big city very important. Besides, a large proportion of the respondents conceived that mental problems were more common in the city than in the country. Teacher trainees' opinion became more diverse when they were asked whether life in the city would be more interesting than life on a farm. About a quarter (26%) of them agreed to the above-mentioned statement. In opposition, another 26% of them disagreed that life in the city would be more interesting. A little less than half (46%) of them maintained a neutral position.

(3) Teacher trainees' perception on the urgency of major local and global environmental issues

Teacher trainees' awareness on the major local and global environmental issues was investigated in this study as well. The statistical data are presented in Table 3 and sorted in according to their urgency in descending order. The Urgency Index (UI) represented the mean score of the degree of perceived urgency of each environmental issue.

Table 3 Teacher Trainees' Perception on the Urgency of Major Local and Global Issues

Environmental Issues	Degree of Perceived Urgency Scale* (percentage)						Urgency Index +	Rank
	0	1	2	3	4	5		
How urgent are the following environmental problems in Hong Kong?								
Urban air pollution	0.2	0	2.3	4.4	35.2	57.9	4.49	1
Coastal and marine pollution	0.2	0	1.4	9	43.4	45.7	4.34	2
Solid-waste disposal	0.5	0.2	1.8	10.6	46.2	40.7	4.26	3
Toxic chemicals and hazardous wastes	0.2	0.2	4.4	19.3	48	27.8	3.99	4
Drinking water pollution	0.2	0.5	5.1	20.7	45.7	27.8	3.95	5
Destruction of rural landscape	0.2	0.9	3.7	21.4	49.4	24.4	3.93	6
Indoor air pollution	0.2	0.5	5.7	27.4	43	23.2	3.83	7
Noise pollution	0.2	0.2	3.7	27.6	49.9	18.4	3.83	8
Destruction of townscape	0.5	0.5	7.4	27.8	43.7	20.2	3.76	9
Radiation pollution	1.4	2.1	12	33.3	35.4	15.9	3.52	10
I perceive the condition of the environment of Hong Kong as:	16.6	0	1.4	8.3	50.6	23.2	4.14	
How urgent are the following environmental problems of the world?								
Green-house effect	0.2	0	1.4	8.7	40	49.7	4.38	1
Depletion of natural resources	0.2	0	1.6	10.3	42.1	45.7	4.32	2
Tropical deforestation	0.2	0.2	2.3	13.3	38.4	45.5	4.27	3
Ozone depletion	1.6	0.2	1.4	10.1	46.9	39.8	4.27	4
Loss of biological diversity	0.5	0.2	1.8	19.8	45.5	32.2	4.08	5
Desertification	0.5	0.7	3.7	20	39.3	35.9	4.06	6
Acid precipitation	0.7	0	3.2	18.6	50.3	27.1	4.02	7
Threat of radiation pollution	0.5	0.2	4.1	26.4	44.4	24.4	3.89	8
I perceive the condition of the environment of the world as:	6.2	0	0.7	13.1	50.3	29.7	4.16	

* 0 = not sure, 1 = not urgent at all, 2 = not urgent, 3 = moderately urgent, 4 = urgent, 5 = very urgent

\+ Urgency Index is the mean score of the perceived urgency for each issue. It has a possible range of 1 for "not urgent at all" to 5 "very urgent". The "not sure" responses are not included in the calculation of the urgency index.

(a) Urgency of major environmental problems in Hong Kong

A total of ten local environmental problems were raised and focussed. Notably eight of them were classified by two-third of the teacher trainees as "urgent" or" very urgent" problems. The majority considered that the most serious environmental problem in Hong Kong was urban air pollution, which scored the highest urgency index (UI=4.49) among the others. It must be noted that over half evaluated it as a "very urgent" issue. Furthermore, coastal water pollution was ranked as close second with UI=4.34. Teacher trainees rated solid-waste and toxic chemicals and hazardous wastes as the third and fourth urgent environmental problems in Hong Kong respectively, more serious than drinking water pollution as well as destruction of rural landscape. In addition, the respondents perceived indoor air pollution as a more pressing environmental issue than noise pollution and the townscape destruction. Radiation pollution with urgency index of 3.52 was ordered as the least urgent local environmental problem.

On the whole, about 74% of the respondents inclined to believe that local environmental issues as "urgent" or "very urgent".

(b) Urgency of global environmental problems

In general, the relative high urgency index reviewed that global environmental problems were regarded as more imperative than local ones. Greenhouse effect and depletion of natural resources were the two global environmental evils rated as the top-two of the list. Each of them got urgency index greater than 4.3. About 45% of the respondents classified these two issues as "very urgent". Furthermore, environmental problems such as tropical deforestation, ozone depletion, loss of biological diversity, desertification and acid precipitation were considered to be moderately urgent, and all of them got UI greater than 4.0. The least urgent environmental problem of the world was the issue concerning radiation pollution (UI=3.89).

Finally, the result also indicated that nearly 80% of the respondents perceived that global environmental issues as quite urgent (UI=4.16).

(4) Teacher trainees' perception towards various environmental protection issues.

(a)Environmental protection versus economic growth

Table 4 has shown positive indication that over 70% of teacher trainees would favor more environmental protection programs even if it meant slower economic growth. Furthermore, less than 0.5% of them strongly opposed the aforesaid viewpoint.

Table 4 Teacher Trainees' Perceptions Toward Environmental Protection Issues

Issues	Response (percentage)				
Environmental protection versus economic growth					
Would you favor environmental protection if it means slower economic growth?	Strongly oppose 0.5	Oppose 5.5	Neutral 21.4	Favor 48.5	Strongly favor 22.1
Lifestyle change					
Effective long range solution of environmental problems depends on developing better technology or changing our lifestyle	Developing technology 3.2	12.4	36.6	37.5	Changing lifestyle 9.4
Environmental Protection Policy					
Do you think that governmental action in dealing with environmental problems have been enough?	Very inadequate 25.7	Not inadequate 43.9	Neutral 16.6	Adequate 11.3	Very adequate 1.8
Would you support recycling of bottles and cans to reduce the amount of waste?	Strongly oppose 0.7	Oppose 1.8	Neutral 12.4	Support 36.3	Strongly Support 47.8
Would you be willing to pay more taxes to protect the environment?	Very unwilling 5.5	Unwilling 15.4	Neutral 40.2	Willing 30.8	Very willing 7.4
Environmental Movement					
How strongly do you favor environmental movement in Hong Kong?	Strongly oppose 3.2	Oppose 7.1	Neutral 15.6	Favor 47.6	Strongly Favor 25.7

(b) Lifestyle changes

Two-third of the teacher trainees inclined to believe that the effective long-range solution of environmental problems was changing our lifestyle. Conversely, only 16% regarded developing better technology as the effective mean to combat the environmental problems.

(c) Environmental protection policy

In connection with the policy issues, no less than two-third of the respondents considered the government's action in dealing with environmental problems as "inadequate" and "very inadequate". Moreover, it is encouraging to find that the overwhelming majority (84%) supported the policy on recycling all bottles and cans. On the other hand, the teacher trainees showed divergent views when asked whether they would be willing to pay more taxes to protect the environment. Only 38% of them were willing to pay more taxes to support environmental protection. However, the results also indicated that about 20% were unwilling to pay extra taxes on that. A rather high percentage (40%) held a neutral position.

(d) Environmental movement

It is very heartening to find that over 73% of them either favored or even strongly favored environmental movement in Hong Kong. Only a small portion of the respondents showed negative responses on this issue.

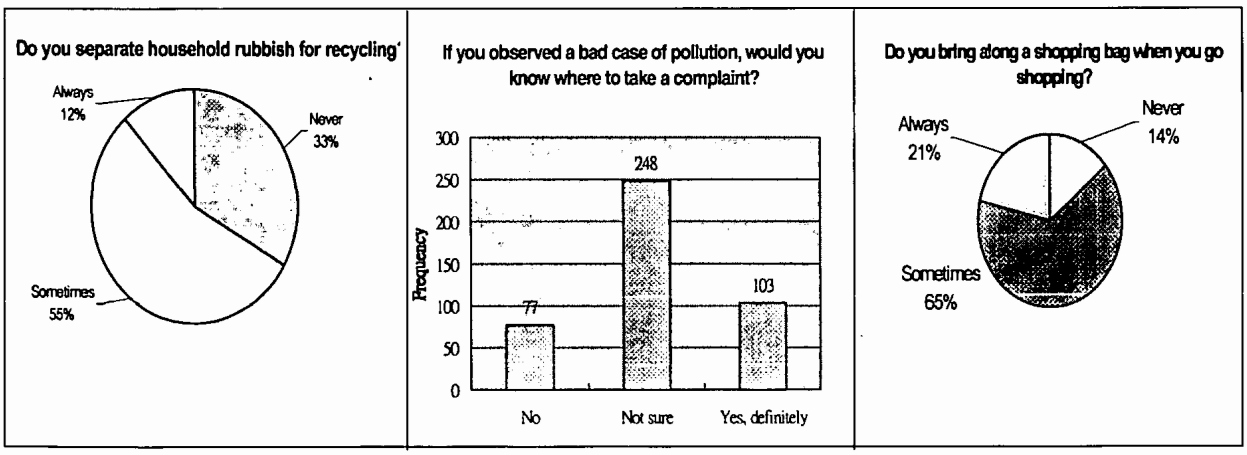
(5) Teacher trainees' aspects of green behavior

(a) Green behavior

The responses on teacher trainees' green habit and behavior are revealed on Chart 3. It is discouraging to learn that about one-third of teacher trainees never separated household rubbish for recycling and only 11% of them took this action constantly. Another piece of disappointing finding was: when the teacher trainees were asked whether they would take a complaint if they observed a bad case of pollution, many of them (75%) answered "no" or "not sure".

Regarding their habit on bringing along the shopping bag when they went shopping, teacher trainees reported that they sometimes (63%) or always (21%) performed this habit.

Chart 3 Teacher Trainees' Green Habits and Behavior



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(b) Consumption behavior

A set of four questions was asked to assess the teacher trainees' consumption behavior. As presented in Table 5, most teacher trainees often paid more attention on the durability of the goods they bought. They also took into account whether the goods were made from natural materials or not. Recyclability of goods is also one of the factors in consuming goods. On the other hand, most of the teacher trainees seldom (32%) or even never (21%) showed concern to whether goods are made from biodegradable materials.

Table 5 Teacher Trainees' Consumption Behavior

When you are consuming goods, would you pay particular attention to the following attributes of the goods?					
	Percentage				
	Never 1	2	3	4	Often 5
Goods made from biodegradable materials	20.9	31.5	30.1	14.5	2.3
Recyclability of goods	9.9	19.3	32.9	30.3	7.1
Durability of goods	4.6	7.6	20.7	41.1	25.5
Goods made from natural mat	6	15.6	32.6	33.3	12

B. Teacher trainees' environmental knowledge

In this section, altogether ten objective multiple-choice questions were designed to evaluate the teacher trainees' understanding of basic environmental knowledge and concepts. The result is tabulated in Table 6.

Table 6 Teacher Trainees' Environmental Knowledge

		Number	Frequency (%)
1	"Photochemical smog" frequently occurs in big cities where there are many vehicles. What kind of substance present in the car pollutants is the main cause of the smog?		
	❑ a. Carbon Monoxide.	246	56.6%
	❑ b. Hydrocarbons. (correct answer)	107	24.6%
	❑ c. Lead.	76	17.4%
	Missing	6	1.4%
2	Carbon Monoxide is one of the pollutants produced by cars. How does it affect the health of human beings?		
	❑ a. It stimulates the sense organs (such as eyes, noses).	103	23.7%
	❑ b. It reduces the supply of oxygen to cells of our body. (correct answer)	275	63.2%
	❑ c. It causes headache, chest-pain and lung disease.	54	12.4%
	Missing	3	0.7%
3	Do you know what countries have opposed to the issue of reducing greenhouse gases?		
	❑ a. Developed countries.	150	34.5%
	❑ b. Developing countries. (correct answer)	202	46.4%
	❑ c. Undeveloped countries.	78	18%
	Missing 5 1.1%		

		Number	Frequency (%)
4	In every summer, Hong Kong coastal waters will be under the threat of red tide. What is the major cause?		
	❑ a. The temperature of seawater rises while organic substances pollute the seawater and under these conditions, algae bloom profusely. (correct answer)	344	79.1%
	❑ b. The temperature of seawater decreases while organic substances pollute the seawater and under these conditions, fungi grow heavily.	48	11%
	❑ c. The temperature of seawater rises while inorganic substances pollute the seawater and under these conditions, bacteria growth is tremendous.	39	9%
	Missing	4	0.9%
5	What is the effect of red tide on swimmers?		
	❑ a. It causes allergy to the skin and pain to eyes, but causes no harmful effect if seawater is swallowed.	95	21.8%
	❑ b. It causes itchy feelings to the skin and turns eyes red. The swimmers will suffer from diarrhea if seawater is swallowed (correct answer)	310	71.3%
	❑ c. It causes no harmful effect on the skin, but causes the eyes to turn red. The swimmers will suffer from diarrhea if seawater is swallowed.	28	6.4%
	Missing	2	0.5%
6	In the south pole sky, there is a hole in the ozone layer. The agent responsible for this damaging effect comes from air spray, photocopying machines, refrigerators etc. What is this agent?		
	❑ a. CFC(correct answer)	325	74.7%
	❑ b. Carbon particles	57	13.1%
	❑ c. Heat radiation	49	11.3%
	Missing	4	0.9%
7	The presence of acid rain is due to the use of large amount of fossil fuel. The acidity of the acid rain is 200 times greater than that of normal rain. Which of the following is not responsible for the formation of acid rain?		
	❑ a. Sulphur dioxide	103	23.7%
	❑ b. Oxides of Nitrogen	125	28.8%
	❑ c. Amino acids(correct answer)	202	46.4%
	Missing	5	1.1%
8	What is the major impact of human beings on the carbon cycle?		
	❑ a. Planting crops that take up carbon dioxide from the air.	67	15.4%
	❑ b. Burning fossil fuels and destroying forests. (correct answer)	273	62.8%
	❑ c. Increasing the human population and breathing out more carbon dioxide.	84	19.3%
	Missing	11	2.5%
9	The term "Greenhouse Effect" is best described as:		
	❑ a. Excess energy from the sun causing changes in weather patterns.	51	11.7%
	❑ b. The destruction of the ozone layer by CFCs.	102	23.4%
	❑ c. The warming of the Earth's atmosphere by a build-up of gases in the atmosphere. (correct answer)	277	63.7%
	Missing	5	1.1%
10	Tropical rain forests are important because:		
	❑ a. They contain valuable timber that can be logged easily without damage to the ecosystem.	70	16.1%
	❑ b. Many different species of plants and animals are to be found in them. (correct answer)	301	69.2%
	❑ c. They have especially fertile soils.	58	13.3%
	Missing	6	1.4%

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By and large, the performance of the teacher trainees in answering these questions was not promising. The findings indicated that about two-third of them could only answer seven out of ten questions correctly. It is depressing to find that no more than half of them could get the right answers on three of the questions. For the first question asking about the vehicle pollutant that causes smog, 56.6% of the trainees chose carbon dioxide while only 24.6% chose the correct answer "hydrocarbons". For the cause of acid rain, 52.5% of the trainees were unsure about whether sulfphur dioxide or oxides of nitrogen were components of acid rain. A total of 45% of the trainees did not have a clear idea what Greenhouse Effect was. Around 36% of trainees did not know how carbon monoxide caused harmful effects on human beings. 20% of our trainees did not know that red tide was caused by algae. The overall result provides a piece of evidence that the understanding of the key concepts, events and processes related to environmental protection and conservation are relatively deficient for the teacher trainees of the HKIEd.

C. Sources of environmental information

Table 7 outlines the sources of environmental information of the respondents. In general, mass media such as television, radio, newspaper and magazines were the major sources that the teacher trainees acquired the environmental information from. On the other hand, books and journals were other means to disseminate the environmental information to the teacher trainees. To a lesser extent, they often obtained such information from the environmental group and lectures and only a minority received information from government sources. On the contrary, the teacher trainees seldom discussed environmental issues with either their families or peer groups. Meetings were the least effective tools in conveying the environmental information to the respondents.

Table 7 Sources of Environmental Information for Teacher Trainees

How often do you obtain information on environmental problems from the following sources?					
	Percentage				
	Never 1	2	3	4	Often 5
Newspaper, magazines	1.1	4.8	26.4	46.4	20.9
Television, radio	0.9	8.5	20.2	46.9	23.2
Discussion with family	11	31.7	36.3	17.5	3.2
Discussion with friends	4.1	24.8	39.8	26.9	4.1
Books, journals	2.1	11.7	29.7	43	13.3
Lectures	5.5	20.2	29.4	34.3	10.1
Meetings	27.6	38.6	21.6	9.7	2.3
Publicity by government	5.1	17	37	34.7	6
Environmental groups	4.1	14	29.2	39.3	13.1

Conclusion and implications

Major findings in the present research include: (a) The HKIEd teacher trainees received an overall NEP score of 3.73 in their environmental awareness assessment and this was similar to that obtained for teachers in Hong Kong (overall NEP score 3.83) (Green Power, 1995). The teacher trainees particularly showed concern on the issue of balance of the nature and this is reflected from the mean NEP score (4.1) which is rated the highest among the three domains. (b) With respect to the environmental disposition assessment, the trainees received a mean ERI score of 3.17 for "Environmental adaptation", 3.48 for "Pastoralism" and 2.84 for " Urbanism". The urbanism scale was used to assess the attitude of the respondents on the appreciation of the man-made environment. It is of interest to note that the mean ERI score for urbanism scale in this study was 2.84. This finding was in

line with the rather high pastoralism score (3.48) . Obviously, teacher trainees did not enjoy certain aspects of the city life. (c) When teacher trainees are asked to evaluate the perceived urgency of local environmental problems, they ranked urban air pollution as the most serious environmental problem followed by coastal and marine pollution and solid-waste disposal. They ranked greenhouse effect as the most serious global environmental problem followed by depletion of natural resources. (d) They tended to show positive attitude towards environmental protection, yet their behavior and habit were not entirely consistent to the stated attitudes. (d) Most of the teacher trainees relied on mass media to obtain their environmental information. (e) When testing the teacher trainees' knowledge on environmental concepts, the findings indicated that their performance was not outstanding . The overall result provides a piece of evidence that their understanding of the key concepts, events and processes related to environmental protection and conservation are rather deficient . All the above findings would provide useful information for curriculum development purposes such as developing relevant and at appropriate levels teaching strategies and teaching materials (including web-based learning materials and CD-ROMs). Currently, the authors are working on a UGC TDG project to develop web-based interactive learning materials to promote Environmental Education in HKIEd. It is hoped that the HKIEd Environmental Education program will benefit from the use of the web-based learning materials through the use of information technology. It is particular the case for educational programs on environmental awareness as (1) environmental issues cover different spatial dimension, i.e. from local, regional to global; and (2) environmental issues usually involves resolving the conflicts between parties of different views, and a powerful information source such as internet can help making reliable decision.

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Environmental Education Questionnaire

Part 1: Teacher Trainees' Environmental Worldview

Please tick ✔ appropriate boxes to indicate your view

1 Strongly Disagree
2 Disagree
3 Neutral
4 Agree
5 Strongly Agree

	Strongly Disagree 1	2	3	4	Strongly Agree 5
1. Humans have the right to modify the natural environment to suit their needs.	❑	❑	❑	❑	❑
2. We are approaching the limit of the number of people the earth can support.	❑	❑	❑	❑	❑
3. When humans interfere with nature it often produces disastrous consequences.	❑	❑	❑	❑	❑
4. Humans must live in harmony with nature in order to survive.	❑	❑	❑	❑	❑
5. The balance of nature is very delicate and easily upset.	❑	❑	❑	❑	❑
6. Plants and animals exist primarily to be used by humans.	❑	❑	❑	❑	❑
7. The earth is like a spaceship with only limited room and resources.	❑	❑	❑	❑	❑
8. Humans need not adapt to the natural environment because they can remake to suit their needs.	❑	❑	❑	❑	❑
9. There are limits to growth beyond which our industrialized society cannot expand.	❑	❑	❑	❑	❑
10. Mankind is severely abusing the environment.	❑	❑	❑	❑	❑
11. Mankind was created to rule over the rest of nature.	❑	❑	❑	❑	❑
12. To maintain a healthy economy we will have to develop a "steady-state" economy where industrial growth is controlled	❑	❑	❑	❑	❑

Part 2: Environmental Dispositions of Teacher Trainees

Please tick ✔ appropriate boxes to indicate your view

1 Strongly Disagree
2 Disagree
3 Neutral
4 Agree
5 Strongly Agree

	Strongly Disagree 1	2	3	4	Strongly Agree 5
1. I often feel uneasy in a large crowd of people.	❑	❑	❑	❑	❑
2. I can identify many of the local flowers and trees.	❑	❑	❑	❑	❑
3. Machines increase man's freedom.	❑	❑	❑	❑	❑
4. I would enjoy riding in a crowded MTR.	❑	❑	❑	❑	❑
5. In spite of all the talk about pollution, the Earth is still a safe place to live.	❑	❑	❑	❑	❑
6. Hiking is boring.	❑	❑	❑	❑	❑
7. Fertilizers improve the quality of food.	❑	❑	❑	❑	❑
8. The cultural life of big city is very important to me.	❑	❑	❑	❑	❑
9. Given enough time, science will solve most human problems.	❑	❑	❑	❑	❑
10. Our country parks should be preserved in their natural state, with roads and buildings prohibited.	❑	❑	❑	❑	❑
11. Life in city is more interesting than life on a farm.	❑	❑	❑	❑	❑
12. I feel great attraction to the sea.	❑	❑	❑	❑	❑
13. Mental problems are more common in the city than in the country.	❑	❑	❑	❑	❑
14. Building projects that disrupt the ecology should be abandoned and the land returned to its natural state.	❑	❑	❑	❑	❑
15. There should be a law against skyscrapers.	❑	❑	❑	❑	❑

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Part 3: Teacher Trainees' Perception on the Urgency of Major Local and Global Issues

Please tick appropriate boxes to indicate your view of the state of urgency of the issues

1 Not Urgent at All
2 Not Urgent
3 Moderately Urgent
4 Urgent
5 Very Urgent

A. Listed below are a range of environmental issues in Hong Kong:

	Not Urgent at All 1	2	3	4	Very Urgent 5
1. Noise pollution	❑	❑	❑	❑	❑
2. Urban air pollution	❑	❑	❑	❑	❑
3. Indoor air pollution	❑	❑	❑	❑	❑
4. Drinking water pollution	❑	❑	❑	❑	❑
5. Coastal and marine pollution	❑	❑	❑	❑	❑
6. Solid-waste disposal	❑	❑	❑	❑	❑
7. Toxic chemicals and hazardous wastes	❑	❑	❑	❑	❑
8. Destruction of townscape	❑	❑	❑	❑	❑
9. Destruction of rural landscape	❑	❑	❑	❑	❑
10. Radiation pollution	❑	❑	❑	❑	❑

11. I perceive the condition of the environment of Hong Kong as:

Not urgent at all ❑ ❑ ❑ ❑ ❑ Very Urgent

B. Listed below are a range of environmental issues in the world:

	Not Urgent at All 1	2	3	4	Very Urgent 5
1. Ozone depletion	❑	❑	❑	❑	❑
2. Acid precipitation	❑	❑	❑	❑	❑
3. Green-house effect	❑	❑	❑	❑	❑
4. Depletion of natural resources	❑	❑	❑	❑	❑
5. Loss of biological diversity	❑	❑	❑	❑	❑
6. Tropical deforestation	❑	❑	❑	❑	❑
7. Desertification	❑	❑	❑	❑	❑
8. Threat of radiation pollution	❑	❑	❑	❑	❑

9. I perceive the condition of environment of the world as:

Not urgent at all ❑ ❑ ❑ ❑ ❑ Very Urgent

Part 4: Teacher Trainees' Perception towards various Environmental Protection Issues

Please circle one number between 1 and 5 to indicate your view

1. Would you favor environmental protection if it means slower economic growth?
   Strongly Oppose 1 2 3 4 5 Strongly Favor
2. Would you support recycling of bottles and cans to reduce the amount of waste?
   Strongly Oppose 1 2 3 4 5 Strongly Support
3. Effective long-range solution of environmental problems depends on developing better technology or changing our lifestyle.
   Developing Technology 1 2 3 4 5 Changing Lifestyle
4. Do you think that governmental action in dealing with environmental problems have been enough?
   Very Inadequate 1 2 3 4 5 Very Adequate
5. Would you be willing to pay more taxes to protect the environment?
   Very Unwilling 1 2 3 4 5 Very Willing
6. How strongly do you favor environmental movement in Hong Kong?
   Strongly Oppose 1 2 3 4 5 Strongly Favor

Part 5: Teacher Trainees' various aspects of Green Behavior

Please tick ✔ appropriate box to indicate your view/habit

1. Do you separate household rubbish for recycling?

❑ Never ❑ Sometimes ❑ Always

2. If you observed a bad case of pollution, would you know where to take a complaint?

❑ No ❑ Not Sure ❑ Yes, definitely

3. Do you bring along a shopping bag when you go shopping?

❑ Never ❑ Sometimes ❑ Always

4. When you are consuming goods, would you pay particular attention to the following attributes of the goods?

	Never				Always
	1	2	3	4	5
Goods made from biodegradable materials	❑	❑	❑	❑	❑
Recyclability of goods	❑	❑	❑	❑	❑
Durability of goods	❑	❑	❑	❑	❑
Goods made from natural materials	❑	❑	❑	❑	❑

5. How often you obtain information on environmental problems from the following sources?

	Never				Always
Newspaper, magazines	❑	❑	❑	❑	❑
Television, radio	❑	❑	❑	❑	❑
Discussion with family	❑	❑	❑	❑	❑
Discussion with friends	❑	❑	❑	❑	❑
Books, journals	❑	❑	❑	❑	❑
Lectures	❑	❑	❑	❑	❑
Meetings	❑	❑	❑	❑	❑
Publicity by government	❑	❑	❑	❑	❑
Environmental groups	❑	❑	❑	❑	❑

Part 6: Teacher Trainees' Environmental Knowledge

Please tick ✔one of the boxes to indicate your choice of correct answer

1	"Photochemical smog" frequently occurs in big cities where there are many vehicles. What kind of substance present in the car pollutants is the main cause of the smog? ❑ a. Carbon monoxide. ❑ b. Hydrocarbons. ❑ c. Lead.
2	Carbon monoxide is one of the pollutants produced by cars. How does it affect the health of human beings? ❑ a. It irritates sense organs such as eyes and noses. ❑ b. It reduces the supply of oxygen to cells of our body. ❑ c. It causes headache, chest-pain and lung disease.
3	Do you know what countries have opposed to the issue of reducing greenhouse gases? ❑ a. Developed countries. ❑ b. Developing countries. ❑ c. Undeveloped countries.

4	In every summer, Hong Kong coastal waters will be under the threat of red tide. What is the major cause? ❑ a. The temperature of seawater rises while organic substances pollute the seawater and under these conditions algae bloom profusely. ❑ b. The temperature of seawater decreases while organic substances pollute the seawater and under these conditions, fungi grow heavily. ❑ c. The temperature of seawater rises while inorganic substances pollute the seawater and under these conditions, bacteria growth is tremendous.
5	What is the effect of red tide on the health of swimmers? ❑ a. It causes allergy to the skin and pain to the eyes, but causes no harmful effects if seawater is swallowed. ❑ b. It causes itchy feelings to the skin and turns eyes red. The swimmers will suffer from diarrhea if seawater is swallowed. ❑ c. It causes no harmful effect on the skin, but causes the eyes to turn red. The swimmers will suffer from diarrhea if seawater is swallowed.
6	In the south pole sky, there is a hole in the ozone layer. The agent responsible for this damaging effect comes from air spray, photocopying machines, refrigerators etc. What is this agent? ❑ a. Chlorofluorocarbons (CFCs) ❑ b. Carbon particles ❑ c. Heat radiation
7	The presence of acid rain is due to the use of large amount of fossil fuel. The acidity of the acid rain is 200 times greater than that of normal rain. Which of the following is not responsible for the formation of acid rain? ❑ a. Sulphur dioxide ❑ b. Oxides of nitrogen ❑ c. Amino acids
8	What is the major impact of human beings on the carbon cycle? ❑ a. Planting crops that take up carbon dioxide from the air. ❑ b. Burning fossil fuels and destroying forests. ❑ c. Increasing the human population and breathing out more carbon dioxide.
9	The term "Greenhouse Effect" is best described as: ❑ a. Excess energy from the sun causing changes in weather patterns. ❑ b. The destruction of the ozone layer by CFCs. ❑ c. The warming of the Earth's atmosphere by a build-up of gases in the atmosphere.
10	Tropical rain forests are important because: ❑ a. They contain valuable timber that can be logged easily without damage to the ecosystem. ❑ b. Many different species of plants and animals are to be found in them. ❑ c. They have especially fertile soils.

Part 7: Personal Data

1. Sex: 1. ❑ Male 2. ❑ Female
2. Age: 1. ❑ Below 20 2. ❑ 20-30 3. °°Above 30
3. Academic background:

1. ❑ F5 Major: Arts / Sciences / Commerce / Social Science
2. ❑ F7 Major: Arts / Sciences / Commerce / Social Science
3. ❑ Tertiary Institute Graduate Major: Arts / Sciences / Commerce / Social Science
4. ❑ Degrees holder Major: Arts / Sciences / Commerce / Social Science
5. ❑ Higher degrees holder Major: Arts / Sciences / Commerce / Social Science

4. Courses:_____(例如: 2PC1/2IP1...)
5. Majors:

1. ❑ Chinese 2. ❑ English 3. ❑ Putonghua
4. ❑ Physical Education 5. ❑ Music 6. ❑ Art
7. ❑ Computer Studies 8. ❑ Integrated Science
9. ❑ General Studies 10.❑ Social Studies

6. Have you ever joined any environmental organizations either locally or globally?
   1. ❑ No, I am not interested.
   2. ❑ No, but I am interested.
   3. ❑ Yes, but I participated in the activities inactively (Name of organization:_____)
   4. ❑ Yes, I participated the activities actively (Name of organization: _____)

- END -

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『普通話水平測試』初探[1]

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本文結合香港人學習普通話的現實情況、普通話在香港的作用和前景以及在中國內地發展的歷程，從雙語學理論和教育測試的角度分析「普通話水平測試」的一些問題。全文分兩部分：第一部分簡析普通話水平測試的必要性和適合性，指出香港尚不具備實行測試的數量基礎。第二部分討論水平測試的項目內容，由此論述其適切性和合理性。文章認為，試題內容偏離測試交際能力的目標，在設計上欠缺適切性，因而失去合理性。結論是這一考試既無必要，又不合時。強調考試對推動普通話教學會有負面作用。對香港人而言，目前檢測普通話能力不在於標準化水平。

Critical Comments on Putonghua Proficiency Test

In light of the reality of Hong Kong people learning Putonghua and the functions and future of Putonghua in the Hong Kong context, this paper analyzes some problems of the Putonghua Proficiency Test from the perspectives of bilingual education and language testing. It consists of two parts: (1) about the necessity and appropriateness of the test. It points out that the test lacks the quantitative basis in Hong Kong. (2) about validity and reliability. It points out that some contents are inappropriately designed as to deviate from the purpose of testing communicative competence. The conclusions are that the test is neither suitable nor needed at the moment. Too much emphasis on the test will be detrimental to learning the language. For Hong Kong people, the testing items should focus on communication rather than standardization.

引言

香港回歸中國後不久，學校的語文教育中多了一項內容，即普通話教學。普通話雖然是漢語的一種口語形式，但是在香港學校的課程裡是被設置為獨立科目的。從2000年起，普通話將被列為香港中學會考的正式科目之一。香港理工大學把普通話作為考核學位課程畢業生「兩文三語」水平的「出關試」的項目之一。此外，香港社會上亦開始實行普通話考試。1996年4月，香港大學和中國國家語言文字工作委員會合作，把國家語委的「普通話水平測試」首次引進香港。隨後，香港中文大學和香港教育學院相繼與國家語委合辦這個考試，向應試入級者頒發國家語委認可的測試證書。在此情形下，圍繞「普通話水平測試」的各類學習班、培訓班應運而生，霎時間可謂收到「遍地開花」之效。

國家語委的「普通話水平測試」在現階段是否有必要在香港進行？這是本文的主要議題。文章結合香港人學習普通話的現實情況、普通話在香港的作用和前景以及普通話在中國內地發展的歷程，從語言教育理論和教育測試的角度來分析「普通話水平測試」的一些問題。全文分兩部分：第一部分從普通話測試的對象問題入手，分析普通話測試在香港環境中的必要性及合適性。第二部分就普通話水平測試的題目設計，討論普通話水平測試的適切性和合理性。有必要強調的是，本文作者雖然從不同的角度評論「普通話水平測試」，但是所有的論點均針對該測試在香港的情況而發。這些觀點並不意味著作者對該測試在內地的可行性和有效性持不同意見。理解這個前提，對於理解作者的整體觀點和具體論述是至關重要的。

1 本文基於作者對香港普通話教學的一項研究。該項研究承蒙香港悟宿基金會支持，特此銘謝。

測試的適切性和必要性

普通話水平測試起源於中國內地。自1958年秋季開始，內地的小學教育把漢語拼音字母作為第一階段的必修課。後來，隨著條件的成熟，拼音字母的教學在有些地方甚至提前到幼兒園階段。學童通過拼音字母學習漢字和普通話。漢語拼音的推廣為普通話的普及打開了方便之門，普通話的普及又反過來為拼音字母被廣泛接受奠定了基礎。如今，內地各地廣播電台和電視台都以普通話為主要廣播語言；高層次的會議也以用普通話的居多；學校教育多以普通話為教學媒介語。

普通話在內地推廣了四十多年後，國家語言文字工作委員會、國家教育委員會和廣播電影電視部(1994)才開始推行三級六等的「普通話水平測試」。而且規定，該測試的主要適用對象是「中小學教師、師範院校的教師和畢業生、各級廣播電台和電視台的播音員和節目主持人、從事電影、電視劇、話劇表演和影視配音的專業人員」。從內地應試者的情況來看，大部分是從小通過普通話接受教育的人。他們在參加普通話水平測試時早已會說普通話。其中許多人還是普通話的日常使用者。正如仲哲明(1998，頁7)所說，「應試人都是有一定文化的成年人，一般都已經掌握全國統一的普通話書面語」。他們之所以去應試，皆因政府有關部門***為了精益求精，在普通話已經普及的基礎上進一步提高某些行業的普通話的水平***。這是一個基於「數量」而求「質量」的考試。縱觀內地的情況，「經過近百年，尤其是進幾十年的努力，普通話已經成為全國通用的語言，各方言區和各少數民族地區，有越來越多的人掌握或基本掌握了普通話，普通話在有些地區逐漸普及，我國的語言生活發生了極大的變化」(陳章太，1998，頁28)。在這種形勢下，「評定應試人員普通話水平所達到的等級，落實上述普及普通話的質的要求」(仲哲明，1998，頁4)是有數量基礎的。在這基礎上實行的普通話水平測試對於「促進普通話的進一步普及，***並在普及的基礎上提高全社會的普通話水平***，提高現代漢語的規範化程度」(仲哲明，1998，頁5，重點系本文作者所加)是有必要性和積極意義的。

香港的現狀同內地有本質的區別。***內地人是掌握了普通話之後為了提高質量而應試***，香港人是學習普通話的過程中為求證明掌握而應試。關於進行測試，有人提出：「這是一個很有效的宏觀管理辦法。香港的學校、政務部門以及商業工業機構，似乎可以參考內地的經驗提出本部門對普通話水平的要求，并開展對普通話的水平測試。這樣一來，香港的推廣普通話活動將會更科學、更堅實地展開」(許嘉璐，1997，頁14)。凡此種種，使香港的普通話教學在初始階段就陷入了香港傳統的以考試為中心的壓力之中。君不見，有機構動員學習普通話剛剛起步的香港學生到內地去，接受為期三、四個星期的培訓，然後組織普通話水平考試。這種現象說明了什麼，值得深思。而這種以考試為中心、以考試主導教育的傳統做法在香港目前的教育改革中恰恰是各方關注和大力呼籲廢除的主要內容。

此外，如上所述，內地推廣普通話長達約半個世紀，「從全國范圍來看，完全聽不懂、一點也不會說普通話的人為數相當少，說得十分純正的人當然也不多，處在中間狀態的人是大量的」(佟樂泉，1998，頁72)。即使在這樣的普及形勢之下，內地尚且把應試者局限在日常工作同普通話密切有關的行業和人員。然而在香港，統計資料表明，「完全不會」、「只會說幾句話」和「會說一點點」的人佔總人口的71.8%(Bacon-Shone and Bolton，1998，頁82)。在普通話普及率並不高的當前，要求教師，甚至政務部門和商業工業機構的人員也來參加水平測試，這樣，應試范圍就不適當地擴大，並到了超越內地的程度。

從以上關於內地開展普通話測試的背景介紹中，我們可以看到，普通話測試是在長期的普通話推廣運動已經取得可觀成效的基礎上才在有限度的范圍內進行的。相形之下，香港目前尚未形成求「質量」的「數量」基礎。引入三級六等的「普通話水平測試」也就失去了合適性。更奇怪的是，有了一紙水平證書好像就算有了證明學習效果的依據。似乎確定了水平的高低之後就能按照定位發揮什麼作用。

在香港推廣普通話的初級階段就推行普通話水平測試，這種做法的結果會使學習者投入的人力、物力和財力造成巨大浪費，也會給他們的信心造成負面的影響。反觀大力推廣普通話的內地，在起步之初又何嘗實施過如今的水平測試？假如沒有四十餘年積累的成果，內地是否會有今天的測試，恐怕是一個疑問。

香港的現實情況是，自開埠以來，粵語一直是社會的主流語言。由於具有強勢語言的地位，粵語不僅滲透社會各層次和各種語言交際場合，而且體現香港語言社團的文化特徵。有鑑於此，普通話難以擴大其流通範圍。既然在相當長的時期內，普通話沒有可能取代粵語而被用作交際工具，那麼，推行普通話水平測試有何必要性和迫切性？是否真的會導致「香港的推廣普通話活動更科學、更堅實地展開」？

測試的結果和真實的交際能力

水平測試的結果是否反映了開展普通話教學和測試培訓的積極成果呢？是否證明受試者的交際能力呢？不妨略舉數例。1998年11月，香港中文大學普通話教育研究及發展中心對262名教育工作者、公務員、文職人員、行政人員和學生等進行水平測試。結果，134名應試的教育工作者(包括校長)中，約半數只達三級水平，42%達二級水平，10%不入級(見《明報》1999年2月2日B14版)。此外，在目前的香港，能夠進入一級乙等的受試者基本上是有大陸背景的、原來具備一定普通話基礎的人士。而在本港土生土長的人，大多數只能獲得三級甲或乙等(落入這兩個等級范圍的人數達61%)，最好的也只能達到二級甲等(13.75%)。[2]這些並非令人樂觀的統計數字從一個方面反映出，香港目前尚不具備展開水平測試的數量基礎。由於數量不足，屬於拔高性質的水平測試也就失去了其原意。

然而，從交際實用的角度來看，以上那些數字並不證明那些通不過考試者(包括類似「普通話水平測試」的其他一些普通話考試)沒有普通話交際能力。據報導，香港理工大學畢業試落榜的學生也有一定的普通話交際能力。與此形成對照的是，不少接受過普通話培訓和通過考試的人卻沒有因此而顯示出能夠用普通話交際的信心和能力(見《教協報》1999年5月10日第7版)。過去十幾年來，在內地工作的港人增至十五萬七千多。許多人在初進內地時並沒有普通話的技能，但卻硬著頭皮邊學邊用，被迫用普通話與人溝通。一年半載的磨練就使他們獲得了普通話的基本交際能力。他們沒有參加過水平考試，按測試標準，他們也許既進不了「等」，也入不了「級」，但是這無妨他們在內地使用普通話生活和工作。

總之，在香港，沒有在水平測試中獲得理想等級的人不一定不會用普通話來交際，而獲得好成績的人也不見得更有信心和意願來使用普通話。有鑑於此，目前在香港實施普通話水平測試的適切性就不能不令人生疑了。

關於應試的準備方式

照現行的做法，應試者根據指定的材料準備考試，而試題就是從練習材料中挑選出來。這樣的考試形式能否反映真實的能力也有可商榷之處。這種一時性的學習效果并不可能保存得長久，因為沒有切實的使用需要會導致短期密集練習的效果衰退。考試者往往事過境遷，將練習的內容束之高閣。其實，這種為求過關而學習、考試後又中輟的現象，在學校的各級普通話課程裏比比皆是。於是，「學生的進步極其緩慢，小學階段學過普通話的中學生必須重新開始學」(Ho, 1993， 頁1)，中學學過後進入大學又再重複學習，致使香港人居然要用如此漫長的時間去學習主要是口頭形式的普通話。英國的功能教學法專家Harold Palmer曾經這樣說過：“如果學生或教員瞭解到主考人是什麼樣的人，考題是什麼樣的形式，就會想方設法應付考試。這樣的考試與嚴肅的語言學習無關”(Palmer, 1968, 頁 133)。

關於偏重「輸出」技能

從專業技術角度著眼，對香港人學習普通話的情況來說，測試的總體設計不盡合理。整體而言，在成績比重分配上偏重于輸出，因為總分100分全部是應試者按指示讀出詞語、句子和篇章。換言之，從最大的可能性上來講，一個應試者只要集中精力練習朗讀詞句的技巧，他便可能比那些既注重講、也注重聽懂普通話的人獲得50% 的優先。而對香港人來說，初學普通話的首要任務是聽懂普通話的話語。學習一種新語言，「可懂輸入」(comprehensible input)對語言生成有重要的作用(Krashen, 1995)。能聽懂目的語，就為吸收該語言的體系打下根基，也是產生話語進行交際的第一步。學習第二語言尚且如此，就普通話而言，港人的第一需要更應該是如何聽懂普通話的信息，以了解內地的情況。

況且，普通話和粵語都是漢語的變體，二者之間有對應關係。這種對應關係通過多接收「可懂輸入」會逐步建立起來，爾后便會在潛意識中指導人們如何說話。水平測試重表達而輕接收，在香港運用是一種失衡。它用於內地是有效的：受試者已經會說普通話，「應該不存在聽不懂的問題」(孫修章， 1998，頁59)，受試的目的是檢測自己達到了何種標準。問題在於把這種產生于不同環境、針對不同對象、適用於不同目的的測試原樣照搬到香港來，這就顯得不合理、不合實際、不合需要了。如前所述，學習普通話的熱潮在香港還處於初始階段，人們需要的重點是聽懂普通話。正因為這樣，測試也就理應檢驗應試者的普通話聽力。正如仲樂泉(1998，頁9)所說，「學習普通話一般是聽易說難，如果連聽都有困難，談何普通話測試！」。在整體設計上，香港考試局的「普通話高級水平測試」和「普通話水平測試」以及香港理工大學的普通話出關試比國家語

2 此統計結果出自國家語委人員的報告。詳見謝建猷1999年5月28日在香港中文大學普通話教育研究及發展中心舉辦的「21世紀標準語教育」研討會上的講話，題為「香港普通話水平測試4年」。

委的「普通話水平測試」顯得適合於香港普通話學習者的情況和需要，因為前者有測試理解普通話的部分，旨在測試對普通話輸入信息的反應能力。這點區別也可說明，國家語委的「普通話水平測試」適合於大陸地區的情況。那裡普通話已經比較普及，人們從不同的渠道聆聽普通話的機會比較多，相對而言，聆聽理解的能力比較高。正是有鑑於這個特點，所以「普通話水平測試」「突出口頭檢測的特點，測試一律採用口試」(劉照雄，1994，頁6)。然而，對於聆聽機會不足的香港人而言，注重於「輸出」的「普通話水平測試」不會有利於他們的學習。有研究表明，把「說話」置於首要位置容易引發語言學習者的焦慮心理（Young, 1990）。Krashen（1998, 頁179）指出，「學習者感到不舒服的恰恰是在嚴格的條件下，不得不使用他們尚未習得的結構產生那種『逼出來』的輸出（pushed output）」。Loughrin-Sacco （1992, 頁93）也發現，對語言學習者來說，「講話是最能帶來焦慮心理的活動」。就筆者的所見所聞而言，這些關於學習語言的論點均適用於香港普通話學習者目前的狀況。

關於忽略語言交際的基本單位

水平測試的第一部分是讀單音節的字或詞；第二部分要求讀雙音節的詞語。這兩部分的設計目的是考查受試者的普通話聲母、韻母和聲調的發音，以及變調、兒化韻和輕聲的讀音。在沒有情景或上下文的情況下，這種題目有點偏難。理論上，這類試題與「句本位」原則相悖。人們在語言交際中的基本單位是句子。如果學習者對一種語言是完全陌生的(例如中國人學英語)，那麼，學習單個詞語不無必要，因為是語言的建築材料。然而，普通話測試也循此成例則無意義，並沒有達到測試能力的目的。因為這些詞語的絕大部份是粵語中有的，如果配上一定的語境，受試者的語音即使有點走樣，也不至於完全影響交際。相反，如果沒有語境，即使讀得十分標準，香港人也可能辨認不了。筆者曾經試過讓一些大學生聆聽標準的讀音來辨認詞語，結果普遍反映比較困難。然而，當同樣的詞語逐個放入句子時，情況發生了根本性的變化：多數人立刻就能借助整句話聽懂那些詞語的意思。由此可見，在普通話測試中，圍繞單個詞語而設計的試題不符合測試普通話能力這個總目標。

關於側重標準語調

貫穿水平測試的另一個目的是考核受試者的語調。然而，以普通話為基礎的漢語拼音方案中只有對於單字和詞語而言的聲母、韻母和聲調符號，沒有語調部分。而語調是對於句子而言的。說一句話的時候調子是否有問題，這不能光從語音學的角度來判斷，還得考慮句子的語用功能，看這句話是在什麼場合說的，由什麼人對什麼人說的，是出於什麼目的而說的，如此等等。而考試時往往不可能有如此充分的語境供受試者判斷應該使用什麼樣的語調。由此產生的疑問是，評判者是否只根據主觀的印象下判斷，或者根據預設標準作出的判斷是否能夠全面地衡量受試者對語調的掌握。

對香港人來說，要克服粵語的口音而說一口純正的普通話很不容易。鄉音難改，這是第二語言研究中有統一認識的定論。Lenneberg的研究(1967)從生物學和神經生理學方面表明，過了所謂的「關鍵性時期」(critical period，指從2歲左右開始到11 、 12歲青春期)，人的發音器官會因為身體的發育而起變化。之後再開始學習第二語言往往不能或難於獲得和本族語人一樣的語音語調的水平。所謂語音上的「完全雙語人」，主要是指兒童五、六歲前就接觸兩種語言，第一語言和第二語言幾乎同時習得者。而在香港，大部份人學習普通話非但只是剛剛起步，而且已超過這個年齡，所以在語音上很難指望他們達到標準普通話的程度。對於他們來說，能夠聽懂普通話、能夠用普通話表達乃是首要任務。至於說得是否字正腔圓，大可不必斤斤計較。

事實上， 內地雖說已經普及了普通話，但是並非人人都說得合乎標準。包括電視上出鏡率很高的國家領導人在內，大多數人說的是「大眾普通話」而非「規範普通話」。「大家都能說規範普通話固然能夠達到交際的目的；大家不會說百分之百的規範普通話，但是能聽懂大眾普通話，也同樣能夠達到溝通的目的。這便是大眾普通話的價值所在」(姚德懷，1998，頁11）。筆者百思不得其解的是，為甚麼要對香港的普通話學習者嚴格要求發音規範化？根據現代音系學的觀點，同一個音可能有不同的變體。也就是說，一種語音系統有其包容度。只要音位的區別性特徵體現出來，在話語中起到表義和辨義的功能，就應容納不同的變體。正因如此，美國英語、英國英語、加拿大英語和澳洲英語的語音區別並存，沒有發生何者為正的說法。就連北京人說話時對同一個普通話音位也會產生不同的變體(廖容榮、石鋒，1987)。眾所周知，粵方言區的人學普通話時對某些音感到特別困難，例如zh, ch, sh 和r等卷舌音。在目前普

通話尚未在香港流通和普及的時候，要求香港的受試者和內地的受試者按照同一套標準來進行水平測試，這恐怕是不合時宜的。這種過高的要求還反映在其他的普通話測試中，甚至出現了針對性的試題設計。據筆者所見，有人在香港普通話測試的問題上提倡，測試的命題基本原則之一是「針對操粵方言的香港人學習和使用普通話的特點和難點」(劉英林，1997，頁 225)。在香港回歸中國後，學習普通話熱潮方興未艾的起步階段，這種具有針對性的測試豈不是大有「哪壺不開提哪壺」的刁難意味？對香港人的普通話測試，當前比較實際的目的應是確定受試者的普通話交際能力。針對特殊難點的測試往往以要求學習者克服難點為目的，這樣的測試顯然失去包容變體的合理性，因而也就談不上有效地測量受試者的交際能力。

結語

考試，對於受試者來說，總是有一種壓力，只是壓力的大小程度因人而異罷了。引入「普通話水平測試」，這對於剛起步的香港普通話學習者并不能起到鞭策的作用。依靠考試來促進港人提高自身普通話水平的做法，無論其動機如何，效果往往是不盡如人意的，甚至可能會出現事與願違的局面。

香港正值推廣普通話的初級階段，普通話教學還沒有形成規模，目前最需要的乃是創造普通話的語言環境，鼓勵人們多聽多講，哪怕講得不那麼標準亦無妨，重在參與，重在用普通話作為交際工具。如果進行測試，那麼重點不妨是用普通話進行人際溝通的聽說技能。只有聽得懂，才能向說得好作提昇性質的發展。是否能順利地聽懂普通話信息，這是推廣普通話的第一步。從本文以上列舉的有關事實和統計數字來看，這種推廣目前只宜講究數量。如果為追求質量而對港人（包括教師）實行如此專業化的嚴格的普通話水平測試，那麼只會形成壓力而使人在說普通話時畏首畏尾，甚至不願開口。

「普通話水平測試」是中國內地前幾年剛剛興起的一項有使用限度、有特別對象的專業性考試。為了在普及的基礎上進一步提高普通話的水平，這樣的測試在內地也許不無必要。但是，把這項測試引入剛剛起步學普通話的香港，那就值得深思其必要性、合理性和適切性了。況且，香港的教育已經頗受考試「回應作用」(washback effect）的影響(Cheng, 1997)。筆者但願普通話教學在實現「兩文三語」的總目標的過程中不要步其他學科之後塵，把一件本來可介乎於有意和無意間輕鬆學習的項目弄得興師動眾，到頭來使學習者厭倦，得不償失。

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A Comparative Study of Status and Trends of Educational Research in Thailand and Japan

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During the period 1986-96, the number of research in Thailand increased sharply from 1 to 4 times while Japan just increase from 1.02 to 1.4 times. The two nations were quite different in their main area of interests, the level of education, and the problems in doing research. They would be similar in the aspects of research evaluation, dissemination and trends of educational research in the years to come (around 2007).

泰國和日本教育研究的發展趨勢

在1986-96年間,泰國在教育研究方面有1至4倍的增長，而日本方面只有1.02至1.4倍。兩國在研究興趣、教育階段及問題等方面都有很大分別，在評核及應用等方面,在未來幾年間(至2007年)有日漸接近的趨勢。

It is widely accepted that research is an important tool for the development of knowledge and the nation. The body of knowledge that a nation builds for its own development has become an indicator of a country's progress. For this reason, the Eight National Economic and Social Plan of Thailand (for the period of 1997-2001) has recommended that Thailand invest 0.75% of its GDP in research - this equates to a 50,000 million baht investment in year 2001(The Thailand Research Fund, 1995). To meet this target Thailand will need 50,000 qualified researchers, 200-500 research administrators and effective research management systems at all levels. However, according to the (The Thailand Research Fund (1995) Thailand has only two researchers for every 10,000 people whereas Singapore and Taiwan have, respectively, achieved ratios 34:10,000 and 55:10,000. It is evident that Thailand needs to do take drastic steps to encourage research throughout the country.

In order to increase the number and quality of researchers four major research institutions have been established in Thailand. The Office of the National Research Commission of Thailand, the National Science and Technology Development Agency, the Thailand Research Fund and the Public Health System Research Institute have agreed to promote both the quantity and quality of research. The Thailand Research Fund (1995), for instance, has identified three main targets. These are to promote quality and useful research studies, to develop qualified researchers, and to initiate effective research management systems. In order to fulfill the three objectives, the Thailand Research Fund has initiated a number of creative projects. These include:

- providing a additional funds for research (including research and development projects);
- encouraging researchers to develop and conduct a series of research projects
- promoting potential researchers;
- launching the Royal Golden Jubilee Ph.D. Program to help produce qualified researchers;
- developing coordinating and relationship models for researchers and research institutions;
- developing managerial skills for researchers and coordinators.

Although the importance of research has been

increasingly recognized, in practice, it faces many problems and obstacles. The Office of the National Education Commission (1993) conducted a survey on the status of educational research in Thailand during the years 1986-1990. The survey provided useful information on research topics, research processes, research dissemination and application, including trends for research in the future. The researcher, who at that time was responsible for research promotion for the Faculty of Education, Chulalongkorn University, has reviewed this study and found it highly useful for the promotion of research activities. However, the study provided data up to 1990 only. The research team, therefore, was interested in pursuing the study in order to get up-to-date data which would be useful for research planning and resource management.

At present, Thailand has entered the age of globalization where technological advancement is rapidly disseminated all over the world. Through advanced communication and transportation systems, people in various parts of the world are able to access and learn from each other's innovations, thoughts and practices. Japan is one among many countries that have close economic, social and cultural relations with Thailand. Thailand and Japan have often cooperated on joint projects, especially in education and research. One of these is the Exchange Program of Researchers, the program developed by the National Research Council of Thailand (NRCT) and the Japan Society for the Promotion of Science (JSPS). Since 1978, many Thai researchers have received funding to go to Japan to gain research experience in specific area under the tutelage of Japanese scientists (Japan Society for the Promotion of Science, 1997). This joint program has encouraged the research team to extend their interest into a comparative study of research trends and status between Thailand and Japan. It is expected that findings from this research study will provide insights into the development of educational research for both countries and suggest ways the two countries can work together more cooperatively, productively and efficiently on the promotion of quality research and researchers.

With financial assistance from JSPS and the cooperation from the University of Tsukuba in Japan, the Thai researcher was able to collect data in Japan through questionnaires and interviews with the assistance of Professor Yokuo Murata, the host scientist at the University of Tsukuba. The data were collected during two periods. The first survey was conducted during July 1993-January 1994, and the second from October 1997 to January 1998. Additional data collection during the second period was possible with the assistance of Professor Dr. Shigekazu Takemura from Hiroshima University. The Annual Research Fund allocated by the Thai government through the Faculty of Education, Chulalongkorn University enabled the research team* to complete the rest of research activities.

Objectives

This study had two main objectives as follow:

- To study and compare the status of educational research in Thailand and Japan during the period of 1993-1998.
- To study and compare trends in educational research in Thailand and Japan in the next decade (around Year 2007).

Assumption

The comparison made between research status and trends in Thailand and Japan was done with an awareness of the differences in economical, social and cultural backgrounds of the two countries. The assumption underpinning the study was one can learn from the differences and similarities that one has in relation with others.

The Research team consists of Tisana Khemmani, Suwimon Wongwanich, Suwattna Utairat, Pimpan Dachakupt, Permkiat Khamawatana, Soison Sakolrak and two Japanese host scientists, Professor Yokuo Murata and Professor Dr.Shigekazu Takemura.

Samples

Questionnaire respondents in Thailand and Japan were educational administrators, educators, and university/ government/private sector research staff. The subjects being interviewed in Thailand and Japan were researchers with visions selected to an appropriate blend in respect of age and experience. Number of participants for data collection is presented in Table 1 below

Table 1: Number of sample

Data collection method	Thai Samples		Japanese Samples	
	93-94	97-98	93-94	97-98
Questionnaires	85*	138	157	116
Interview	150*	30	26	20

*The researchers employed the data from the study conducted by ONEC (1993)

Research Instruments

Thai, English, and Japanese versions of questionnaires and interview forms on status and the trends of educational research were developed for this study.

Research Procedures

1. Investigating relevant data and documents, studying data and summarizing data to obtain a bird's eye view of the status and trends of educational research in both countries.
2. Developing tools for data gathering; writing up questionnaires and interview questions in Thai and then translating them into English and Japanese.
3. Collecting pertinent data in both Thailand and Japan.
4. Analyzing the data obtained, summarizing, and comparing data obtained from the two countries.

Research Results

Khemmani, Wongwanich, Utairat, Dachakupt, Khamawattana, and Sakolrak (1998) have analyzed data and summarized the findings as follows:

1. General data on educational research

Organizations involving in educational research

It was found that there are similar major departments involved in educational research. In both countries there are organizations at the national level that support all fields of research and others which exclusively support educational research. There are also operational research units at the university level and research units at the local level. However, Japan seems to take a more unified approach to the administration of educational research. In addition, there are more operational research units at the university and at the local levels in Japan, making it possible for Japan to be more effective than Thailand in collecting and supporting research projects. Nevertheless, there are trends that both countries that will increase the support of research projects in the future. In Thailand, the support will target both the quantity and quality of research, while in Japan the support will target the expansion of research projects at the local and international levels.

Number of research projects.

It was found that during the ten-year period from 1986-1996 that the number of research projects in both Thailand and Japan increased. Between the years 1986-1990, the number of Japanese research projects was 36 to 37 times higher than that of Thailand. Between the year 1991 and 1996, the ratio went down to 10 to 12 times. During this ten-year period, from 1986-1996, the number of research projects in Thailand climbed 1 to 4 times, while those in Japan gradually rose from 1.02 to 1.4 times. One trend showed that the number of Thai research projects was likely to increase at a high rate than the same in Japan. At the same time, the difference between the number of Thai and Japanese research projects will become increasingly smaller.

Fields of research.

The most popular research topics in Thailand were measurement and evaluation, while in Japan there were very few research projects on this topic. On the other hand, while the most popular topic of research was history/foundation of education in Japan, this topic was rare among the Thai research projects. The number of research projects on methodology/ teaching was proportionately similar in Thailand and Japan. In the future, it is likely that research projects in Thailand will be conducted on the previously unexplored issues such as special education, childhood education and non-formal education. Future issues in Japan will likely concentrate on teacher development and the type of curriculum that fits the contexts of contemporary society. With regard to methodology/teaching, Thailand and Japan will maintain the same degree of emphasis. It is likely that both countries will conduct more research into educational administration.

Levels of education being involved in research studies.

It was found that both Thai and Japanese the research targeted all levels of education. In Thailand most research deals with the elementary and secondary levels, while in Japan most of the projects deal with the tertiary level. Other quite popular research projects in Japan were non-formal education, special education and childhood education, which were quite contrary to the Thai interest. There is a sign, however, that Thailand is going to give more emphasis to each of these topics.

2. Research process.

Research planning.

It was found that both Thai and Japanese researchers normally made one to two year plans for their research studies, both individually and in groups (proportionately more groups than individuals). These research activities were mostly managed by organizations or departments through their research committees. Most Thai researchers made both short-term and long-term plans, while the majority of Japanese researchers reported that their organizations had no research plan. Influential factors in research planning in both countries were the proficiency and nature of research staff and benefits or results expected to be obtained from the research. In Thailand, the policy or objective of the organization was the most influential factor on research planning. Both countries aimed to utilize their research for the improvement of teaching and learning as well as the academic development in the field. In the future, research planning in Thailand will largely based on educational policy, while Japanese researchers will take into account the needs of the organizations/administrators. In addition, there is a trend that educational research network in Japan will be further developed at the national and international levels in Japan. In Thailand a the emphasis will be mostly at the national level.

Research issues and topics.

Most Thai and Japanese researchers proposed research topics and submitted these to the organizations or administrators. In Thailand there is a trend that the topics will follow the policy and measures set by the National Education Plan and Education Act. Therefore, these will include: the learning process reform, educational services to serve a variety of target groups, decentralization of education, improvement of educational quality and standards, bench mark establishment, and educational innovations including media and technology. The nature of research topics will be pro-active in order to prevent problems. In Japan, the trend will be on the administrative restructuring, teacher education policy, teacher development, ethics, curriculum, sciences, process skills, and educational media/technology. It is interesting to note that science development has always been one of the topics of interest for Japanese researchers, while this is not the case for their Thai counterparts.

Research methodology.

It was found that most of the research in Thailand and Japan were survey research, followed by experimental and qualitative research projects in Thailand, and analytical and historical research in Japan. In Japan the interview technique is not a popular means of data collection, because it is considered a disturbance for the interviewees. Many Thai and Japanese researchers used computers to analyze data. There is a trend that more computer technology will be used to analyze data in both countries. In Japan, a new kind of research which obtains data from secondary sources will emerge as will more cross-country survey research.

Types of research problems.

Both Thai and Japanese researchers agreed that the most important supporting factor for research was sufficient funding. Thai researchers faced a problem of inadequate time for doing research and a lack of moral support from the administrators. Japanese researchers had problems with data collection, literature review, and a lack of research assistants and insufficient money. There is a trend that smaller research projects in Thailand will receive less support while macro and interdisciplinary projects will get more support. In Japan, the problem of data collection will continue, while other problems will gradually subside.

Quality of research.

Both Thai and Japanese researchers agreed that the quality of research conducted by university faculty members was better than that conducted by school teachers. Although it was reported by Thai researchers that they had some criteria for research quality evaluation, there remained a lack of a

suitable evaluation at the system level. On the other hand, an inadequacy of both the criteria and the evaluation system was reported by Japanese researchers. Also, there seemed to be no foreseeable efforts to improve this situation in the future. However, there is a trend that Japanese researchers will get more support in terms of international cooperation for research staff exchange and sharing of research data. In the future, research works in both countries will improve in quality, especially in the case of Thailand, in which the concept of research quality assurance will spur the sponsors to monitor the progress of research periodically, including efforts to provide a team of professional researchers to act as consultants to new researchers.

Satisfaction in research work.

There were both satisfaction and dissatisfaction on the part of the Thai and Japanese researchers. Thai researchers were satisfied with the accomplishment of their research projects and the opportunity to apply research results. However, they were dissatisfied with time constraints and their own shortcoming in 'making time' for doing research. Japanese researchers were also satisfied because their work could benefit academic development and received public interest. However, they were still dissatisfied with time constraints that prevented them for exploring their topic in greater depth. In the future, the degree of research satisfaction will depend on how much support is provided to enable the researchers to achieve success in conducting their research.

The dissemination of research results.

Both Thai and Japanese researchers had a similar opportunity to disseminate their research work: Publishing a book or research report, writing research articles for professional journals, presenting research findings at seminars or conferences. A major problem has always been a lack of funds for accessing some of these opportunities. There is a trend that research results will be increasingly disseminated through the Internet and other database network systems.

The application of research results.

It was found in both Thailand and in Japan that only some parts of the research had been utilized. The part of research most utilized was research results. Most of the people who utilized research results in Thailand were teachers in Both countries seemed to lack a system for research utilization, but, this is expected to improve in the as networks and research databases re built at national and international levels.

3. Research support.

Most research grants in Thailand and Japan came from the government. Additionally, Japanese researchers were further subsidized by private sectors. While their Thai counterparts received some subsidy from the private sector, this was very small when compared with the Japanese. The bulk for Thai research grants came from overseas research grants, loans, and additional donations. At present, there are many forms of direct educational research support in Japan, such as the establishment of research-oriented universities, the development of new researchers, the improvement of research facilities, the improvement of the system of information technology and the establishment of a coordinating center for international researchers. In Thailand at present, there is an independent organization under the government, i.e., the Thailand Research Fund, which tries to raise funds from both government and private sectors and support research activities in many forms. For examples, it provides research grants, develops new researchers, and launched the Royal Golden Jubilee Ph.D. Program. In the future, both Thailand and Japan will likely support large-scale research projects and multidisciplinary research by drawing more funds from the private sector and developing research networks at both the national and international levels.

Discussion

This particular research has generated many interesting results, however, only a few points which are highlights of the study can be introduced for discussion here.

1. Organizations conducting educational research.

It was found that there is a high level of conformity across the various organizations conducting educational research in Japan. The reason for this is that both the local and national educational research organizations are similarly structured and

managed in accordance with the same principles. They are subsumed under the Ministry of Education, Science, Sports, and Culture, which, in turn, assumes the role of overseeing and inspecting all levels of educational institutions ranging from kindergarten to tertiary levels. In fact, the National Institute of Educational Research (NIER) is directly involved in the support and dissemination of educational research in Japan. In addition, this organization has founded the Union of Educational Research, which acts as a coordinator of all research activities at the village, prefecture or provincial levels, therefore indicating a unity in supporting, gathering and disseminating research results both nationally and internationally.

It is quite clear that an inherent feature of the Japanese administrative structures enables organizations conducting educational research to benefit from one another. It is quite interesting that there is a locally established network of agencies that coordinates the efforts in educational research. Moreover, there are a series of well-organized database management systems which make it possible for data to be linked across organizations. This particular administrative/ management structure could well be the most important contributing factor to the development of educational research in Japan, which can be attested by thousands of research projects each year.

On the other hand, it was found that the Thai administrative structures for educational research are different from those in Japan in many ways. Firstly, there are six major organizations conducting educational research in Thailand, each of which operates somewhat independently from the others. Unlike the NIER in Japan, there is no single institution or agency in Thailand to coordinate all the educational research efforts, the lack of which results in an absence of any clear national research policy or direction. As mentioned above, although there are six major educational research organizations in Thailand. Three of these operate at the national level, i.e., The Office of National Education Commission. The Office of National Research commission, and The Thailand Research Fund, and are responsible not just for educational research, but also for the research in all areas. Even in the case of The Office of National Education Commission, which appears to be directly responsible for educational research, the scope of their mission is far too broad. The management of educational research is just one of the many responsibilities it has to undertake. Such a lack of organized educational research efforts clearly indicates that the administrative structures of the Thai educational research are not as strong as those of Japan. When taken into limited responsibilities of Educational Research Section under Academic Department of the Ministry of Education, the Ministry of University Affairs, and the Ministry of Interior, are taken into consideration the lack of administrative uniformity is clearly seen. There is no clear network or relationship among all the organizations.

Pravet Wasi (1995) stated that it was necessary to use national intellectual strategies, which embrace all the forms of intelligence to solve problems and develop the Thai nation. One of the eight forms was research. He added that Thailand remained weak in research practice. There has been neither a clear policy nor an effective research management mechanism. Although the National Research Council was established 30 years ago, her accomplishments have been less than satisfactory, mainly because of a rigid bureaucratic system. On the other hand, The Thailand Research Fund (established through special proclamation) which has less financial backing and support from full-time as researchers is less bureaucratic and represents a fine example for the effective management of research. However, they have not received enough funds to build the required knowledge base. Funds need to be raised from both the government and the private sector in order to help defray the cost of running The Thailand Research Fund. Pravet Wasi(1995) proposed that an innovative form of Basic Scientific Research Institute be established in a flexible and independent manner and that a team of outstanding scientists could be brought together to conduct research earnestly and , honorably. In this way, Thai youngsters would have a mental image of what a profession of scientist should be like.

When applying Pravet Wasi's proposal to the Japanese structure of educational administration, we can see that Japan has an organization at the national level whose duty is to manage educational research, called NIER under the Ministry of Education. In Thailand there is no similar organization directly responsible for the management of educational research. Only the Office of the National Research Center of Thailand whose duty is to manage all forms of research. The closest office to Japan's NIER in Thailand is just a section or unit, i.e., Educational Research Unit under Academic Department, Ministry of Education. However, this unit is

not responsible for research at every educational level. Research at the university level is under the Ministry of University Affairs. As we can see, in terms of the structure of educational research management, it is apparent that the Japanese system is much stronger, due to the fact that there is an organization at the national level that directly oversees educational research. There should be a feasibility study to determine whether it is possible to establish a similar organization in Thailand - one with an independent system of administration as suggested by Wasi.

2. *The number of research projects.*

The number of research projects in Japan is far superior to the number of projects conducted in Thailand. In fact the Japanese conduct 12 times as many research projects than the Thais. There are many explanations for such a great disparity.

Firstly, the economic conditions in both countries are entirely different. Based on the Index of International Competitiveness 1997 (Office of the National Education Commission, 1997), Japan GDP per capita was $36,857, while Thailand was $2,770. Per capita Japanese public expenditure on education was $1,276, while in Thailand it was a mere $92. Kriangsak Charoenwongsak (1996: 155) compared Thai data on educational expenditure with other developed countries* and found an increasingly higher figure of the annual Thai budget was allocation to education from 1975 to 1992, increasing by an average of 12.7 % per year. But the growth was still smaller than the average increase of the national expenditure of 13.7%. By comparison, Thailand's annual education budget has been only 3.4% of GDP for the previous 15 years, while it was more than 5% in the USA, Japan, France and England. Even Malaysia had been 6% since 1980. In addition, the data on the annual Thai education budget indicates that only 0.15% of GDP, on average, is committed to educational research as opposed to the 2-3% spent by most developed countries. Thai expenditure on research and development was 5 billion baht while Japan spent 3,000 trillion trillion for the same purposes (Charoenwongsak, 1996: 165-167). With such a staggering contrast between the Thai and Japanese economy, it is no surprise that Japan research on education is far more advanced than that of Thailand.

Secondly, there are 1,243 universities and colleges and 56,427 kindergarten, primary, and secondary schools in Japan (Ministry of Education, Science, Sports and Culture, 1998: 16-17) as opposed to 515 universities and colleges (University Bureau, 1998), and 38,272 schools in Thailand (Ministry of Education, 1997). These figures indicate that Japan has 2.5 times more universities and colleges, and 1.4 times more schools than Thailand. This alone attests to the fact of why there are fewer educational research projects in Thailand.

Thirdly, the number of research projects in Japan is drawn from a more comprehensive research database than that in Thailand, and from many more sources—both from government and private sectors. On the other hand, the Thai database is quite haphazard. In addition, many research projects have not been included in the database, resulting in a deflated number of research projects being reported. It was also found that very few research projects conducted by private sector were included. Another point is that research projects in Japan include every possible statistical collection of data which may not be what is traditionally defined as research projects*. As a result, the number of research projects conducted in Thailand is much smaller than that in Japan.

Fourthly, the 334 research projects conducted in Thailand during the years 1986-1987 were relatively small but rose to 1,894 by 1991-1993. Unlike this relatively rapid increase, the number of research projects in Japan number of rose steadily. From the period of 1986-87 to 1991-93 the number of Japanese research projects has increased from 11,972 to 19,811. All things considered, the years 1991-1993 happened to fall in the transition period between the National Economics and Social Development Plan V and Plan VI implementation, when there was a surge of interest in research development and a better budget for research which continued to grow steadily. Hence the unusual surge in the number of educational research projects in Thailand.

Finally, in the past five to six years, the Thai Ministry of Education urged school teachers to conduct research, and built this into a career incentive structure. Hence a surge in educational research projects by school teachers. However, there is a trend that the number of educational research projects may drop because of a recent shift in policy that teachers can be promoted without having to conduct any research. Despite this fact, the number of research projects as a whole should not be affected since teachers' work (although not in a

conventional definition of research work* it is more or less research*) involves the development of teaching techniques, educational media, or classroom management.

In conclusion, it can be seen that many factors have triggered the unusual increase of research projects in Thailand with an increasingly upward trend, compared to a steady increase of research projects in Japan. It should also be noted that there is a marked difference between Thai and Japanese research environment, especially when one looks at the total number of research projects. Although the inadequate Thai database system and different definitions of research work in the two countries may offer some explanation of a staggering contrast between the number of research projects, there must be some other factors that give rise to such a disparity. The most significant factors could well be economic conditions, the size and type of population, the level of public and private sector financial support for educational research, and the administrative system that gives a high priority to educational research. If educational reform in Thailand is successful, investment into research must be much higher, and if the necessary supports are provided, one can be optimistic that research in Thailand will progress at a more rapid rate than in the past.

3. Research methodology

It was found that both Thailand and Japan typically conducted research using survey techniques. For Thailand, the reason might be that survey technique is the basic foundation for all other techniques. Survey research becomes the first choice for novice researchers. At present, while the database system is being developed in Thailand, there is no comprehensive research database as such, and it is therefore necessary to conduct survey research to pinpoint general conditions and problems. Once the research database is improved to the point that it is up-to-date and comprehensive enough, such techniques as experimental or analytical methods would be more common. The research database can then be utilized for research purposes that require more sophisticated techniques. In Japan, the reason for the highest popularity in survey research is that it is more convenient than any other techniques and that it is inexpensive, especially in terms of transportation expenses, as well as less time-consuming, and easier data analysis when modern computers and technologies are available. It was found that 40.5 % of Japanese researchers analyzed data manually, which shows that the research in Japan does not utilize complicated statistical procedures. Second to survey research, analytical and historical methods are also popular among Japanese researchers. This might be possible when research databases are up-to-date and comprehensive. The research process would be facilitated and the results more comprehensive and reliable. Besides, there is no need to disturb respondents, who may be working, by questionnaire or interview. Working hours in Japanese culture are considered precious and the golden rule is to avoid any disturbances, unless they are absolutely necessary. Moreover, in Japan it is felt that other methods like experimental research must be conducted with utmost care, especially when people are directly involved, since there might be a problem of human rights violation. In light of what happens in Japan at the moment, the issue of whether to use questionnaires or interviews is a difficult one, as the ethics of conducting different types of research. Potentially repeated requests to complete questionnaires, to answer interview questions, or to express opinions as a part of survey research, if used too frequently, would interfere with office work and invariably increase workload. Fortunately, such incidents are less serious in Thailand than in Japan. One explanation might be that Thai people, when asked for a favor, feel obliged to help or do not know how to refuse. They might do it half-heartedly, resulting in distorted data. In the future this problem might be more prevalent in Thailand. Such issues therefore must be taken into consideration. One way to alleviate the problem is to develop a comprehensive research database which could minimize repetitions in survey research. Additionally, researchers might choose to gather data from secondary sources, which is becoming increasingly popular in Japan. Another interesting phenomenon in Japan is that more Japanese researchers will do survey research internationally possibly to avoid the problems of data collection, research ethics violation (experimental), and heavy costs. It is likely that more researchers will conduct research in Thailand because the expenses are lower. This will benefit Thailand somehow. Thailand should encourage any kind of collaboration and support such research efforts because there will be returns in terms of both research results and new learning from the process of information exchange and sharing of experience. In the meanwhile, various measures and regulations must be established in a way that Thailand will

gain most benefits while facilitating Japanese research activities.

Another conclusion drawn from this research is that there is a lack of longitudinal studies in both Thailand and Japan on a given research topic, and investigations which can generate a unified set of knowledge. This shortcoming may stem from insufficient research funding resulting from the sponsor approval of research budget or the trends in that particular period. Another reason could be rooted in the nature of educational research itself. Because such research almost always deals with people, who keep changing constantly, it is extremely difficult to conduct research with the same group of subjects for a long period of time. In the future it would be desirable for sponsors, organizations, and researchers to reconsider this issue and support more longitudinal studies in order to gain more knowledge in depth which is unified rather than unorganized chunks of knowledge or disconnected pieces of puzzles at the moment.

An interesting issue revealed in this research is that both Thailand and Japan conduct more quantitative than qualitative research. The trend is that there will be a combination of both quantitative and qualitative research in the future for a deeper and more accurate understanding of the issues being studied. In anticipation of this trend and with a view to achieving quality outcomes, it would be advisable for the sponsoring organizations to encourage researchers to acquire knowledge of and to be able to do qualitative research as well as to combine the two techniques of quantitative and qualitative research. In addition, with such a trend and a keen interest on the part of the researchers, there should definitely be a collaboration between Thai and Japanese researchers to conduct qualitative research. In this way both parties will be able to learn from each other and to reap mutual benefits in the end.

Recommendations

The following recommendations were made by Khemmani et al.(1998) for both Thailand and Japan in improving their research potentials :

For Thailand, a feasibility study of the establishment of an agency whose sole responsibility is to oversee and supervise educational research directly should be conducted as a basis for decision making in research policy.

Thailand and Japan should collaborate in the study on research topics of mutual interest. Such topics may include teacher and curriculum development, teaching and learning process development as well as educational management restructuring. Both countries could benefit from each other through conducting collaborative research. Japan has an extensive database, rich experience and skills and in historical research and in the area of special education, early childhood and non-formal education whereas Thailand is quite skillful with quasi-experimental research and possesses experience and data in the areas of educational measurement and evaluation.

The data indicated that many higher education institutions and organizations in Japan did not have research plans. It is therefore recommended that Japan do further studies to uncover the fact which may lead to a better development of national research in both quantity and quality.

Both Thailand and Japan suffer from limited research result dissemination due to financial constraints. This has led to the under utilization of research results. It is therefore recommended that sponsors consider providing sufficient research grants to cover the cost of research result dissemination. Because the expenses incurred in conduction of research are quite high, it is essential that research results be utilized to the best possible extent to justify the investment. Support for research dissemination should be fully provided.

Since both countries still lack an effective assessment system for research, it is recommended that both countries collaborate in conducting research in this area. In the next decade, around year 2007, there should be a confirmatory study to find out how accurate the predictions made in this study are.

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培養大創造力觀：創造力的再認識

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筆者在文中提出“大創造力觀”的概念，旨在推動人們更加平常化、生活化和多元化地理解創造力的涵義及其開發。本文首先探討了人們在對創造力認識上的四個常見誤區，其核心問題在于當前的教育模式過多培養了學生的聚合思維，過少培養了學生的發散思維，這嚴重阻礙了學生創造力的發展。接著，本文探討了創造力之開發與個人綜合能力的培養、自我人格的完善、生活智慧的積累、終身學習的追求及童心的回歸等問題的關系。由此，本文希望能使人們對創造力的理解有一個深刻的思想解放，以使每個人都能充分認識到自我的巨大創造潛能。

Fostering a Broader View of Creativity: Reinterpreting Creative Thinking

This paper argues for a broader view of creativity in everyday life. It starts by addressing the four commonly held misbelieve about creativity and argues that in educating students, teachers often gives too much attention to enhancement of convergent thinking and too little attention to enhancement of divergent thinking. Consequently, students' thinking has been greatly standardized toward convergent thinking, leaving little room for development of imaginative and innovative thinking. Thus, people should adopt a broader view of creativity by which everybody is capable of maximizing his creativity as long as he tries to actualize his creative potentials and develop its related characters.

當今世界各地的教育家都一致認為，培養學生的創造力是現代教育的首要目標，也是社會變革與進步的一個重要指標(e.g.， Eljamal， Sharp， Stark， Arnold & Lowther， 1998)。中國科學院院長路甬祥(1998，41頁)指出："21世紀將是人類全面依靠知識創新和知識的創新應用的可持續發展的世紀。世界將進入全球化知識經濟時代。知識的創新及其創造性應用成為人類社會進步的不竭動力，成為國家和民族生存發展和競爭力的基礎"。但路甬祥院長(1998， 41頁)也指出："我國知識創新和技術創新效率不高。1996年我國從事研究與發展的總人數和企業研究與發展總人數均列世界前4名，而我國科學研究和專利指標的國際競爭力分別為世界的第32位和第21位。我國創新能力不強，一方面與我國的科技投入不足和市場機制發育不完善有關，另一方面也與我國現行創新體制及運行機制不盡合理有關"。筆者認為，造成我國創新能力不強的原因，不僅在于現行的創新體制不健全，還在于我們對創造力的理解不健全。

美國康奈爾大學著名心理學家瑞普(Ripple，1999，p. 3-4)指出：對於創造力的理解，一直存在著廣義與狹義之別。狹義上的創造力指個人發明或創造發現某項新生事物的能力，它可給人類的知識和生活帶來某種促進和便利。而廣義上的創造力泛指個人改變生活與認知方式的能力，它是每個人與生俱來的能力。人們只有從廣義上理解創造力，才能充分開發每個人的巨大創造潛能。結合到我國教育工作者對創造力的研究和實踐上，筆者認為，我們對創造力的認識和培養本質上是狹義性的，我們極需從更廣泛的意義上來理解創造力的內涵和意義。由此，筆者提出“大創造力觀”之概念，冀望它可以給人們帶來創造力認識上的思想解放。

一.對創造力的狹義認識和廣義認識

(一)對創造力的狹義認識

何謂創造力？簡單說來，它泛指個人創造新事物、新概念、新產品的能力，是人類創造性的操作化，具體化和物質化(岳曉東&龔放，1999)。就思維表現形式來講，它主要包括邏輯推理、意念生成、隱喻聯想、直覺判斷等形式。美國著名心理學家吉爾福德(Guilford，1959)認為，用演繹法、歸納法、分析法、綜合法、想像法等概念來表達創造力都不夠精確，他認為創造力本質上是由發散思維和聚合思維組成的。這可謂對創造力的狹義理解。具體地說，聚合思維（convergent thinking，又稱輻合思維）以邏輯思維為基礎，它十分強調事物之間的相互關系，試圖形成對外界事物理解的種種模式，追求問題解決的唯一正確的答案。由此，聚合思維是一種有條理、有范圍的收斂性思維，它具有方向性、評斷性、穩定性、服從性和絕對性等特點。它是依據已有的信息和各種設想，朝著問題解決的方向，求得最佳方案和結果的思維操作過程，聚合思維一般包括演繹思維[1]（deductive thinking）和歸納思維[2]（inductive thinking）兩種方法(岳曉東 & 龔放，1999)。

與此相反，發散思維(divergent thinking，又稱輻散思維）以形象思維為基礎，它不強調事物之間的相互關系，也不追求問題解決的唯一正確答案，它試圖就同一問題沿不同角度思考，提出不同的答案。由此，發散思維是一種無規則、無限制、無定向的思維，具有靈活性、流暢性、多變性、新穎性和相對性等特點，發散思維一般包括逆向思維[3]、曲解思維[4]、腦激蕩[5]、誇張思維[6]等方法(岳曉東 & 龔放，1999)。這些方法正如美國著名創造力學者波諾（de Bono，1973）所言，思維的目的不在於求正確，而在於求有效。雖然思維有效最終會導致求正確，但兩者之間有一個重要的區別：求正確意味著總是正確，求有效意味著只是在最后才正確。

聚合思維和發散思維之間存在著互補的關系：聚合思維是把解決問題的各種可能性都考慮到之後，再尋求一個最正確或最佳的辦法，而發散思維是則是圍繞問題多方尋求解決問題的答案的過程。也就是說，聚合思維很強調對已有信息和知識的理解和運用，而發散思維則強調對未知信息和知識的想象和假設。所以，聚合思維和發散思維相輔相成，對立統一，其交互發展構成了個人創造力的基礎。換言之，沒有聚合思維，就沒有創新和變革的條件和基礎，而沒有發散思維，就沒有創新和變革的想象基礎和動機。聚合思維與發散思維平行發展構成人的創造力。在此意義上講，聚合思維與發散思維之發展好比人的兩條腿，其平衡成長才能確保人可以自如的行走和奔跑。

總而言之，對創造力的狹義理解主要強調了對聚合思維和發散思維的充分認識和利用，它主要參照了美國心理學家托蘭斯(Torrance，1964)提出的發散思維三維模式：變通性（指對事物夠隨機應變，確類旁通，不受各種心理定勢的影響）、流暢性（指對事物反應迅速，在短時間內可以想出各種不同的念頭）和獨特性（指對事物能夠有不同尋常的見解）。它最大的問題是沒有將創造力的概念生活化、多元化和平常化，沒有將創造力的開發與個人的自我挑戰和完善結合起來。

(二)對創造力的廣義認識

何謂對創造力的廣義理解？它泛指個人改變生活認識與方式的能力，是個人在創新活動中多種能力、技能、動機和態度的組合(Ripple，1999，p. 1)。創造力之表現，可謂無所不存，無所不在，不分年齡，不分教育，它是每個人與生俱來的巨大潛能。所以，怎樣最大限度地認識和開發自我的創造力潛能，是每個人自我成長與完善的最大挑戰。

美國康奈爾大學心理學家瑞普(Ripple，1999)提出：自古以來，人們在對創造力的認識上一直存在著"非凡論"和"平凡論"兩種截然對立的觀點。持"非凡論"觀點的人，將創造力與科學技術的重大突破和發明聯系起來，認為創造力是少數天才人物的專長，是特殊能力的表現，他們甚至試圖從人大腦神經網絡的差異來鑒定天才人物的特殊能力；而持"平凡論"觀點的人，將創造力與日常生活的革新變化結合起來，認為創造力是人人與生俱來的能力，是所有人的潛能，需要加以不斷地開發和利用(p.3-4)。

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1 演繹思維(deductive thinking)力圖通過一般原理的邏輯分析來証明特殊事實的存在。

2 歸納思維(inductive thinking)力圖通過特殊事實的邏輯分析來証明一般原理的存在。

3 逆向思維(reverse thinking)力圖通過反常規和反傳統的思維方法來激發人的創造性。

4 曲解思維(distortion)力圖通過歪曲事實的做法來激發人們解決問題的新思路。

5 腦激蕩(brainstorming)力圖通過鼓勵各种各樣的聯想來激發人的創造意念。

6 夸張思維(exaggeration)，力圖通過對事物某一方面的任意夸張來促使人們重新認識其性質。

由此，瑞普教授(Ripple， 1999)主張，創造力本質上就是人重新認識和解決問題的能力表現。在這層意義上講，人人皆有創造力；創造力是極其個体化的特徵表現，每個人創造力的發揮都是在各自的特定條件下產生的。美國著名心理學家馬斯洛 (Maslow， 1971)也提出，人的創造力可分為特別技能的創造力（special-talent creativity)和自我實現的創造力(self-actualizing creativity）。其中前者是人的個體差異，後者是人的共同潛能。由此，創造力是每個人與生俱來的能力，只有懂得珍惜它的人，才能積極地加以開發和利用，才能使人的生活過得更加美好和充實。吉爾福德(Guilford，1959)亦曾呼吁人們不要將創造力當作少數人具有的特權，而是人類普遍具有的一種特殊人格品質來加以研究。

綜上所述，對創造力的廣義理解突出強調了創造力的平凡性、實用性、大眾性、生活性等特點。在此意義上講，創造力的表現並非要發明、創造出某種新生事物來，對事物的任何一種不同（新鮮）的認識和處理方法都是創新的表現。這正如美國心理學家瑞普(Ripple，1999)所描述的那樣： 創造力就是再認識已了解的知識.....它可幫助人們在一個更廣泛，更特別的情景下看待同一件事物的不同功能和作用，從而實現思維中的一次次飛躍” (p. 4)。由此，創造力可謂無所不在，無所不有，無所不能，無所不入，只要一個人用心去創新，他就有可能取得其實踐上的一次次飛躍。

二.創造力認識上的常見誤區

筆者認為，由于上述對創造力之廣義認識和狹義認識的差別，我們在對學生創造力的認識和培養上經常會出現下列誤區。

誤區一. 創造力是非凡能力的表現

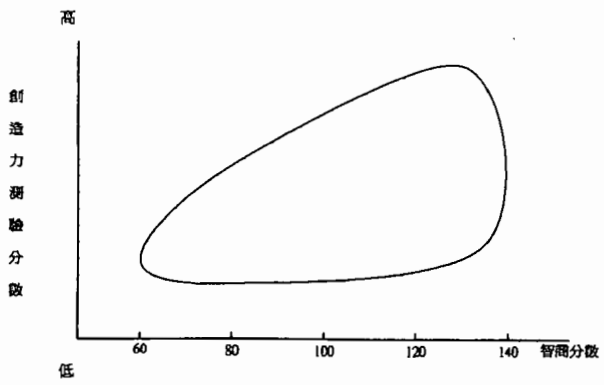
片面認識創造力的內涵，把它看作是某種非凡能力的表現，是對創造力認識上的最大誤區。例如，據筆者所做的一項有關創造力認識的研究表明，兩岸三地的中國人都易將創造力與古今中外的重大政治和科技成就及其相關人物結合起來。這是對創造力的狹隘認識，也是“創造力非凡論”的表現(岳曉東 &Rudowicz，2000)。這種局面的出現主要是因為教育工作者在教學實踐中，通常過多地介紹了政治、科學、技術和文學等領域傑出人物的貢獻，過少介紹了其他領域中傑出人物的貢獻。這易使人們將對創造力的理解定位在政治和科學的尺度上，而忽略了創造力在其他領域的應用。而在當今的信息社會中、知識社會的最大特點是不穩定性，不可測性、跳躍性和復雜性。有人將這種新的思維方式與量子物理學聯系起來，稱之為量子思維。它要求我們在教育實踐中，大力培養學生多元化理解創造力的構架和表現方式，實現對創造力理解的深刻的思想解放。

目前兩岸三地的教育模式本質上都可謂“應試教育”[7]的模式。其教育目的狹隘，教育手段單調，教育評估“一刀切”。在這種制度下，學校几乎成為了“教育機器”，學生也都成為了模子。學生的個性不能受到應有的重視，學生的創造性受到嚴重扼殺。這種教育的結果，正如捷克教育家夸美紐斯(1984)所言的那樣，是“人類智慧的屠宰場”。由此，我們在教育中應大力培養學生的平凡創造力意識，使他們徹底擺脫“創造力非凡論”的思想束縛。我們的教育應使學生懂得：創造力是每個人與生俱來的能力，只有懂得珍惜它的人，才能積極地加以開發和利用，才能使人的生活過得更加美好和充實。

誤區二. 創造力是智力發達的表現

長期以來，許多人誤將高智力等同於高創造力。其結果，人們在教學實踐中，只知提高學生的智力，不知提高學生的創造力，導致學生向“智力高於一切，成績決定乾坤”的方向發展。其實，早在二十世紀60年代，吉爾福德(Guilford， 1967)在綜合了以往學者的研究成果后提出：智力與創造力之間存在著一個三角圖形的關系(見圖1)：創造力和智力之間存在著某種正相關的趨勢；但智商越高，則其與創造力的相關性越低；特別是智商在130分之上者的創造力可能分布很散，智力高者未必創造力就高。換言之，高智力只是高創造力的有力條件，但不是先決條件，高智商者未必有高創造力。美國哈佛大學心理學家加登納(Gardner，1983)更明确提

圖1 智力與創造力的關係



7 “應試教育”泛指教育的核心目的只是為完成各類考試任務，如學期考試、入學考試和會考/高考。

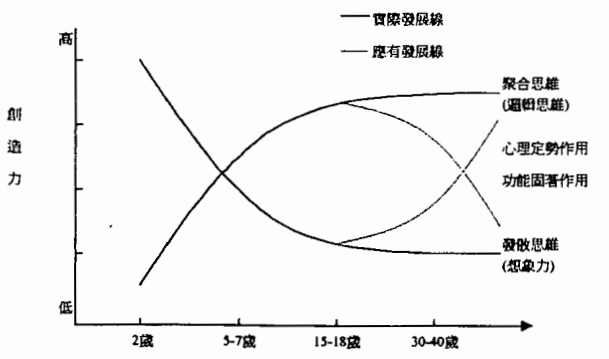
出，一個人在成長中能否獲致成功，智商的高低並不是決定性的因素。事實上，用目前的智商測驗方法，充其量只能測出一個人‘學習智能’的高低。至於日後生活中表現的優劣，是不能從智商測驗結果中顯示出來。其後大量中外的研究也都充分証明了這一點。

在大陸，賀宗鼎和袁項國(1997)在評述大陸超常兒童心理研究和教育時指出，某些超常的兒童和少年雖然在學科成績、競賽、論文發表等方面堪稱高質人才，卻在對舊事物的改造、對已有觀念的突破及對新事物的開拓上難顯特色，這可謂超常教育的誤區。所以，從“高智力導致高創造力”的陰影下走出來，是人們開發創造力的首要任務。

誤區三．創造力是思維發達的表現

創造力不僅是思維發達的表現，也是想象力發達的表現。在迄今世界大多數國家的教育制度中，對學生邏輯思維（聚合思維）的關注和培養要遠遠高于對想象力（發散思維）的關注和培養。其結果，邏輯思維的發展往往是以犧牲想象力為代價的，形成了一種雙曲線圖（見圖2），它正如美國著名創造學家波諾（E. de Bono）所說的那樣，假如某人宣稱已經學會了思考，大多數人都會認為他指的是形式邏輯的思考。其結果，人創造力中邏輯思維的發展要遠遠超過想象力。這就好比一個人的兩條腿長成一粗一細的，由此人只能在創新的田野一瘸一拐地行走，而永遠不能夠奔跑。

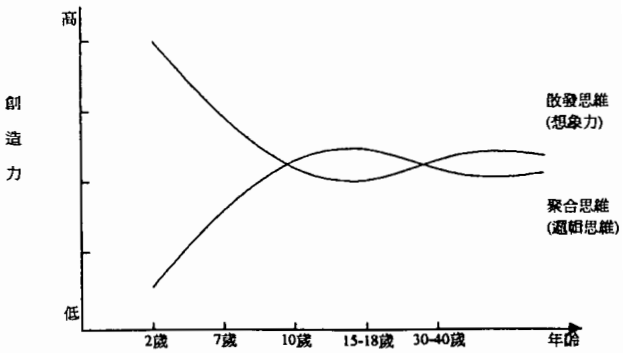
圖2. 人創造力之聚合思維和散發思維發展不平衡圖



據美國的一項調查表明(American Management Association， 1991)，一般人在5歲時可具有90%的創造力，在7歲時可具有10%的創造力，而8歲以后其創造力就下降為2%了。這種現象的出現，本質上是因為兒童在接受教育的過程中，不斷地被知識的經驗性和規律性所束縛，逐漸喪失了其獨立思考和想象的能力。美國著名心理學家托蘭斯（Torrance， 1964）也指出，有些兒童大約在4年級便停止了創造力的發展，並再也未能重新獲得它。大陸學者溫寒江(1993，63頁)也同樣指出：長期以來，我們在教育一直忽視右腦開發，忽視形象思維的發展。而普通心理學所論述的思維只是抽象思維，兒童心理學認為“兒童從具體形象思維為主要形式向抽象思維為主要形式過渡”。由於年齡特點而初步發展起來的形象思維，在這種理論的影響下，被“過渡”掉了。

所以，筆者認為：開發人的創造力，也要從平衡發展學生的邏輯思維和想象力能力入手，要使得一個人的兩種思維能力平衡交替地發展，而不能一邊倒地發展，更不能使一種思維能力的發展以犧牲另一種思維能力為代價(如圖3所示)。只有那樣，才能使學生的創造力的發展兩條腿走路，而不是一條腿走路。

圖3. 人創造力之聚合思維和散發思維理想發展圖



另外，平衡發展邏輯思維和想象力，也會十分有利於右腦的開發。北京哲學社科院溫寒江等人(1993)最近開展了“開發右腦，發展形象思維的教學實驗”。它針對傳統教育理論與實踐中對右腦潛能和形象思維開發中存在的一些弊端，採取了多樣化的教學實驗。結果表明，創造力的基礎不是單一的，而是抽象思維和形象思維的有機結合。而據大陸學者王迎春(1998)的研究，對中小學生進行各種訓練，如想象與分析相結合，直覺與論證相結合，觀察與分析、概括相結合，聯想與推理相結合等，可促進學生用全腦來思維，因而是培養創造力的有效途徑。

8 學習負遷移(negative learning transfer)，指對新知識接受的干扰和阻礙。

9 功能固著(functional fixation)，指人在日常生活中，習慣於將某種物件的功能或用途看成是該物件固有的。

10 首印效應 (primacy effect)，指在社會知覺中最先給人留下的印象具有最強烈的影響。

11 定勢狀態(set condition)，指對事務的認識採取某種固定的模式。

誤區四．創造力是知識發達的表現

知識的積累會促進創造力的發展，也會阻礙創造力的發展。如果知識的積累導致人們不斷認同標准答案，那就會徹底摧毀其創造力的能力。就心理學而言，追求標准答案會給學生的認知發展帶來種種的學習負遷移[8]和功能固著[9]效應。這突出表現為沿襲固有的處事慣例、首印效應[10]、權威崇拜和無批判意識等現象。它們本質上都是人思維活動中的一種定勢狀態[11]，都會給人帶來種種的思想惰性。這正如孟子所言：“盡信書，則不如無書”(《孟子．盡心下》)。

據統計，在現行的教育制度下，一個學生從小學升到大學，平均要經過上千次的測驗與考試。如此“千錘百練”之後， 凡問題只有一個標准答案的概念會深深地印刻在學生的腦海中，這正如教育家尼爾．波斯特曼所說的那樣：“孩子們入學時像個‘問號’，而畢業時像個‘句號’。”而事實上，凡問題只有一個正確答案的想法，不僅不符合生活現實，也與現代社會高競爭、高彈性、高變化的環境格格不入。

培養個人的創造力，關鍵在於提高個人的知識結構，其中包括散發思維、批判思維和人際溝通等能力。在這當中，大力培養學生的批判意識可謂其關鍵。批判思維是促使人們不斷破除其思想認識中種種功能固著和思維慣性的關鍵。培養辯証批判思維，對於突破聚合思維對創造力發展的束縛，開發個人的發散思維能力，具有十分重要的推動作用。在當今，人們越來越從宏觀上認識批判思維的重要性。批判思維不再是某幾項思維技能的開發和利用，而是思維技能的綜合利用与人格的自我完善。它即包括有關的思維技能(thinking abilities)，也包括一系列的人格品質 (dispositions)。批判思維不僅是一種綜合思維能力的表現，也是一種人文精神的表現(岳曉東，待發表)。在深化教育教學改革的今天，我們應大膽解放思想，突破“應試教育”思想和傳統教學模式的束縛，重視學生質疑能力、創造能力的培養，所以中小學應建立以歸納式教學為主，以演繹式教學為輔的教學模式，以從小培養學生的質疑精神(張建衛，劉玉新，1997）。

三．樹立大創造力觀：創造力是對每個人的自我挑戰

由于上述四種誤見，人們很容易低估自己和他人的創造力潛力，把創造力的利用和開發當作是少數專家和學者的事情。其實，創造力在很大程度上表現為對所學知識的再認識和再組合，它與其說是一種能力的表現，還不如說是一種精神的表現。因此，所謂“大創造力觀”，就是指我們應該從更加宏觀的角度來看待和理解創造力在日常生活中的種種表現，不僅把創造力當作是個人創新能力的培養，也要把創造力當作個人創新精神的培養。換言之，筆者倡導“大創造力觀”，旨在推動人們更加多元化、平凡化和生活化地理解創造力的意義及其開發，實現對其認識上的思想飛躍，以使每個人都能在生活中最大限度挖掘自我的創造潛能，養就創新精神，並通過創新來完善個人的人格。在此當中，我們可從以下六個方面來理解“大創造力觀”之理念(見圖4)。

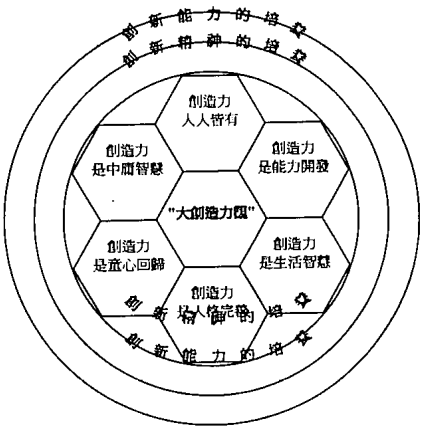


圖4． “大創造力觀”之理念圖

(一) 創造力是每個人與生俱來的寶貴財富

創造力是每個人與生俱來的能力，這是創造學的首要原則，也是人本主義心理學的基本原則。創造學開創者奧斯本(A. F. Osborn)指出，人類社會的文明史正是由人們依靠創造力實現的輝煌成就構成的。想像力是人類能力的試金石。作為動物，人類之所以得以生存，毫無疑問是依靠想像力。作為人類，人們也正是依賴想像力才能征服世界(劉仲林， 1991， 65)。”所以創造學的口號是：“人人皆有創造力、創造力的水平可經訓練而提高”，這意味著，就全人類而言，創造力在量上是連續分佈的；就個體而言，創造力是可以逐漸提高的(劉仲林， 1991， 頁65)。瑞士心理學家弗洛姆認為，人之所以優越於動物，是因為他具有不可比擬各種潛能。英國心理學家托尼．布贊說過：每個孩子一出世就是一位極待開發的天才，除非他有嚴重的腦損傷。

美國康奈爾大學瑞普教授更說過一句名言: 我們沒有理由相信，具有非凡創造力的人就一定比具有平凡創造力的人活得更有成就，更加滿足"(Ripple， 1999，

p.4)。”而自吉爾福德（J. P. Guilford）在1950年提出了開發創造力的口號後，創造力便一直成為美國心理學家、教育家、經濟學家、企業家、企業管理人員、政治家以及文藝批評家廣泛使用的概念，成為了一句神奇的咒語，一如“芝麻開門”那樣具有威力(海納特，1986)。在這層意義上講，美國社會這幾十年來之所以發展這麼快，與其民族十分崇尚創新精神甚為有關。

（二）創造力是每個人生活智慧的積累

創造力在生活中無處不在，無處不有，不分長幼，不分教育。

在此意義上，個人創造力的開發也是生活能力的開發。在美國，許多心理學家將創造力與日常生活中的問題解決（problem-solving）直接聯系起來，認為創造力是生活智慧的積累。例如，美國耶魯大學著名心理學教授斯坦伯格（Sternberg， 1996）提出，人的智力可分為分析智力、創造智力和實用智力三個方面，其中實用智力本質上就是指個人分析問題，解決問題和創新能力的能力。斯坦伯格(1996)又將此稱為無言的知識（tacit knowledge），並指出：“實用智力高的人會主動地尋求那些蘊藏在周圍環境中無言的知識，並靈活地加以運用”(頁246-246)。在這層意義上講，順利地解決日常生活中任何瑣碎問題都是生活智慧的積累，都是創造力的表現。

（三）創造力是每個人綜合能力的培養

創造力是個人多種能力、技能、動機和態度的組合，而不是某一、兩種特殊能力的表現。早在70年代，任朱利和瑞斯（Renzulli & Reis， 1985）就提出所謂天才兒童，其實就是那些具有中等以上智力，具較高的責任心和較高創造力三方面特徵的兒童。其中的第二點就是指動機、興趣、熱情、自信心、堅毅性和能吃苦耐勞等非智力因素。美國學者哈里特·朱克曼(1982)在其《科學界的精英》一書中，對100多位諾貝爾獎金獲得者做出了深入的分析。他得出的結論是，完善的智力和人格結構是這些人共有的心理特徵。這通常包括淵博的知識、超人的記憶力、敏銳的觀察力、豐富的想象力、極強的綜合思維能力和精湛的實驗技巧等。

所以，培養個人的創造力，本質上也是培養個人的綜合能力。在這當中，人需要通過不斷的學習和生活實踐來認識提高自我的創造力，其由被動轉為主動，由無意識變為有意識，是一個人終身的自我學習和成才。我國著名科學家錢學森(1987，頁2)指出：“人的腦力勞動中最深奧是創造，而現在因為我們不了解創造性過程，不了解創造力的規律，無法教學生，只能讓學生自己去摸索，也許摸不會。如果我們發展思維科學，那就可能有朝一日我們懂得創造的規律，能教學生搞思想上的飛躍，那該有多好呵！在此意義上講，學會創新也是每個人一生的自我挑戰和學習。

（四）創造力是每個人的人格完善

創造力的認識與開發本質上也是每個人自我完善的過程。美國著名心理學家馬斯洛（Maslow， 1971）提出，人的創造力可分為特別技能的創造力（special-talent creativity）和自我實現的創造力(self-actualizing talent)。其中前者是人的個體差異，後者是人的共同潛能。在這層意義上講，學會創新，也是每個人自我完善的表現。一個創新的實現及其為社會所接受，不僅需要有邏輯思維、想象力和靈感等思維技能，也需要有毅力、勇氣、決心、謙虛、謹慎、表達能力和人際交往能力等人格品質。不斷的創新實踐，不僅可以完善一個人的思維結構，也可以完善一個人的人格結構。通過不斷創新來完善個人的人格，是每個人一生的自我挑戰。它不僅培養一個人的創造力，更培養一個人的創新精神。

（五）創造力是每個人童心的回歸

一個人沒有了創造力就沒有了活力，所以重新認識自我的創造力實際上是人性的解放。創造力從何而來？人在成長過程中，在什麼時候給自己的創造力套上了枷鎖，而且是心甘情願地套上了枷鎖？這是每個成人都要思考的問題。換言之，人怎樣做才能重新煥發創造力的青春？怎樣努力才能走出種種心理定勢的陰影，回歸童心的狀態？這是每個成人開發自我創造力的首要問題。我國著名教育家陶行知在《小孩不小歌》中說，“人人都說小孩小，誰知人小心不小，你若小看小孩子，便比小孩還要小”。所以，培養創造力，在很大程度上也意味著在生活中尋找丟失的自我，進入孩子的內心世界，學會再以孩子的眼光看待周圍的一切，以重新認識大自然，煥發人創造力的青春。

（六）創造力是中庸智慧的體現

創造力是人類智慧的結晶，但為什麼有的發明創造會很快為人們接受，而有的發明創造卻遲遲不被人們所接受。這除了與其發明創造的社會價值與實用性有關外，還與其提出的方式和契機有關。所以，人在創新活動中，也需要有中庸的智慧。在儒家思想中，中庸的智

慧實際上是流動的智慧，是變幻的智慧，是多元認識事物的智慧。在這里，中講的是“位”，庸講得是“理”。站位不出毛病，自然能夠發現理。位置決定看事物的角度，位置錯了，眼光就看不準。孔子曾言，“七十而從心所欲不逾矩”(《論語·為政》)。其所謂“不逾矩”，指的是做事不越軌，不出格，合乎規範。所以追逐中庸，其意在追求公正適度。它的基本方法是“叩兩求中”。通過叩其兩端而窮盡其理，進而獲得正確認識，這是中庸思想方法的核心，它要求我們在考察事物時，抓住事物的矛盾性，一分為二，避免陷入片面和極端。在這層意義上講，任何創新也都需要有“中庸”的智慧。而多元智慧的最新發現，也可謂儒家思想的進一步弘揚。

四. 總結

綜上所述，面對21世紀的種種挑戰，我們亟需對創造力的認識產生一場深刻的思想解放。筆者提出“大創造力觀”之概念，意在推動人們更加平常化、生活化和多元化地來理解創造力的涵義及其開發，並擺脫目前學校教育中普遍重視邏輯思維之培養和輕視發散思維之培養的現狀。人們應當充分認識到：創造力不是少數人才有的專利，而是每個人都具有的潛能；創造力並非體現于發明創造當中，生活中每一種新的嘗試都可謂一種創新；創造力不僅需要知識，更需要大量的生活實踐；發明創造不是每個人的夢想，而是每個人的生活。在這當中，我們首先要對創造力之理解有一個深刻的思想解放，建立大創造力觀，以使每個社會成員都看到自我的巨大創造潛能並努力加以挖掘和利用。

美國耶魯大學心理學教授斯坦伯格主張，在日常生活中的創新表現是創造力的最大表現，也是個人成功的最大表現。創新是一種精神，是一種生活，是一種人生的追求，是一種自我的完善。創新給每個人的生活不斷帶來新的挑戰和意義，生活也在不斷的創新中得到完善和提高。創新不僅產生於課堂、實驗室、手術台、實驗基地，創新更多地產生於廚房、公園、原野和大自然中。創造就是生活，生活就是創造。

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普及基礎教育：課程學者的思考

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香港教育委員會於一九九五年成立學校教育檢討小組，負責評估實施了近二十年的強迫教育政策，為發展新世紀的教育作好準備。教統會更於一九九九年提出『終身學習、自強不息』的教育改革建議，其中有關普及基礎教育方面的原則，更是落實政策方向的先聲。

本文以訪談形式，探究多位在大學任職的教育工作者，有關普及基礎教育的個人經驗和看法，對九年強迫教育政策，特別在課程管理、社會因素等問題提出獨特的意見。大多數受訪者認為政策重量不重質、目標不明確、課程改革不能切合社會需要等。其批評和實用的建議，對認識、分析和探究今後香港課程發展，有重大的啟示。

Compulsory school education: curriculum scholars' view

The Board of Education formed a committee in 1995 to review about school education after the introduction of 9-year compulsory education policy for nearly 20 years. This was a preparation for the development of education in the new millenium. The Education Commission proposed the idea of 'Learning for Life' as a major trend of the education reform in 1999. The guidelines in compulsory school education are among the forefront of the policy proposal.

This is a report of the interviews with 7 curriculum scholars about their views in 9-year compulsory school education, especially in the area of curriculum management and social factors. These scholars generally felt that past policy was biased in the direction of quantity rather than quality, had no clear aims and objectives and could not fit the need of the society. Their criticism and suggestions were in depth and practical. It would shed important light to the understanding and analysis of curriculum development in the coming years.

從廿世紀六十年代末到八十年代開始，香港教育發展迅速，由精英篩選推廣到普及教育，這種由質到量的轉移，其發展方向亦隨著社會經濟需求而不斷改變，首先是一九六五年港府發表《教育政策白皮書》，確立政府資助教育的原則，提出普及小學義務教育和擴大中學教育。一九七一年開始正式實施六年免費義務教育，並于一九七八年實行九年免費教育，比原定時間提前一年。八十年代以後，隨著經濟不斷發展，國際競爭日趨激烈，香港教育界也不斷強烈呼籲政府重視教育。事實上，自一九七八年實行九年免費教育以來，香港教育由原來的精英篩選政策過渡到普及教育後，教育政策回到了由量到質的問題(教育統籌委員會，1997a, 1)，學校教育碰上了新的矛盾和問題。在九十年代前後，香港教育界的民間團體開始檢討強迫普及教育（檢討九年免費教育聯席會，1991；黃顯華，1997a）。面向新世紀，檢討過往政策，為未來提出改革建議是教育工作者的重要課題。年前教統會的《九年強迫教育檢討報告》(1997a)及《教育制度檢討》(1999)，是有關當局對強迫教育的政策文件，為新世紀的學校教育作好準備的方向。

本文試就普及基礎教育進行檢討，以訪問形式，蒐集了幾位大專教育工作者對義務教育的意見，對認識和探究香港教育及課程發展，將有一定的幫助。

強迫教育和普及基礎教育

「強迫教育」是指「每名正常兒童均須在特定階段接受正規教育」，目的是希望兒童能在這階段中完成基本教育(OECD,1983,12)。所謂基本教育，據《普及教育世界宣言》第一條(引自香港教育統籌委員會，1997a,8)，

「包括令兒童學會各種必需的學習技巧和方法(例如讀寫、口語表達、運算和解決問題的能力)，以便日後能夠自力更生，盡展所長，在處世和處事兩方面均不卑不亢，而且決斷明智，並有能力繼續求學進修」。

強迫教育也有「強迫就學」的意思。据能德爾(Rowntree, 1981)所編的《教育詞典》(A Dictionary of Education)，「強迫教育」是指「按照國家或州的法律對兒童採取強制的教育要求」。又据教育司署(1972)指出，自一九七一年開始，全港兒童均可接受免費六年小學教育，若有家長在沒有適當的理由下，不讓其六至十一歲的子女入讀小學，教育司可獲授權迫令有關家長送子女入學。因此，香港推行的其實是免費強迫教育。強迫就學就是照國家和地方的法律對兒童採取強制的教育要求。

据《中華人民共和國教育法全書》解釋，凡是國家用法律形式規定對一定年齡兒童實施的某程度的學校教育，也稱義務教育和免費教育。普及教育與以法律規定強制實施的義務教育有所不同。普及教育指國家對所有學齡兒童實施一定程度的普通教育，一般都把實施初等教育為第一步目標，隨著政治經濟的發展再進一步提高要求，但由於許多國家為有效地推行普及教育，通常也以法律形式規定其義務性質，因此又稱普及義務教育。「義務」一詞，其涵義還包括父母或監護人有使其學齡兒童就學的義務，以及全社會有排除阻礙學齡兒童身心健康發展的種種不良影響的義務等(郭齊家,1995,125)。

香港教育委員會學校教育檢討小組(教育統籌委員會,1997a,13)亦注意到「強迫教育」這個名詞已不能配合目前的實際情況，建議將「強迫教育」一詞修改為「普及基礎教育」，而全港適齡兒童仍然可享有九年免費基礎教育，其更改的原因有二:(一)避免給人一種負面意識，誤以為「強迫」青少年入學。(二)標榜提供全面的普及基礎教育。

普及基礎教育和社會及經濟的發展

自一八四二年香港割讓予英國後，香港漸發展成為東西文化互相交流之地，有很獨特的自身發展歷程。早期的殖民地教育，以精英篩選學制主導學校教育發展，人力資源投資成為教育發展不可分割的一部份，七十年代後期推動九年強迫教育，香港教育大致完成了量的發展後，政府才開始從質方向檢討教育政策。

一、 *免費普及小學教育*

早在一九五四年教育當局擬定《小學擴展十年計劃》，預期在一九六一年使每一位適齡兒童均有學位證書，結果計劃能在預期內實現，於是港府又在一九六五年《教育政策白皮書》提出普及小學義務教育，並繼續擴大中等高等教育規模。在這一個時期，政府對教育的態度算是正面和積極的，肯全面承擔教育發展的責任。林甦和張浚(1997,10)認為這個「精英到普及」的轉向是「逐步向從智力投資為主導、適應本地社會經濟發展需求的現代化教育方向轉變」。後來港府終於在一九七一年實施小學免費普及教育。

二、 *九年免費教育*

港府在一九七八年將六年小學免費普及教育申延至九年，推行三年初中免費教育，使所有適齡兒童都可接受九年免費教育。這時期的教育發展和七十年代以來的經濟發展是分不開的，當時經濟持續增長，工商界對人才需求有增無減。事實上，在同年發表的《高中及專上教育發展白皮書》就建議加強發展工業學院，擴展工業學院普通技術員課程，為完成初中課程而離開學校的畢業生，有利接受全日制的工業訓練，藉以滿足工商界各類人才的需要。從這個時候開始，香港教育的重點轉變為「主要是一種以達到經濟與職業目的的相當實用主義的途徑」(國際顧問團, 1982,15)。

三、 *高等教育急速發展*

八十年代中期後，香港教育發展重點放在討論高等教育體制問題；隨後面對著人才流失和國際競爭的壓力，政府大幅度擴展高等教育。事實上，從一九九O年至一九九五年間，第一年的學士學位課程學額增加了一倍有多，約一萬五千多個。

同期間，從整個教育規劃發展來說，政府開始思考如何提高教育質素問題，這個轉向可從香港教育統籌委員會(1990)發表的第四號報告書中得到證實。當中談及有關改革如「目標為本課程」、「教學語言措施」和「小學全日制」等問題，都從質方面建議改善香港教育。

總的來說，香港的教育與經濟發展關係密切。早期勞動密集的工業發展，令政府重點發展普及小學教育。隨著經濟不斷發展，人力投資也要增加，為培養人才，提高勞動者的素質，政府不斷加強初中及高中教育；隨著大學教育擴展後，教育的改革和發展，進入鞏固和優化階段。只是教育工作進展緩慢，可見的成效不大，政府必須從整體教育出發，處理好各教育環節，去蕪存菁，邁向優質教育。

香港教育的特點和問題

香港教育由於長期受著殖民地政策的影響，加上特殊地理位置和經濟發展，形成了一個以人才需求為主導，而又多元化實用性的體系(王道隆、 雀茂登和洪其華,1997)。現僅就其中與本文調查有關係的一些特色作一簡單描述。

一、 *"殖民主義"色彩*

"殖民主義"色彩，可從歧視母語教學和教育管理過度集權方面表現出來 (林甦和張浚,1997)。教學語言一直是香港教育問題的核心(國際顧問團, 1982; 教育統籌委員會,1990)。從一八六六年，英語列為中央書院必修科開始，到一九六三年，香港大學入學試委員會把中文科從必考科目中剔除，都顯示出"重英輕中"的政策（賀國強，1998）。最近特區政府仍保持約一百多間可全面用英語授課的中學，可見政府仍未有完善的解決辦法(郭康健和羅榮健， 1998)。

香港教育管理與殖民地一般管理行政政策是分不開的。莫禮時和馬殊(Morris and Marsh ， 1992) 認為教育局官僚架構和行政主導方式，反映了殖民政府的決策領導模式。教育署以為課程發展和推行是單向和不煩亂的，有如行政主導方式一樣，政令可以一貫而下，例如殖民地政府對學科內容的學習和教科書的管制是有極嚴格的規定(Morris and Sweeting, 1991)。教育署集權中央，未能適應不斷在變的社會，一向為教育界人士所詬病。

二、 *實用主義導向*

前文已指出了香港教育與工業和經濟發展是息息相關的，教育是為工商業發展而開展的。因此，國際教育顧問團(1982)為香港全面檢討教育發展時，就清楚指出這點。香港一直以來都欠明確和能指導課程發展的教育目標，教育統籌科(1993) 的「香港學校教育目標」不但認受性低，亦不能產生指導作用(教育評議會， 1998)。要發展新世紀教育，我們需要一個更全面和有效的學校教育目標。

三、 *教育社團、諮詢組織眾多*

早在八十年代全面檢討香港教育時，已觀察出本港教育界山頭林立(國際顧問團，1982)。據香港教師中心和教師守則籌委會一九九一年統計，香港的教育團體多達一百七十多個，估計活躍的社團不下於一百個，當中有綜合性教育團體、辦學團體和議會(黃浩炯、何景安，1996)，至於教育諮詢機構及法定機構小組委員會就有三十個(蔡國光， 1998)。本來有這麼多的社團和組織，對推行教育改革、改善辦學有很大的幫助，但在諮詢決策互動機制上，卻出現了問題，當中情況錯綜複雜，不是本文所能討論，但一般相信「教育統籌局是政府的決策機關、教育署是政府的行政機關、諮詢架構是政府吸納民意的組織，三個系統基本上互不相通，專業人士與政府公務員鮮有互相流動」(戴希立， 1998, 頁 7)。

四、 *中央統籌考試主導課程*

從課程設置而言，直接由中央控制是明顯的。這是中央一貫由上而下的官僚架構所致。除此之外，香港地理環境也有利於中央管理，因香港地方狹小，不利中介團體發展 (Morris, 1990)。又由於香港學校教育主要是一篩選機制，課程受著公開試的牽制，較容易形成教師只針對考試範圍授課 (黃顯華, 1997b)。事實上，據《九年免費強迫教育研究報告》(1997a)指出，除了官方課程外，其餘課程元素都由篩選教育作主導。「課本」變成實際學校課程；在執行中央核準的課程時，因沒有貼身的監管，教師或校長有很大的空間和自由去決定課程。

在制度上，課程策劃、執行和公開考試評核由三個不同部門管轄；分別是課程發展處、視學輔導處和考試局，這兩處一局並沒有從屬關係，出現各自為政，互不協調現象。其餘的問題還包括中小學課程欠銜接和中學課程的科目數量過度膨脹等(周鑑明， 1998)。

研究問題與方法

本文目的在分析被邀接受訪問的七位專上學院的學者對強迫教育的意見，重點放在教育工作者對教育政策實踐的經驗反思和看法，以探究他們如何評價推行近二十年的強迫教育政策。本研究認為教育工作者的個人實踐知識(personal practical knowledge)，是課程評鑑的重要資料，因此重視個人經驗和看法，認為這是教育工作者詮釋教學和認識教育政策的基礎，對建構課程有直接和間接的影響，他們的個人知識決定教學的思維和行為(Connelly and Clandinin, 1987 & 1988；Eisner, 1988)。課程發展有必要注意教育工作者個人經驗和看法，作為研究或評價課程的資料來源。

因此，本研究設計採取了質化研究方法，旨在正確地描寫及有效地詮釋教育工作者對本地強迫教育的看法。

研究問題

本研究計劃在蒐集受訪者對以下三個問題的意見，然後分析他們對推行多年的強迫教育政策的批評。這三個問題包括：

一、 香港政府推行普及基礎教育課程的目的是甚麼？
二、 香港普及基礎教育課程如設計、執行和評鑑等工作是怎樣發展的？
三、 《香港學校教育目標》如何影響普及基礎教育課程發展？

受訪者

本研究的訪談取樣為七位本地資深的學者，他們分別在香港大學、中文大學及香港教育學院任教。香港大學和中文大學的受訪者，全部在教育學院任職，對師資訓練有深厚的認識，並對課程及教育均素有研究。這三間專上院學亦是現時本港主要提供師資培訓的教育機構。

以下所列七位受訪者具備豐富的課程知識及珍貴的「理論觸覺」(Strauss & Corbin, 1990)，他們專業意見含高效度及可信度，選擇他們為訪談對象實在能更進一步瞭解問題：

受訪問者次序	院　校	人數	男	女
學者一	香港教育學院	1	1	
學者二	香港大學	1	1	
學者三	香港大學	1	1	
學者四	中文大學	1	1	
學者五	香港教育學院	1	1	
學者六	中文大學	1		1
學者七	香港大學	1	1	
總　數		7	6	1

訪談

訪問在過往兩年間進行，每一個訪問約一小時，採用「半結構訪問」形式。訪問員備有訪問表，表上有標準化的題目，但訪問過程盡量讓受訪者表達更多的想法及意見，不需要嚴謹地跟隨表上的標準化題目，訪問員有較大自由控制訪談的程序內容和用語，視乎訪問者和受訪者的互動情況。

每一個訪談都徵得受訪者同意，以錄音機作訪談記錄。訪談的錄音進一步轉寫成文字的訪談筆錄(Interview transcript) 以便分析，從資料中發現主題和發展概念。

資料分析

本研究用質化研究程序(qualitative research procedures)分析資料。程序如下: 首先研究者把已謄寫(transcribed)的訪談記錄，最少細心閱讀一次，泛讀數遍，使對整體訪談資料有充份的掌握，熟悉內容。然後把訪談記錄分成不同的資料單位(units of information)，記錄在卡片(note cards)上。每一資料單位代表一完整思想(complete thoughts)。其次，要閱讀卡片，熟悉內容。隨後採用內容分析(content analysis)和定性資料持續比較分析(constant comparative method)發掘顯現主題(emerging patterns)。在第一輪的分析中，不能成功分類的卡片，會再由研究者細讀和討論，決定可否歸類或另設主題，直至完成餘下卡片為止，最後把分析結果再讀一次，覆核查正(Bogdan and Biklen, 1992; Merriam, 1988; Miles and Huberman, 1984)。為了提高信度(validity)，我們邀請了一位同事為相互信度評估員(inter-rater)，抽樣查核小組分析的結果，遇到有差異(在這次分析中沒有發生)，便和研究者討論，作最後判斷，藉此提高相互信度(inter-rater validity)。

總的來說，本研究是一個質性研究的初步練習，著重研究的設計與程序以及研究成果本身的發現、理論建構和結論；「能否」及「能怎樣」創造和闡明現象為主要基礎與目標。因此本研究分析時注重概念的萌生、系統性關聯與稠密，並極為注意受訪者對問題的見解及反省，以求建構更佳的研究成果。下面章節總括了我們是次研究的分析發現。

訪問結果和分析

一、 *普及基礎教育的目的*

被問及港府推行普及基礎教育的目的是甚麼，前六位學者都表示這個問題的答案在香港教育目標(1993)中並不明顯、不易答，大家表示對政府有否明確目標表示懷疑。其中一位 (學者四)補充說，到目前(1998)為止，還未有全面性研究調查，確實的評價比較難。明顯地他們不能列出香港政府推行普及基礎教育課程的目標。學者五有以下的意見：

> *「我自己覺得呢個課程(九年免費教育)如果有intention，我唔清楚這個intention在那裏。從九年免費教育來講，推行呢個政策，無一個特別的目的，也沒有話要改進什麼的想法。」*

學者七頗為讚賞教統會(1999) 提出有關九年普及基礎教育的路線，指出這是新世紀資訊科技和社會急變時代應走的方向。多數學者表示，若從提供足夠學位而言，足夠數量的指標，已經做到了，令「人人有書讀」，至於提高質量方面，就「不合格」了，還存著不少問題。不謀而合，多數受訪者以語文政策來說明政府並沒有一整体的教育政策。他們指出教學語言政策或母語教育問題是未來優質教育成敗的一個關鍵。殖民地時代香港政府一直重英輕中，特區政府成立後也沒有明確的政策。

「事實上82年國際顧問團報告書已經講得好清楚.....但由82年講到今時今日，98年都搵唔掂。教統會第一號報告書〔發表於1984年〕講語文〔問題〕，第二號報告書〔發表於1986年〕講語文〔問題〕，第六號報告書(發表於1995年)也一樣講都搵唔掂。」(學者五)

二、普及基礎教育政策的貫徹和意識形態

談及強迫教育目的是什麼時，其中有兩位學者 (學者一和學者二)指出，教育政策的制訂和執行，是一個常被忽略的問題。當中涉及政策目標的貫徹問題。學者四同意單就教育統籌科(1993)的《香港教育目標》文件，目標太空泛：

「放於四海都可以，很難看出具體的政策目標，以致執行起來並不容易」。

學者三指出教育政策的制訂和執行，涉及官僚架構的意識形態問題，其中的問題是：

「提供教育的是香港政府，執行政策的是一個官僚架構，官僚架構是沒有意識形態的。但當然在這些官僚架構的某些決策過程中，會用到某些價值觀念，例如在七十年代，當我接受教育，我們就要接受一個mixed ability概念，而這個mixed ability是一種價值觀念，一種價值觀念當被官僚架構接受了，要去改變是很困難的。但接受這些價值觀念並非基於某一種意識形態，只不過是這些官僚架構once去接受了某一種看法，就變成了政策的一部份，所以可以看到不同政策在conflicting；一方面政府要搞 inclusive education，另一方面政府是在將學生分等分級。我覺得這個矛盾的情況越來越嚴重，但我卻看不到政府有一整套意識形態去控制教育。」(學者三)

雖然各學者對基礎教育的意識形態問題有不同看法，大部份受訪者都指出，香港教育發展與殖民地政策是有關係的。他們同意自從中英談判決定主權移交事宜後，「九七」因素開始「將殖民地淡化」。他們又指出香港教育發展和經濟基本是分不開的，但「九七」因素把從前「非政治化」的教育政策改變過來。學者五指出從五十年代開始，「政治」一向是學校的禁區。他舉例說，香港教育屬於一種「疏離式」教育，「疏離式的意思是，它既疏離中國，亦疏離英國」。現在卻要大談公民教育，唱國歌和升國旗。學者一亦指出不同政治背景的教育團體比以前更活躍地參與和教育有關的角力。

三、《香港學校教育目標》的影響

有三位受訪學者對《香港學校教育目標》(1993)所列出的目標評價是正面的，例如：

「平心而論，政府公布的目標並不差。」(學者三)
「作為一個總目標，都可以接受。」(學者六)

當然也有持相反意見。有受訪者懷疑：

「我根本覺得93年教統會教學目標，只係dressing，是櫥窗，根本九年免費教育推行口左咁耐，這個學校教育目標都沒有講清楚是那一個階段，中七、中五、中三還是小學或幼稚園。」(學者六)

有三位受訪者 (學者二、六和七)亦同時指出，其中某些學科在編寫課程綱要時，都只是由一兩位官員執筆，意見都集中在幾個「主要人物」身上，有時根本就沒有認真參照教育目標而編寫，或者待課程寫到最後階段才把一些目標套上去。如果從課程設計到編寫教材，有關人員都沒有重視《香港學校教育目標》，無怪乎這部文件一向都沒有受到各教育工作者應有的重視。

學者們不認為《香港學校教育目標》(1993)這本官方文件有指導作用，和對建設課程有積極的影響。最大的問題是現行課本編寫人員未必是依據那些目標而設計的，學者三的意見就更加清楚，他指出

「.....政府公布的目標是否有人有意志去實行，我尚未看到。整個教育組織並非走向目標指導.....

到底有多少行家能照著政府公布的目標去 prescribe 一個課程出來？」

全體受訪學者都指出這本《香港學校教育目標》文件對課程設計和課堂教學都沒有大影響，再加上他們都相信如何監察和執行這些目標也是一個很大的問題。學者二所指出的問題，是更值得反思的。他認為在課程影響程度來說，寫課本的人和出版商比課程發展主任和督學，更有影響力。

四、普及基礎教育課程的設置和執行等問題

前文指出《香港學校教育目標》對課程沒有指導作用，認受性低，正好指出「香港基礎教育課程發展由中央統一管理」這個說法的爭議性。

「中央統一管理這個講法是 misleading 。現在可能是中央提出一些想法，但我覺得是中央卻管理不到」(學者三)。

他又繼續補充說，當課程發展處設計了課程出來，教育署內的督學又要去監察教師如何推行課程。問題是香港沒有一個完善的機制來貫徹執行。事實上中央是管理不到。因此，「中央統一管理」概念只限於中央制訂統一課程，但如何推行和接受中央制訂課程，中央就往往管不到(也許這是近年教育署推行校本管理和課程的原因)。學校可有彈性處理，而中央監察和執行頗不容易：

「學校都有一些自主能力，如果覺得個課程不適合自己的學生，課程是可以改變的。.....只要沒有離開大原則，教師自己會安排的。」(學者一)

「從制度上來說，基本上是一中央課程。但係一定仍會有校本課程。如果中央管理強，校本管理便會弱；如果中央管理弱，校本課程便會強。不過，雖然香港基本上是有中央課程，但沒有執行。」(學者四)

這裡涉及兩個問題：一是課程發展署的工作和輔導視學處工作沒有相關聯繫，甚或各自為政，督學的工作卻吃力不討好，其實監察課程執行的工作一向都抓得不緊；其次是督學的學歷一般不太高，雖然現在有了很大的改善，但仍有些不是本科專長，容易做成「外行領導內行」的情況(學者二)。事實上，學者三對督學近年所遇到的問題亦非常了解：

「我知道很多小學督學很怕和小學校長談話，因為那些小學校長的學歷還比他們高。那些督學一定會受挑戰。我很同情他們。」

五、課程發展和改革

雖然香港學校課程不斷有新的改革和提議(去年的香港學校課程整體檢討尚在諮詢期間)，但受訪問學者大都覺得課程在以往一直都未有作全面和系統的檢討，否則便不會造成如中學科目不斷增多，新課程互不銜接和推行太急等毛病。從課程整體發展而言，普及基礎課程一直落後於社會發展，追不上社會需要，最明顯的是

「就算是今時今日.....我們看到很多老師的教學方法或課程，根本沒有配合普及教育.....完全仍是用可能是 70 年代末，推行九年免費教育之前的方法 ..... 還是用公開試的壓力，用精英教育方法，依然基本上是那個課程。」(學者五)

他又補充說，香港教育有必要改變，例如從前香港人不用思考誰來管治香港，現在就要好好思考一下，我們要培養那樣的公民。

課程改革的困難除了是沒有系統和全盤計劃外，當然還有上文談過的缺乏明確的教育目標。即使解決了這些問題，受訪者還是覺得課程改革困難重重：

(一) 課程改革過程仍是中央集權。部份受訪學者認為課程發展署對於權力下放的工作仍然做得不夠，雖然有諮詢，課程改革仍然偏重在一些「重心」成員，部份官員又因循守舊 (學者四、六和七)。

(二) 公開考試壓力和傳統學科觀念影響課程更新。學者五指出香港也曾經嘗試課程統整，但大多失敗，其中主要的原因是會考分科考試，排斥統整課程，鬥不過傳統分割學科觀念。

(三) 教育目標異化。在篩選的教育制度下，受訪問學者指出香港教師只知令學生考試成功便可以，於是「香港教師只有課本沒有課程」，而「寫教科書的人，又大多不跟照課程」來寫，形成「課程受考試控制」(學者二)，學校又鑑於爭取校外成績，只要成績好，就不大計較教學的目標了。

(四) 學生差異因素。普及教育制度下引起學生個別差異問題越來越明顯。統一中央課程根本不能滿足個別學校需要，教師有必要考慮學生因素，自己設計適

合學生的課程。課程更新和發展根本沒有足夠考慮去照顧個別學校需要，形成教師對課程改革缺乏興趣。

很明顯，課程改革的困難並不容易解決，但課程改革又刻不容緩。香港教育需要一個多元化的課程來適應不同學生的需要，亦要滿足不斷在變的社會，在改革的同時也要解決課程統整、異化和過份中央集權等問題。

討論

受訪問學者大都覺得香港一直以來都沒有明確義務教育目標。教育服務只是因應人口壓力和經濟發展而開展，最終只辦到「人人有書讀」的量化發展，但缺乏清晰明確目標，始終影響著從「量變」到「質變」的長遠優化教育政策，最近教統會(1999)及課程發展議會(1999)的兩份諮詢文件，也許已有顯著的改善，但能否切實執行抑只是口號，現今是言之尚早。

有學者提出由於香港政府是一個官僚架構，沒有意識形態可談，加上早期設置「政治禁區」對建構教育目標不無影響，但「九七」因素和教育團體積極「議政」的現象，政府有必要正視這個問題，即使不談意識形態，也應盡量避免在教育政策中出現個別措施互相矛盾的現象。

長遠來說，要辦優質教育(教統會，1997b)必要確立有效目標。教育統籌科(1993)的《香港學校教育目標》被評為空泛和抽象，未能產生實際指導作用，因而認受性亦低，這是一個需要面對的問題。在目標不明確的情況下，執行的程序和方式都會出現問題，優化教育確實難以施行。這裏又涉及另一個問題，就是「中央統一管理」課程，像目標為本課程自教統會(1990)提出，至九四年全面推行，教育署實在推行得太急，亦不聽取民間意見，以致幾年間便功敗垂成。

受訪問學者對於香港教育課程是否「中央管理」，表示懷疑。一是中央根本管理不來，二是整個課程發展機制是各自為政，沒有完善的機制來貫徹執行。因此，他們都相信學校本身的行政安排，反而對課程有實質的影響。事實上「中央」管理只限於制訂統一文件課程，至於課程怎樣落實和接受，教師和出版商有較大的操控權力。故此教育署(1991)提出的學校管理新措施，漸進至新世紀後全面推行的校本政策，應該是正確的方向。

課程改革方面，學者們都覺得要將課程發展權力下放，也提議加強課程發展的機制，令決策、行政、評核和諮詢有更多互動。雖然九年免費基礎教育已經實行了二十年，但政府仍然以篩選機制和課程來主導教育，引致教育目標異化，考試範圍主導學習等現象，教育改革跟不上社會發展，亦未能全面實踐普及教育的理想。

建議和結論

教育改革的前題，在於聽取各界人士的意見，教育趨向多元化發展，有必要多聽不同人的意見。香港實行免費基礎教育多年，量化發展成績尚算滿意，但質的發展仍需努力。確立明確義務教育方向，制訂相關的課程是刻不容緩。例如要努力解決以篩選和考試主導而引發的教學異化現象，政府亦有必要制訂清晰的學校教育目標，並加強監察和執行機制，使課程發展官員或議會、教師和教科書出版商等更有效地實踐教育目標。課程發展處、輔導視學處和考試局要有更多的聯繫，加上其他改革如師資培訓等，免費基礎教育才可有高質量的進步。

最後我們有以下幾個建議：

一、 擬定明確的教育目標。免費基礎教育的發展必定與高中、大學、和幼兒教育互相配合，不能獨自發展。因此，擬定一套明確的中、小、幼兒教育目標，上下一貫，是教育界的要求。未來的發展絕不能欠缺方向，只顧政策的執行而忘記了宗旨和目標。香港政府不應重蹈前殖民地政府的覆轍，再以「實用主義」來指導教育的發展。

二、 確立良好學制和課程。有了明確目標，便要制定良好的學制和課程，貫徹執行課程和鑑察教學成效是另一個不可放鬆的環節，這是眾學者所關心的問題。以往只顧統一課程而忽略考查教學成效，造成教育異化現象，說明課程發展（制訂、推行、評核、等）出現互不協調的現象。我們建議課程發展要有貫徹政策，有關部門不能各自為政，才可配合未來的發展。

三、 檢討過去殖民地教育政策。要開展未來教育，不能不檢討過往政策的不是，較為明顯的如「重英輕中」或「篩選教育」，我們建議政府要多搜集意見，檢討過去政策，制訂優質教育政策。

也許教統會(1999)及課程發展議會(1999)這兩份諮詢文件在表面上已能滿足上述的建議，但觀察近期教統會核心成員對民間研究和意見的回應，卻正在重蹈前人的覆轍:他們不錯是提出很有理想和合理的改革，但所抱的卻仍是以前他們所非議的長官意志的心態，歷史是否正在重演？

限制

本研究不在提議具体教育政策，乃在于歸納受訪學者的意見，指出本地教育政策的矛盾，亦藉此引起各界人士對免費基礎教育的關注，希望大家參與討論，集思廣益。由於意見只集中大學學者的專業意見，當然有所不足，加上這兩年間有關改革課程和強迫教育的政策報告及諮詢文件陸續出現，使訪問得的資料很快便有過時的感覺。我們希望繼續進行研究和發表其他人士(例如中小學生和家長)的意見調查。此外，本文以質化研究程序分析資料，研究的結果，很難歸納成一般性結論，希望日後有更多類似跟進研究，作更全面和廣泛的調查。

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兒童記敘文篇章結尾的「主觀反應」的分析

祝新華

通過作文內容分析，揭示小學生記敘文結尾中的「主觀反應」成份的發展特點。結果顯示，具有主觀反應的作文近佔70%。情緒、認知、複合反應出現頻次有顯著差異。總體上，主觀反應頻次及水平隨年級升高而顯著地增長、進步，結尾中是否有主觀反應與作文水平高低有顯著關係。主觀反應三種類型中，情感反應的頻次、複合反應的水平並不隨年級提高而發展。從小學一年級開始就應採取一些策略以促進學生的主觀反應進步。

An Analysis of Component of "Subjective Reaction" expressed in the End of Narrative Text

By analyzing compositions written by primary school pupils in the cities of Southeast China, the study intends to explore the development of component of "subjective reaction" used in the ending of a narrative text. The results reveal that near to 70% of the composition ends with a subjective reaction text. There are significant differences in the frequency levels among the three types of subjective reactions, namely feeling, cognition and multiplex reactions. If considering the three types of subjective reactions together, the frequencies and scores of subjective reaction are increasing as the grade rising. But the characteristics of grade development do not exist in the frequencies of the feeling reaction and the level of multiple reaction. New teaching strategies to promote the ability of using subjective reaction should be adopted in Chinese language teaching starting from grade 1 in primary schools.

篇章結構是學生寫作能力的重要因素，它與學生的思維能力、寫作技能的發展直接相關。分析篇章結構，對於描述和評價學生的寫作水平、有效地培養學生的篇章結構能力，有著重要的意義。而結尾是篇章結構的重要組成部份，它既可使文章完整，又可使文章結構更為緊密。然而，不論在英文還是在中文教學背景中，對於小學1-6年級學生結尾各種成份的發展特點均缺乏應有的研究。

1. 文獻綜述

在19世紀60年代開始，西方不少學者重視研究寫作中的篇章結構問題。Van Dijk (1977，1980)發展了記敘文宏觀結構(macrostructure)：情境設定(setting)－展開(complication)－問題解決(resolution)－評價(evaluation)－引申涵義(moral)。一些學者研究較記敘文更為複雜的故事結構，Thorndyke(1977)等發展的故事文理結構(story grammars)由有四個部份組成：情境設定(setting)－主題(theme)－情節(plot)－問題解決(resolution)。Stein和Glenn (1979，1982)發展的故事情節結構系統(episodic structure analysis system)由五種不同的成份或核心組成：開頭事件(setting)－內部回應(snternal response，如對目標的情緒或認知反應)－嘗試(attempt)－結果(consequence)－反應(reaction，對結果的情緒或認知反應)。

為了評價學生記敘文的質量，引導學生寫組織得很好的故事，Martin和Rothery (1986)修訂Labov和Waletzky(1967)的指標，發展了適用於佳作分析的故事文法(story grammar)：導向(orientation)－展開(complication)－問題解決(resolution)－終結(coda，對故事表示態度或對故事的重要性給出看法)。實際分析發現，在學校被教師認定的成功之作通常依從這個結構寫成。

由於很多記敘文、故事都是與問題的出現和解決聯繫在一起的，因此Hoey (1983，1986)在先前他人研

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究的基礎上發展了「問題－解決」篇章模式(problem-solution text patterns)：情境(situation)－問題(problem)－反應(response)－評價(evaluation)。該模式的確能分析學生所寫的一些文章，因此被很多學者所接受。

對於記敘文結尾，不同的篇章理論強調的考評因素不盡相同，即使採用相同的名稱也可能有不同的含義，但它們之中卻有一些共同的成份(表 1)。

表 1　不同篇章結構理論中的結尾的共同成份

共同成份	考評因素	研究者
事件的發展結果	問題解決(resolution)	Van Dijk,1977,1980; P.W.Thorndyke,1977; J. R. Martin, J. Rothery , 1986
	結果(consequence)	N. L. Stein & C. G. Glenn,1979,1982
對事件或結果的反應	評價(evaluation)	Van Dijk,1977,1980
	引申涵義(moral)	Van Dijk,1977,1980
	反應(reaction)	N. L. Stein & C. G. Glenn,1979,1982
	終結(coda)	J.R.Martin, J.Rothery, 1986

比較國外學者的研究成果，我們概括出結尾的兩個重要成份：客觀結果、主觀反應。「客觀結果」指記敘事件發展的自然結果、釋疑結果、解決疑難結果或對前文內容作出總結歸納等。結尾的「主觀反應」指在前文客觀記敘的基礎上，揭示事件所含的情感、作者情感體驗，以及從事件或結果中所得的新認識、教訓、願望、要求，或作出相應的評價等。由於個人的知識、經驗、認知基礎不同，不同的學生寫於同一事件，其「主觀反應」可能有很大的不同。研究者將在另文專門分析客觀結果成份，本文重點揭示主觀反應成份的發展特點。

研究設計

基本概念

記敘文

記敘文一般寫學生自己看到的想到的事情(朱作仁，1988)，寫自己或他人所經歷或想象中的人物可能會經歷的事件(Graesser, Golding, & Long, 1991)，寫以事件為基礎的經驗(Heath & Branscombe, 1986)。它不僅可客觀地記敘事件，還可記述人們(包括作者自己、讀者)對所寫事物的情感，或對其所作的評價、推理等。一般情況是，記敘文展開部份的多數語句是客觀地記敘事物，而結尾則是概述事物的發展結果，或對所寫事物表示情感，或作出評價、推理等。對於同一個事物，不同的作者在文章中會表現出明顯不同的情感，作出不同的評價或推理。本研究的記敘文主要是記事文以及通過活動寫人的文章，不包括一般的狀物文、說明文、議論文、日記等。

記敘對象包括文章所寫的事件以及事件涉及的主要人物、動物或物体等。一篇文章可寫一個事件，也可寫幾個事件。一個事件，特別是文章詳寫的僅有的一個事件，往往又有發生、發展及結果之分。在本研究中，文章所寫的幾個事件中的一個事件，或事件進展中的一個部份或其結果，稱為「部份對象」。文章所寫的所有事件，或事件的全部過程，稱為「全部對象」。

「情感反應」與「認知反應」

「情感」是客觀事件或情境是否符合主体的需要、願望所產生的一種体驗。在小學生的作文中，情感反應主要由事件或事件發展結果所引起的喜愛、愉快、高興、傷心、憤怒、內疚等內心体驗。

「認知」包括監測與協調知覺、記憶、整理、整合經驗，提出假設和作出決策等成份；思維是認知活動的重要過程，具体表現為假設、推理、評價等形式(孟昭蘭，1995)。兒童作文中的認知反應主要是從文章所寫事件中得到新認識，吸取教訓，提出願望、要求等，或對事件及其有關的人物作出好壞優劣、真偽美醜等評價。這種反應直接與經驗整合、推理、評價等認知活動有關。

情感及認知反應可出現在文章的導入、展開、結尾各個部分，本文僅研究結尾中的主觀反應。從語言形式看，兒童記敘文結尾中的「主觀反應」一般僅由一個或幾個句子構成。

「單一反應」與「複合反應」

「主觀反應」成份中的「單一反應」指一篇記敘文的結尾中只有情感或認知反應，如果兩種反應同時出現就構成「複合反應」。

研究問題

對小學生作文結尾中的主觀反應類型及其水平作基礎研究，初步揭示：(1)整個小學階段主觀反應不同類型的頻次差異；(2)主觀反應不同類型頻次的年級差異；(3)整個小學階段主觀反應不同類型的水平差異；(4)主觀反應不同類型水平的年級差異；(5)主觀反應與作文水平的關係。

研究資料

編制測驗，對學生進行寫作測試，選取廣州、福州、杭州、南京各2所中等水平的小學的1152篇作文作為樣本（1-6年級各192篇，男女各半）。編制《小學生作文結尾「主觀反應」成份評閱標準》《記敘文整體評閱量表》；按一定標準挑選、培訓作文評閱者，組織試評，復查評閱結果，控制評閱誤差。三次組織教師評閱作文（參閱祝新華，1999）。

結尾的「主觀反應」成份是作文的一個組成因素，其表現與作文其他成份及作文水平應有一定的關係。對「主觀反應」水平評閱結果統計得，「主觀反應」與「展開」得分的相關系數是.288（P=.000），與「導入」得分的相關是.281(P=.000)；「主觀反應」與記敘文整體評閱得分(作文得分)相關是.367(P=.000)。這些結果與我們已有的認識基本一致。

研究限制

本研究僅在城市選取樣本，研究結果可能不能反映農村、城鎮兒童的主觀反應的發展特點。由於學生作文表現差異大，一些學生的反應成份還存在一定的問題，評閱標準又難以面面俱到，因此對於主觀反應類型及其水平評定均會存在一定的誤差。主觀反應分類考慮了結尾的傳意意識，對篇章結構緊密性的作用，而具體怎樣分類更佳可以進一步研究。

主要結果

「主觀反應」基本類型

情感反應

1. 對所寫對象的情感呼告

直接對文章所寫的對象抒發自己較為強烈的情感，其對象多數是人，但有時也可能是物體或動物等。

例1 四年級作文《我的爸爸》(054110-368)，寫父親怎樣一步步地引導作者思考直到最後把問題解決，最後一段寫「爸爸啊，爸爸，您每天在外辛苦地工作，回家有時還要指導我做作業。我真想對您說：『爸爸，我愛您』」。

例2 六年級作文《我的好老師》(046106-270)寫老師雨天為同學送傘，而自己卻被雨淋濕，文章最後一段「啊！多么好的老師啊！我一生也忘不了您！」

2. 猜度讀者可能有的情感

推測讀了文章之後，讀者可能會出現的情感。實際上，這種情感可能是作者自己的，只是借讀者而抒發自己的情感而已。

例3 五年級作文《我的一個雙休日》(045113-249)，導入「今天，是一個愉快的雙休日」，展開部分寫這一天不像往常一樣看電視，而是與爸爸一起做學習英語的遊戲，結尾寫「大家說：『這還不是(一個)很愉快的星期天？』」通過反問形式，推測讀者可能會有與作者一樣的好感受。

例4 六年級作文《我最喜歡的人》(036103-122)，導入「要問我最喜歡的人是誰，我會回答：『我最喜歡的人就是我的表妹。』這是為甚麼呢？這裏還有一件小事呢。」展開部份寫「我」與表妹一起做作業遇到難題，「我」要抄人家的，可表妹就是不同意，她通過自己分析、畫圖終於把題目做好。最後一段寫「現在，你們也該歡喜我的表妹了吧！」

3. 概述由部份對象引發的情感

概述文章所寫的幾個事件中的一個主要事件，或事件發展結果(不重在過程)，即部份對象所引出的情感。其中，以對事物發展結果表示情感為多，沒有特定的結果就可能不會產生特定的情感。換言之，對於同一件事，由於結果不同可能會引發不同的情感。

例5 二年級作文《釣魚》(032208-41)，作者和父親去淮海釣魚，好久都沒釣到魚，很不高興。等呀等，好不容易釣上來一條，而且是作者最愛吃的一種魚。結尾寫「最後，我和爸爸拿著魚高高興興的(地)回家。如果一整天都沒有釣到魚，可能會帶著遺憾的心情回家。

例6 六年級作文《我幫媽媽做家務》(046215-287)，導入寫早晨看「幫媽媽做家務」的兒童電視節目，展開第一件事寫學習洗衣服，第二件事收拾房子，結尾一段寫「八點鐘到了，媽媽起床了，看到我把屋子打掃得乾乾淨淨微笑地望著我，我覺得很高

興。」因為媽媽看到干淨的地面而「微笑」，而「我」因媽媽「微笑」而高興。

4. 總述由全部對象引發的情感

記敘由文章所寫的整個事件或幾個事件，即「全部對象」引出的情感。

例7　三年級作文《金銀花》(033205-64)，導入寫金銀花盆景，展開部份具体寫作者和母親怎樣摘金銀花，怎樣為它除草，怎樣為它澆水，結尾寫「為可愛的金銀花服務真叫人開心！」結尾寫出整個活動給作者帶來的好心情。

例8　四年級作文《我可愛的表弟》(064207-522)，第一段寫表弟的外貌，第二段寫表弟參加小製作比賽，第三段寫表弟認真做完難題，最後一段寫「這就的我的表弟，我為我有這樣的表弟而高興。」

從表2可知，四種情感反應在小學生作文中都有出現，其中以「總述由全部對象引發的情感」最多，「概述由部份對象引發的情感」次之，而「對所寫對象的情感呼告」及「猜度讀者可能有的情感」均極少。

表2　情感(單一)反應的頻次分佈(Frequency ， N=273)

年級	情感反應				合計
	1. 對所寫對象的情感呼告	2. 猜度讀者可能有的情感	3. 概述由部份對象引發的情感	4. 總述由全部對象引發的情感	
一年級	0	0	11	23	34
二年級	0	0	19	28	47
三年級	0	1	15	36	52
四年級	1	2	12	33	48
五年級	4	2	16	25	47
六年級	4	1	16	24	45
所有年級	9	6	89	169	273

認知反應

1. 獲得新知

記敘由於事件、結果的啟發而直接獲得的新認識，或引申出的新道理等。前者是就事論事，而後者則從一個事件或結果作出擴展。

例9　四年級作文《我的爸爸》(034115-83)，主要寫作者考試成績十分差，父親也不罵他，不責怪他(大大出乎作者的意料)，結尾寫「從這件事，我感到爸爸原來是那種不亂對人發脾氣和十分講道理的人。」

例10　六年級作文《拔河比賽》(036111-171)，寫拔河比賽中隊員步調一致地使勁用力，拉拉隊則有節奏地喊「加油」，最後「我方」終於獲勝。結尾寫「我覺得這次拔河比賽很有意義，因為使我們在緊張的學習中放鬆身心，使我們懂得了團結就是力量(的道理)！」

2. 未來發展

整合現有的經驗，吸取教訓，對自己提出的希望、設想，或向人們提出要求、號召等。其中「吸取教訓」是作者針對以前不當的想法、做法，提出日後改進方向；「向人們提出要求、號召」則是希望人們能能按作者指出的方向去想去做。

例11　三年級作文《商店裏的手錶鐘》(053111-343)，展開寫觀看手錶鐘的過程及手錶鐘的特點，結尾「我多麼希望我也能擁有一個這樣的手錶鐘啊！」

例12　五年級作文《記一件難忘的事》(045206-255)，寫在同學家玩的時候隨便拿走同學的四本作業簿，心裏很內疚。最後寫「以後我再也不會不問自取了，也不會再有這一貪小便宜的壞習慣了。」

3. 局部評價

對文章所寫的部份對象，即幾個事件中的一個主要事件或事件發展結果（不重在過程），或所寫的主要人物、事物某方面的特點等作出概要性的評價。

例13　二年級作文《京京真變了》(052112-321)，寫京京以前很會花錢，在學校裏聽了「思品課」後，決定要改掉這個習慣，回到家後把積餘的錢放入錢罐，最後「媽媽和奶奶伸出大拇指說『京京你真變了』」。這是對把錢「放入錢罐」這一具体行為的評價。

例14　六年級《我的同桌》(036110-170)，導入介紹鄭拓同學的体育愛好，展開具体介紹一次跑步比賽的艱難過程，此段最後寫「他越跑越快，終於拋離了對手，取得了勝利」。全文最後一段寫「全班同學都為他高興，他真不愧是『快跑將軍』」。該同學因為獲勝才有「快跑將軍」的美稱，否則很可能只給以「他的拼搏精神值得我們學習」的評價。

4. 總結評價

對文章所寫的全部對象，如整個事件或幾個事件，或所寫的主要人物、事物作出總結性的評價。如寫活動的文章，學生常會寫「這些活動真有意義」，通過記事寫人的文章常寫「他真值得我們學習」。這些句子，把前面所寫的事物作總結性的評價。有時間序列的兩個事件，如果第二個事件開始是前面事件的發展結果，這時對第二個事件的評價可視為是全文的總結評價。

例15　三年級作文《我的姐姐》(043115-203)，全文寫有關姐姐的三件事：幫助老師收發作業本、送迷路的小孩回家、主動打掃教室，結尾作總結評價「姐姐那關心集体、樂於助人、做好事不留名的好品質，永遠值得我們學習。」

例16　五年級作文《記一次大掃除》(035201-109)，導入寫某天下午的天氣適合大掃除，展開則分別寫不同小組打掃衛生的場景，文章倒數第二段寫「一小時過去了，大家都將自己的任務完成了。課室乾乾淨淨的，就像殿堂一樣。」最後一段對不同小組的積極工作總評「我們班的同學真是一群愛勞動的同學啊！」

從表3可知，認知反應頻次以「總結評價」最多，「獲得新知」次之，「未來發展」、「局部評價」則相對較少。

表3　認知(單一)反應的頻次分佈（N=418)

年級	認知反應類型				合計
	5. 獲得新知	6. 未來發展	7. 局部評價	8. 總結評價	
一年級	9	10	7	16	42
二年級	11	11	9	18	49
三年級	15	13	10	33	71
四年級	21	15	9	31	76
五年級	24	16	18	24	82
六年級	27	14	16	41	98
所有年級	107	79	69	163	418

複合反應

複合反應一般由分別表示「情感」和「認知」的獨立句子構成，少數情況用同一個句子或幾個句子同時構成。

例17　六年級作文《我的外公》(036102-121)第一段寫外公是紡織工人，滿頭白發，臉上總掛著慈祥的微笑；展開寫外公在家裏愛讀書、在馬路上幫助老人的兩件事；結尾最後一句是「外公是世界上最好的人，也是我最喜歡的人。」

有複合反應的作文，一年級3篇，二年級9篇，三年級12篇，四年級15篇，五年級21篇，六年級20篇，合計80篇。

複合反應出現次數較多的類型為：

(1)「4. 總述由全部對象引發的情感」+「8. 總結評價」28篇，佔複合反應總數的35.0%；
(2)「3. 概述由部份對象引發的情感」+「8. 總結評價」17篇，佔21.3%；
(3) 其他，有9類，每種出現頻次很少，計35篇，佔43.8%。

構成複合反應能力較強的細類，情感反應是「總述由全部對象引發的情感」，認知反應是「總結評價」。由它們參與構成的複合反應，分別佔複合反應總數的50.0%、61.3%，其中35.0%是由這兩種細類反應共同構成的（即上述第一類）。在80篇有複合反應作文中，由以上兩種細類中的一種參與構成或由它們兩種細類共同合成的有61篇（佔76.3%）。

主觀反應出現的頻次

具有主觀反應的作文比例

在1152篇作文中具有主觀反應的共有771篇，佔66.9 %，沒有主觀反應的33.1%，多數小學生的作文有主觀反應。

主觀反應出現頻次的類型差異

所有年級三種主觀反應出現頻次比較，以「認知」最多，佔總主觀反應的54.2%；「情感」較少，佔35.4%；「複合」最少，佔10.4%。卡方檢驗：χ 2(卡方值) = 223.759，df(自由度)= 2，P=.000，從此可知，小學生不同主觀反應出現頻次有顯著的差異。

主觀反應出現頻次的年級差異

(1) 對各年級出現的主觀反應總頻次作卡方檢驗(χ 2=37.412，df =5，P=.000)，並參照圖1可知，1-6年級學生有主觀反應的作文隨年級升高而顯著地增多，但其中四年級進步較小，可視作「高原期」。

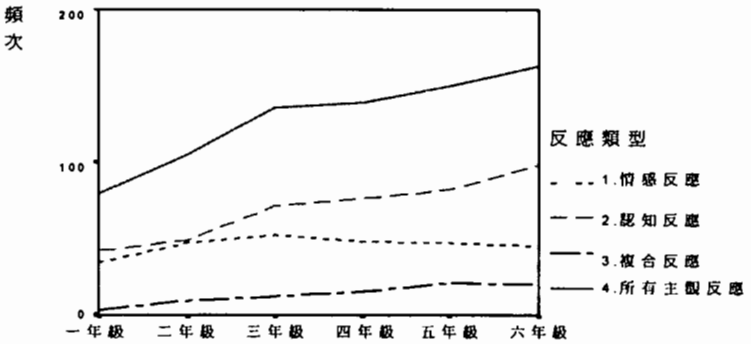


圖 1　主觀反應不同類型的各年級頻次分佈

(2) 對各年級的情感反應頻次作卡方檢驗(χ^2= 4.077，df =5，P=.538)，並參照圖1可知，1-6年級情感反應頻次增長速度平緩，並不隨年級升高而顯著增多。

(3) 對各年級的認知反應頻次作卡方檢驗(χ^2= 31.426，df =5，P=.000)，並參照圖1可知，1-6年級認知反應頻次隨年級升高而顯著地增多，其中三年級與六年級發展較快(敏感期)。

(4) 對各年級複合反應出現頻次作卡方檢驗(χ^2=17.500，df =5，P=.004)，並參照圖1可知，1-6年級複合反應的頻次隨年級升高而逐步發展。由於各年級出現的頻次較少，因此不分析有關年級特點。

主觀反應的水平

主觀反應總體得分的年級差異

從表4方差分析結果可知，1-6年級的主觀反應得分有顯著的差異。從總體上看(參照表5)，多數同年級學生的主觀反應水平在進步之中。

表4　主觀反應得分的年級差異分析(N=771)

	平方和 SS	df	均方 MS	F	P
組間(Between Groups)	453.774	5	90.755	20.354	.000
組內(Within Groups)	3411.020	765	4.459		
總變異(Total)	3864.794	770			

表5主觀反應均分多重比較發現，一二年級、三四年級及五六年級之間有顯著差異，說明二、四、六年級進步較快，隔一個年級就有一個較大的發展。

表 5　主觀反應得分的年級均值(M)多重多較(Multiple Comparisons ， N=771)

年級	N	M	S	年級				
				一年級	二年級	三年級	四年級	五年級
一年級	79	14.90	2.28					
二年級	105	16.13	2.08	-1.23**				
三年級	135	16.52	2.14	-1.62**	-.39			
四年級	139	17.06	2.23	-2.16**	-.92**	-.54*		
五年級	150	16.99	2.02	-2.09**	-.86**	-.47	6.42E-02	
六年級	163	17.59	1.99	-2.69**	-1.46**	-1.07**	-.53*	-.60**

注：*P < 0.05 ， **P < 0.01 。

不同主觀反應水平的年級差異

表6以年級為協變量作協方差分析發現，「情感」「認知」「複合」反應水平得分沒有顯著的差異。

變異來源 (Source)	III類平方和(Type III SS	df	均方 MS	F	P
矯正模型 (Corrected Model)	365.550	3	121.850	27.516	.000
年級(協變量)	342.074	1	342.074	77.248	.000
主觀反應類型(主變量)	12.478	2	6.239	1.409	.245
殘差(Error)	3396.494	767	4.428		
矯正後總變異 (Corrected Total)	3762.043	770			

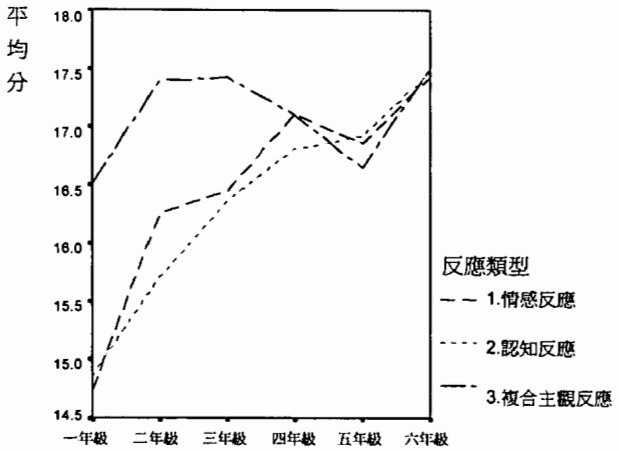
表 6　不同主觀反應水平得分差異的方差分析 (ANCOVA ， N=771)

某種主觀反應水平的年級差異

方差分析（ANOVA）及均值多重比較發現，「情感」得分六個年級之間有顯著差異(P=.000) ，二年級較一年級顯著更高(P=.000)，其他相鄰年級得分沒有顯著差異。從年段看， 1-4 年級進步較快，是水平發展的重要時期，而五六年級基本沒有進步。

「認知」得分六個年級之間有顯著的差異(P=.000)；所有相鄰年級之間均有顯著差異(P=.001)。這說明，各年級的認知水平發展迅速。

「複合」得分六個年級之間沒有顯著的差異(P=.459)，而且所有相鄰年級之間均沒有顯著差異(P>.05)。由於出現頻次較低，各年級平均得分不穩定。



「情感反應」與「認知反應」水平相關

在「複合反應」80篇文章中，「情感反應」與「認知反應」水平得分相關是 .221（P＝.049），「複合反應」與「情感反應」相關.808（P=.000），「複合反應」與「認知反應」相關 .745（P＝.000）。

有無主觀反應與作文總体水平的關係

有主觀反應或無主觀反應作文得分的差異

表 7 以年級為協變量的協方差分析表明，有主觀反應與沒有主觀反應的作文得分有顯著的差異。這說明主觀反應與學生的作文水平高低有關。

表7 有主觀反應的作文與沒有主觀反應的作文得分差異分析(ANCOVA ， N=1152)

變異來源	III 類平方和	df	均方	F	P
矯正模型	6413.089	2	3206.544	467.392	.000
年級(協變量)	4805.575	1	4805.575	700.469	.000
有無主觀反應(主變量)	298.935	1	298.935	43.573	.000
殘差	7882.723	1149	6.861		
矯正後總變異	14295.812	1151			

表 8 顯示，各年段的有主觀反應與無主觀反應的作文得分比較，低年段(1-2 年級)差異顯著，高年段(5-6 年級)沒有顯著差異，中年段(3-4 年級)尚未表現出穩定的特點。

表8 有主觀反應及無主觀反應的作文得分比較（N=1152）

年級	有主觀反應的作文			無主觀反應的作文			T 檢驗	
	N	M	S	N	M	S	T	P
一年級	79	10.72	2.97	113	9.13	2.86	-3.732	.000
二年級	105	12.81	2.67	87	11.56	2.40	-3.368	.001
三年級	135	14.16	2.51	57	13.44	2.56	-1.797	.074
四年級	139	15.89	2.46	53	14.62	2.65	-3.127	.002
五年級	150	16.17	2.52	42	15.64	2.48	-1.195	.234
六年級	163	16.70	2.33	29	16.21	1.78	-1.082	.281

具有三種不同主觀反應的作文得分的差異

具有「情感」「認知」「複合」反應的作文得分平均分別為14.46、15.00、15.54分。以年級為協變量進行協方差分析可知，具有不同類型的主觀反應對作文總分沒有顯著的影響。

表9 具有三種不同主觀反應的作文得分的差異 (ANCOVA ， N=771)

變異來源	III 類平方和	df	均方	F	P
矯正模型	2588.539	3	862.846	128.085	.000
年級(協變量)	2499.763	1	2499.763	371.078	.000
主觀反應類型(主變量)	6.918	2	3.459	.513	.599
殘差	5166.888	767	6.736		
矯正後總變異	7755.427	770			

分析與討論

主觀反應出現頻次

在整個小學階段，具有主觀反應的作文佔多數，即使一年級也佔41.1%。其原因之一是，學齡期兒童的情緒和思維等都已有相應的發展。如小學低年級的學生已具有愛戴、喜歡、高興、愉快等情緒体驗，會用外界特別是教師的標準對自己和別人的言行作出評價(朱智賢，1981)，對自己身邊的人物與事物有好壞、优劣、真偽、美醜的概念。在認知方面，形象思維已得到一定的發展。一年級結束時學生已從語文課本中學到700個左右的漢字(朱作仁，1988)，詞語更多，而這種情感、認知的反應只要寫少數幾個甚至一個短句即可，沒有很高的語言要求。因此，小學生對人物、事物作簡單的情感抒發，作簡要的評價並不困難。

例18 一年級的作文《春遊》(031108-6)全文「有一天，我們一起去春遊，(。)我們看見了小鳥飛來飛去，又看見了燕子，我們走到河裏看見了魚，還看見了樹和草，(。)我們很開心。」，由3個詞語組成的短文，最後一句就是情感反應。

這種展開部份記敘一件事，結尾部份用一句話以表示自己對所寫對象的情感，或對事件作評價及推斷等，是小學生常會採用的寫作模式。在某種程度上可以認為，寫這種反應語句的難度並不高於對客觀事物的具体敘述。

主觀反應出現頻次的類型差異

三種主觀反應的頻次，以認知反應最多，其中又以「評價」(含局部與總結兩種)為多。評價他人或事物的能力，小學生在入學時就已具備(朱智賢，1981)。當然，這種評價有客觀與主觀，全面與片面，深刻與膚淺之分。此外，閱讀教學也有利於學生掌握認知反應技能。如教師引導學生從寓言課文中得到教訓，從有關社會問題的課文中向他人或整個社會提出期望或行動「號召」，從科技課文的事件中獲得啟發，等等。這種技能遷移到寫作中，就出現了認知反應。

通過事件寫人的行為特點或思想品質的作文，或通過事件體現某種事物（如校園）特點的作文，學生在結尾時往往會表現出對所寫人物的喜愛或厭惡、熱愛與痛恨、高興與傷心等情緒，其中又以正向的情緒為主。這種情緒在文章結尾出現即為情感反應，因此出現頻次也較高。在所有研究樣本中，「對所寫對象的情感呼告」或「猜度讀者可能有的情感」的作文僅有15篇，說明學生的作文多數是從自己的立場表達情感，直接面對作文所寫的對象或從讀者角度所作的情感抒發較少。

「複合反應」最少，這與小學生作文內容較為單一有關。只有一兩個句子的簡單結尾，不易同時具備兩種反應。

「總述由全部對象引發的情感」「總結評價」分別是情感與認知反應中最多的細類，而且它們構造「複合反應」的能力也較其他的細類更強。這可能與小學生記敘文以詳寫一件事或一詳一略事件的較多，較容易作「總結性」的反應，以及小學生會寫「總－分－總」結構的文章有關。

主觀反應出現頻次的年級差異

情感反應頻次在中高年級增幅不大的原因是，由於小學生的記敘文所寫的是自己熟悉的人和事(朱作仁，1988；Graesser, Golding & Long, 1991；Heath & Branscombe, 1986)，而小學生對這種人物、事件在低年級時已會概要地表示情感。而在中高年級發展起來的諸如愛國主義等高級或抽象情感，在作文中表現得又不多。因此，中高年級的後續學習對學生出現更多的情感反應頻次的作用不大。

認知反應與思維特點直接有關，小學生的思維以具體形象思維為主逐步過渡到抽象邏輯思維(朱智賢，1981)，四年級出現認知反應的高原期，可能與這個年級處於思維的過渡期有關，但這有待進一步的實際觀察證實。

主觀反應對作文整体水平的作用

有主觀反應的作文得分明顯高於沒有主觀反應的作文得分，那么主觀反應對整篇文章的水平起甚麼積極的作用呢？

1. 完整結構： 有些作文並沒有自然結尾(事情自然結局、問題解決結果、客觀總括等)，主觀反應可直接充當文章的結尾，使篇章完整。

例21 一年級作文《春遊》全文：「今天，老師帶我們去公園春遊。我們看見樹木要綠了。小鳥在空中飛，我玩了Pong pong車飛机。我Jue得春遊真開心。」文章並沒有說明活動是怎樣結束的，或怎樣回家的，因此最後一句的情感反應就可視作文章結尾。

在高年級作文中，主觀反應同樣具有這種功能。

例22 五年級作文《我的媽媽》(055215-407)，導入「我的媽媽本來有一頭烏黑光亮的頭髮，但不知

甚麼時候白髮在媽媽的頭上安家了。」第二段寫「我」生病的時候母親在醫院裏照顧「我」，「我」考試成績不好的時候鼓勵「我」(兩次寫到「看到媽媽頭上的白髮在『閃耀』」)。最後一段則寫「啊，媽媽，我的好媽媽，我永遠愛著您」，通過抒發情感使文章圓滿結束。

2. 嚴密結構： 使文章幾個分述或一個詳述緊密地連成一体。客觀歸納「總述由全部對象引發的情感」「總結評價」，以及由這兩種反應構成或其中一種參與構成的「複合反應」，文章往往出現在通過幾件事情寫人或分幾個階段寫事的記敘文中。這些反應佔所有主觀反應的51.0%，它們通過對貫穿全文或展開部份的事物的情感敘述，以及作相應的評價、推理，使前面所述的內容緊密相連。

例23 四年級作文《動物園》(034207-88)，導入「今天，我們考完試之後，排好隊上車去旅行」；展開寫觀看海豚表演、觀賞海洋館、自由活動；結尾寫「這次活動真好玩啊！」通過對活動的總結性評價，把前面幾個活動串接起來。

3. 明確主題：即點題或深化文章的主題。有的文章展開部份只客觀地寫事情的經過或不同方面的特點，在結尾部分的主觀反應才會對事件所反映的情感或作者的觀點作出敘述，使讀者更有效地領會作者的寫作意圖及所要傳達的訊息。

例25 五年級作文《難忘的一件事》(125104-1107)，文章寫作者有次打破熱水瓶，告訴父親這是給老黃狗打碎的。父親打狗，狗凄慘地叫著，並跑到「我」面前，好像在說小主人你為甚麼要冤枉我。「我」心裏不安，告訴父親實情。父親讓「我」好好想想。結尾寫道「我知道了，我們不管做甚麼事，都要誠實，只有誠實的人，才能得到別人的諒解」。通過寫經驗教訓，使文章的主題更明確。

4. 豐富內容：適當的主觀反應可使文章多傳達一個重要信息。三年級作文《划船》(053211-356)，寫通過艱難的兩輪比賽，最後「我們勝利了。」接著再加一句「我很高興！」沒有最後一句也並無不可，但有這一句可使文章內容更為豐富。

5. 親近對象：對所寫對象情感呼告，猜測讀者可能會有的情感，對讀者提出期望等，可以拉近作者與文章所寫對象、讀者對象的距離，增強親切感。已有研究表明，讀者意識是傳意能力的重要因素(謝錫金，祝新華，姚安娣， 1998)。

例26 六年級作文《我的同學》(126210- 1147)，文章寫一個學習認真、助人為樂的同學，結尾是「您這種朋友交得來，愿我們的友誼長存」，有效地拉近了與朋友的距離。

主觀反應的水平及其問題

情感及認知的單一反應，在一年級一般只起使篇章完整、使內容豐富的作用，功能較為單一。二年級由於學生掌握的字詞增多，更能準確地表達情感與認知反應，其功能開始增多。三年級開始由於篇章寫作技能在逐步掌握之中，因此這兩種反應水平也在逐步提高。

具體地看，情感反應的頻次儘管不隨年級增多，但其水平在 1-4 年級卻有明顯的進步。複合反應，在低年級只有極少數佳作才有，而且反應水平得分較高，因此其水平隨年級提高的趨勢並不明顯，這一結果有待進一步研究。

小學生作文「主觀反應」的主要問題是：

1. 過於籠統，觀點不清楚。有主觀反應的寫作形式，但對於要抒發甚麼情感、表達甚麼觀點並不清楚。

例19 五年級作文《第一次拖地》(045112-248)全文寫第一次拖地板地經歷，最後一節寫道「難道第一次拖地就只是摔痛屁股，嚇得一頭汗嗎？不是的，人生的重要哲理就在裏面的。」作者要表達甚麼人生哲理並不清楚。

2. 脫離文章內容抒發情感或作出評論、引發觀點。如學生寫「這次活動我們都很開心」，可該生所寫的活動並不能讓人覺得開心。

例２０ 四年級作文又如：《我家的電腦》(044208-234)第一段寫某時「我」家買了一台電腦，展開第一部分寫電腦分成幾個部分，第二部分寫在電腦上與網友談話，最後一段「所以說電腦是一個我的老師。」該文根本沒有提及電腦的「老師」功能。

3. 把不能充當結尾的主觀反應作為全文結尾。如有時只對多件事中的某獨立的事件表示情感，或只對多個事物(非結果)中的一個事物作出評價，全文仍沒結尾。

有無主觀反應與作文水平關係的年段差異

有無主觀反應與作文水平高低，在整個小學階段是有關係的，而在不同的年段有不同的表現。其中在低年級關係顯著，而在高年級則不顯著，其原因可從兩個方面分析：

在內容方面，低年級學生由於所寫的作文內容較少，主觀反應的「豐富內容」功能較其他年級更顯著。如假設文章的導入及展開寫了 2 個意層，加上主觀反應的 1 個意層，全文就有 3 個意層，此時主觀反應佔全文

的意層數是33.3%。高年級學生由於所寫的內容增多，主觀反應的1個意層佔全文意層數的比率就大為降低。從結構方面看，既沒有主觀反應又沒有客觀結果的作文，在低年級較多，在高年級已極少。換言之，有沒有主觀反應對作文完整性的影響，低年級較大，高年較小。

結論與涵義

研究結論

1. 整個小學階段，具有主觀反應的作文佔66.9 %。有主觀反應的作文隨年級升高而顯著地增多，四年級是發展高原期，但情感反應的頻次不隨年級顯著增長。
2. 情緒、認知、複合反應出現頻次有顯著差異，其中認知最多，情感相對較少，複合最少。「總述由全部對象引發的情感」、「總結評價」是出現最多的主觀反應細類，而且構造複合反應能力也最強。
3. 主觀反應水平有顯著的年級差異，其中二、四、六年級進步較快，每隔一個年級就有一個大的飛躍。
4. 情感、認知、複合三種反應水平之間沒有顯著差異。情感反應水平1-4年級進步較快，認知反應各年級顯著提高，但複合反應的年級進步則不明顯。
5. 「複合反應」中的「情感反應」與「認知反應」水平得分相關顯著，「複合反應」與「情感反應」、「認知反應」水平得分相關極顯著。
6. 主觀反應具有完整結構、嚴密結構、明確主題、豐富內容、親近對象的功能。
7. 主觀反應存在的主要問題是：過於籠統，觀點不清；脫離文章內容抒發情感、評論或引發觀點；把不能充當結尾的主觀反應作為文章的結尾。
8. 有無主觀反應與作文水平高低在低年段有顯著關係，在高年段則沒有。不同類型的主觀反應對作文水平高低沒有顯著的影響。

結論涵義

1. 小學一年級開始對學生進行有意識的「主觀反應」訓練，訓練重點應是提升學生的反應水平，而不限於引導學生多寫反應。
2. 認知反應訓練應與提高評價、推理等能力相結合，情感訓練要引導學生學會對自己不甚熟悉的對象也能表示情感，還要學會表示一些高級或抽象的情感。
3. 注意引導學生發揮除「完整結構」「豐富內容」外的其他功能，如可試著面對所寫對象或從讀者的角度表達情感，學會恰當地深化文章主題等，在低年級尤應注意這方面的訓練。
4. 因應不同主觀反應的頻次及其水平發展的敏感期、高原期，提出相應的措施，使學生盡快渡過高原期，而在敏感期得到更好的發展。預防產生典型問題。

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香港小學普通話科聆聽及口語評估模式探索

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本文透過對《課程綱要》和教師問卷結果的分析，探討本港小學普通話科評估工作中的問題，然後根據普通話科的教學目標、小學的客觀教學環境和語言評估理論，提出適用於本港小學普通話科的聆聽和口語評估模式，供教師和師資培訓者討論和參考。

Mode of Assessment of Putonghua Listening and Spoken Language Abilities in Hong Kong Primary Schools

This paper attempts to examine the defects in assessment works of primary Putonghua subject based on the analysis of subject syllabus and outcomes of a teacher questionnaire. In accordance with teaching objectives, teaching environment and theories of language assessment, a mode being regarded suitable for assessing Putonghua listening and spoken language abilities of primary students is introduced.

一．引言

評估是組成課程的四大元素之一，是判斷學習效益和教學素質的重要工具，對教學反饋有重大而深遠的意義。

香港教育當局接納95年總督施政報告和《教育統籌委員會第六號報告書》的建議，自1998年9月起推行中、小學普通話科新課程和把普通話科納入本港中、小學核心課程。從語言教學工作者的角度看，普通話科的課程改革不單要著眼於教學內容的更新和教學資源的改善，同時也要著重評估方式的改良和評估機制的訂定；因為若沒有客觀、準確和完善的評估制度，不但不能為教學提供反饋的指引，也不能刺激學生的學習意慾。普通話科的主要教學目標是提升學生的普通話聆聽、說話和朗讀能力，訂定一個切合本科教學取向的評估模式，是普通話科改革的急務。

本文首先綜合簡介90年《小學普通話科課程綱要》（以下簡稱《90綱要》，《90綱要》會施行至2003年）和97年《小學普通話科課程綱要》（以下簡稱《97綱要》，《97綱要》自98年起在小一推行）中有關聆聽和口語評估的建議和指引，（註1）然後通過問卷訪問的結果分析，介紹本港一般小學普通話科聆聽和口語評估的內容和安排，最後根據教學目標、語言評估理論和本港的客觀教學情況，提出適用於本港小學的普通話科聆聽和口語評估模式，供教師和師資培訓者參考。

二．《90綱要》和《97綱要》的評估建議

《90綱要》乙部第五章「成績考查」建議普通話科的評估可通過筆試和口試進行；筆試包括聆聽理解和語音知識，口試包括說話和朗讀。（註2）綱要丙部附錄十「測驗題目示例」列舉了各範疇的題目示例，並附有一份小六的模擬考卷。（註3）

《90綱要》提供了三個聆聽理解的例子供教師參考，但當中有不少地方不符合聆聽理解和第二語言聆聽能力評估理論的要求，如示例三具有下列須改善的缺點:（註4）(1)四道問題都是問答題，欠缺客觀性考題；(2)第四題「你會幫助媽媽做些什麼事情?」完全脫離了聆聽內容，考生根本不用聆聽也能回答；(3)四道題目中有三道是識記題，一道是思考題，欠缺了「理解」層次的題目。此外，六年級模擬考卷建議每個學生的口試時間是十分鐘，教師若根據這提議安排考試，便會耗用大部分的教學時間。《90綱要》中的建議完全沒有考慮教學實際，實在值得商榷。

《97綱要》乙部第四章「成績評估」以列表形式說明了第一學習階段（小一至小三）和第二學習階段（小四至小六）中聆聽、說話、閱讀和譯寫等四範疇的評估重點和評估方法建議，並闡明各範疇的佔分比例。《97綱要》在評估方面的說明和對重點的描述比《90綱要》詳盡和具體，但很多教師認為《97綱要》的最大問題是只具文字說明，欠缺具體的示例，給人抽空和無所適從的感覺。

在今後五年，《90綱要》和《97綱要》會同時施行，可以肯定的是: 教師仍會參考《90綱要》的例子來擬定考題，綱要裡不妥當和欠完備的地方，仍會發揮一定的影響力。

三・ 目前香港小學普通話科評估的實踐概況

為了解香港小學普通話科評估的實踐情況，研究員在98年4月進行了一項 「香港小學普通話科評估模式問卷」調查，（註5）訪問的對象是參加98年第1期「香港教育學院小學普通話教師在職培訓課程」的教師。這批教師有65位，分別來自60多所小學。是次訪問調查收回有效問卷56份，當中54位教師的學校已開設普通話科。現在嘗試通過問卷結果，分析一般學校普通話科評估的實踐概況。

1. 評估的模式和試卷數量

在普通話科的評估安排方面，有37所學校（68.5%）同時設有筆試和口試，當中只有17所學校（45.9%）具備口試考卷，大部分學校（20所，54.1%）不設口試考卷，只設筆試和只設口試的學校各有3所（5.6%）；值得注意的是: 有10所學校（18.5%）不設任何形式的評估。

表1　普通話科評估安排

評估和考卷安排	數目（n=54）	百分比
1. 設有筆試和口試（口試設有試卷）	17	31.5
2. 設有筆試和口試（口試不設試卷）	20	37.0
3. 只有筆試，沒有口試	3	5.6
4. 只有口試（不設試卷）	3	5.6
5. 不設任何評估	10	18.5
6. 其他: 自行安排	1	1.9

2. 考試的時間安排

普通話科評估應包括筆試和口試。在筆試方面，23所學校(56.1%)把考試安排在考試週前的普通話課上，只有13所小學（31.7%）在考試週內撥出時間來進行筆試，另有4所學校（9.8%）要求教師在課堂以外的時間安排考試，1所學校（2.4%）要求教師自行安排筆試的考試時間。

只有極少數的學校（2所，5%）會把普通話科口試安排在考試週內。絕大部分學校（37所，佔92.5%）安排口試在考試週前的普通話課上進行，若教師未能在課上把口試完成，多數學校（21所，52.5%）要求教師自行找時間完成口試，也有學校（1所，2.4%）要求教師把口試完全安排在課外時間進行。

表2　筆試時間安排

筆試安排	數量（n=41）	百分比
1. 在考試週內	13	31.7
2. 在考試週前的普通話課上	23	56.1
3. 教師自行安排在課堂以外的時間進行	4	9.8
4. 其他: 自行安排	1	2.4

表3　口試時間安排

口試安排	數量（n=40）	百分比
1. 在考試週內	2	5.0
2. 在考試週前的普通話課上	16	40.0
2. 基本安排在普通話課上，若時間不足，教師需另作安排	21	52.5
3. 教師自行安排在課堂以外的時間進行	1	2.5

3. 聆聽理解內容和題目的設計

在聆聽理解內容的編製和問題的設計方面（問卷第7、8題），由於不同年級可能有不同的安排，所以教師可選答超過一個答案。大部分學校的教師（25人次，41.7%）均會直接採用課本或課外材料作聆聽資料，少數教師（9人次，15%）會把課外材料改寫，也只有9人次的教師（15%）會根據《綱要》的建議，把學生學過的字、詞和句式重新組合，編成聆聽材料。此外，超過四份一的學校（17所，28.3%）沒有向教師提供任何指引，由教師自行決定擬訂聆聽理解內容的方式。

在聆聽理解的試題設計方面，絕大部分教師(35人次，76.1%) 的學校都讓教師自行決定試題的形式，只有少數教師(7人次，15.2%) 會參考《綱要》的示例，另小部份教師(4人次，8.7%)會在擬題前參考語言評估理論。

表4　擬定聆聽理解內容的方法

擬定聆聽理解內容的方法	數量 (n=60)	百分比
1. 直接採用課本中的材料	12	20.0
2. 直接採用課外材料	13	21.7
3. 改寫課外材料	9	15
4. 以學生學過的字、詞和句式重新組合	9	15
5. 沒有既定的方法，由擬題教師自行決定	17	28.3

表5　設計聆聽理解題目的方法

設計題目的方法	數量 (n=46)	百分比
1. 參考《課程綱要》的示例	7	15.2
2. 參考語言評估理論，多使用客觀性考題，有需要才使用主觀性考題	4	8.7
3. 沒有既定方法，由擬題教師自行決定	35	76.1

4. 口試的內容和評分方法

絕大部分學校（31所，77.5%）的口試均包括朗讀和說話，當中約一半學校（15所）會因應年級和需要，在口試中增加語音知識考查；7所學校（17.5%）的口試沒有固定的形式，由負責的教師自行決定考查的內容，另有2所學校（5.0%）的口試內容只有說話。

在口試的評分方面，有一半學校（20所，50.0%）沒有設置任何評分標準，由各主考教師決定給分的準則。而在評分方法上，只有3所學校（7.5%）採用評分量表的方法，14所學校（35.0%）採用整體評分法，其他學校都任由教師決定評分的方式。研究員事後向教師作跟進，得知若學校讓教師自行決定評分方法，絕大部分老師會使用整體評分法。

表6　口試內容

口試項目	數量 (n=40)	百分比
1. 朗讀、說話，有需要時加設語音知識	15	37.5
2. 朗讀和說話	16	40.0
3. 只有說話	2	5.0
4. 沒有固定形式，由教師自行決定	7	17.5

表7　口試評分標準的設置

口試評分標準	數量 (n=40)	百分比
1. 各級設有不同的評分標準	12	30.0
2. 全校採用同一評分標準	8	20.0
3. 沒有既定評分標準，由教師自決	20	50.0

表8　口試評分方法

口試評分方法	數量 (n=40)	百分比
1. 採用整體評分法	14	35.0
2. 採用量表評分法	3	7.5
3. 由教師自行決定	23	57.5

5. 小結

從問卷的結果可見，目前香港小學大都不重視普通話科的評估，有的甚至不設任何評估機制。在實踐上，大部分學校都不要求教師擬訂口試考卷；在考試時間方面，學校多要求教師在考試週前，使用普通話課作評估；在考題的設計和評分方面，教師基本上都不會花很多的時間去設計題目，而口語的評分方法也很主觀。

四．小學普通話科評估模式的研究

香港小學的普通話科教學只有約十三年的光景，而且在1986至1997年間，普通話只是非核心課程的科目，學校可以自行決定是否開設。故此，這十多年來，有關小學普通話科教學的研究不多，討論評估的施行的，更是寥寥可數。許耀賜、歐陽汝穎和王晉光(1986)曾探討普通話科的成績考查，冼錦維等(1997)曾討論本科測試的題型；理論性較強的，當推霍陳婉媛(1988)從傳意法(communicative approach)和語言測試的角度，探討語言測試的模式，不過，霍強調本地的語言教科書(包括教師手冊)並不重視語言測試理論和技巧的運用。(註6)

五．小學普通話科聆聽和口語評估模式建議

自七十年代以來，語言能力測試深受第二代應用語言學的理論和研究影響。在測試的內容方面，重視言語能力和語言功能的檢測；在測試的形式方面，著重考查

目的和考查方法的配應。下文嘗試結合《課程綱要》的要求、應用語言學的理論和本地的客觀教學環境，探討小學普通話科聆聽和口語評估的模式。

某小學聆聽考卷（註7）

美玲和小明都喜愛運動，他們相約在星期天去打羽毛球。到達球場後，他們才發覺羽毛球用光了，於是他們到百貨公司購買。

在百貨公司裡，他們看到各式各樣的貨品，有文具、服裝、鞋子、體育用品和珠寶等等。除了羽毛球以外，美玲買了鉛筆，小明買了圓珠筆和棋子。

1. 試舉出兩種資料中提及可以在百貨公司買到的物品？（識記）
2. 美玲跟小明買了甚麼？（識記）
3. 百貨公司的貨品一般較貴。假如你是美玲或小明，你會到百貨公司買羽毛球嗎？為甚麼？（思考）

1. 聆聽評估的取向

參考《課程綱要》建議和第二語言聽力評估理論，小學普通話科聆聽評估的聆聽資料應以學生學過的詞語和句式組成，內容應切合學生的生活背景和認知水平。在考題的擬定方面應注意下列各點:

(1)多使用客觀性考題；

(2)問題的答案應建基於聆聽內容；

(3)考查的層次應包括識記、理解和思考等。

根據上文的分析，《90綱要》的示例三（見附錄一）不能滿足上述的要求，一般學校的聆聽考題也多具有示例三的毛病。不過，只要教育當局能提供較具體的指引，師資培訓課程多向學員提供示例和說明，這些問題是不難解決的。現以某小學的一篇聆聽資料和題目為例，說明改善考題設計的方法:

為了切合優良聆聽考題的要求，本文建議上述題目作下列的改動:

(1) 第1題提供若干物品的名稱給學生選擇，避免學生受書寫能力影響表現。

(2) 第2題的考查內容和考查層次和第1題很相似，建議改作理解題和改寫成客觀性試題，例如:

美玲跟小明兩人共買了多少樣東西？

a ☐ 2

b ☐ 3

c ☐ 4

(3) 第3題脫離了聆聽內容，建議作下列的改動:

除了羽毛球以外，你認為小明還有甚麼愛好？為甚麼？

2. 口試的內容安排

根據《90綱要》和《97綱要》的說明，口試的內容應包括朗讀、說話和語言知識。在口試內容的安排上，目前最大問題是很多學校都不設置口試考卷。由於口試多不能在一節課內完成，教師在不同課節或不同場合進行的口試，在考查的內容和形式上都可能有很大的分別；這不單大大削弱評估的嚴謹性，也產生評分不公平的問題。

學校若規定口試必須具備考卷，口試的內容和形式便能制度化。這樣，教師便可在口試前把考試的細則通知學生，在考試的開始時設置熱身問題，引導學生進入考試狀態，舒緩學生的緊張情緒。還有的是: 教師可據考卷內容設計一些輔助問題卡，來幫助聽力低和不愛說話的同學。這些措施既可幫助學生發揮他們的口語能力，也能提升考試的信度和效度。

3. 口試的評分標準

口語表達有極強的暫時性，評分非常主觀。現時本港小學大都採用「整體評分法」，教師在聆聽學生的口語表達後，根據個人的標準和觀念，給學生一個總分。這方法的優點是評分的過程很簡單，但缺點可不少，包括: (1)評分非常主觀；(2)評分可能沒有依據一套準則，故沒法據學生的分數描述學生的表現和語言水平；(3)不能具體地透過評估，取得改善教與學的訊息。

98年普通話新課程採用目標為本課程的分層架構訂定，《綱要》又建議教師在記錄成績時給與學生描述個人語言表現的評語。（註8）由此看來，使用「量表評分法」較能切合《綱要》的要求和取向。

量表評分可以採用「分項評分量表」、「分等評分

量表」和「分項分等評分量表」等。「分項評分量表」採用分項給分的方法，基本上仍擺脫不了整體評分的缺點。「分項分等評分量表」對不同項目的不同等級的表現都加以描述，對能力的界分非常仔細，但用於小學生口語評估，則會感覺過分零碎，易產生「只見森林，不見樹木」的弊病。所以三者比較起來，以描述成績的不同等級作基礎的「分等評分量表」應該最切合實際需要。下面是適用於小學低年級的「朗讀分等評分量表」和「說話分等評分量表」示例: （註9）

表9　朗讀分等評分量表

等級	分數	學生表現描述
高	21-30	字音（聲、韻、調）尚算準確。 語調恰當，音量充足及穩定。
中	11-20	字音（聲、韻、調）尚可，錯誤不多。 語調恰當，音量充足，但間中有不穩定的情況。
低	0-10	字音（聲、韻、調）尚算準確。 語調不恰當，音量不足。

表10　說話（對話）分等評分量表

等級	分數	學生表現描述
高	21-30	回答與問題緊扣，說話清晰和有條理。 有意識的使用普通話，發音錯誤較少，用詞恰當。
中	11-20	回答基本切合提問，表達清楚。 嘗試使用普通話，發音偶有錯誤，但不影響交際，用詞大致恰當。
低	0-10	說話答非所問，常有不知所言的情況。 語音錯誤嚴重，且影響理解。

上述兩量表把學生成績分為高、中、低三等，然後參考《課程綱要》的第一階段學習目標和學習重點擬寫學生的表現描述。例如學生在第一階段還沒有學習聲母和韻母，不宜要求他們朗讀時發音十分標準，所以「高等級」的要求也只是「字音尚算準確」。進行口試時，教師只須根據學生的表現，按表現描述分等，然後在該等別的給分範圍內打分，便能較客觀的按既定標準評分，而表現描述則有助教師擬寫評語。

設計量表始終是一件比較費時的工作，為了吸引教師試用這種較客觀、較公平和較合理的評分方法，研究員建議教育當局和師資培訓者按《課程綱要》建議的各級學習重點，製訂各級朗讀和不同說話形式的評分量表，供教師參考。然後教師按任教學校的實際情況把量表略作修改，即可使用。

4. 進行口試的時間

若每週只有一節普通話課，而教師又需要利用上課時間進行口試，便會有很大比例的教學時間花費在口試中，產生教學時間不足的問題。（註10）所以，很多教師都利用小息、放學甚至上學途中匆匆進行口試，這些權宜之計對教、學兩方面都不公平，也大大影響評估的素質。

如要改善口試的時間安排，又希望不用花費教學時間作口試用途，研究員建議學校在考試週內編排各級普通話考試時間，並由校內普通話教師組成主考團，為各級學生進行分組考試。以下是一個建議口試時間表:

表11　各級口試時間表

	考試週第一天	考試週第二天	考試週第三天
8:00-10:00	一年級口試	三年級口試	五年級口試
10:30-12:30	二年級口試	四年級口試	六年級口試

假設某校每級有4班，每班平均有40位學生，每位學生的考試時間是3分鐘，如能動用4位教師當主考，2小時便能把口試完成。當然，以多位主考作分組考試的形式，定會帶來不同主考評分寬緊不一的問題，但若能採用量表評分法，主考教師在試前又透過工作會議協商給分準則，這技術問題定可解決。

六・總結

評估必須具有效度；要評估有效，最簡單的方法就是根據教學目標來設計考查的內容和方法。香港小學普通話是以培養學生的聆聽、說話和朗讀能力為主要目標，在評估方面，必須透過恰當的形式來檢驗學生的聆聽、說話和朗讀能力。

優良的評估不單能顯示學生的學習成績，還能診斷學生的學習困難，反映教學內容和教學方法上的優點和缺點。所以，要改善普通話科教學的素質，要提升本港學生的普通話水平，必須著重和改善普通話科的評估。

註釋

1.「口語」是指說話。不過，《90綱要》把朗讀包含在說話裡，現時本港也有少數學校的普通話口試只設朗讀，故本文的「口語評估》也兼論朗讀評估。

2. 香港課程發展議會(1990)：《小學普通話課程綱要》，頁24－26。

3. 同2，頁74－95。

4. 同2，頁77。原文見附錄一。

5. 問卷見附錄二。

6. 參翟陳婉媛(1988)：《語言測試的理論探討》，輯錄於《普通話測試論文集》。

7. 本資料取自某小學考卷，題目後的考查層次說明是研究員附加。

8. 《97綱要》「附錄三學習表現評估記錄表示例」中的記錄表例子，均設有評語一項，見《97綱要》，頁50－56。

9. 由於是示例關係，現時量表中的「表現描述」是採用較概括的標準，教師宜根據一己的教學內容，把標準寫得具體些，如「字音欠準確」可寫作「字音錯誤超過百分之五十」。此外，研究員現正和幾位教師合作，在普通話口試中使用量表評分，作為本研究的跟

10. 假如一班有40位學生，每位學生的考試時間3分鐘，學校一年有2次考試。教師每年便要耗用8節課作口試。(註：若每週有1節普通話課，全年約有30節。)

參考書目：

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Carpenter, K., Fujii,N. and Kataoka, H.(1995), An Oral Interview Procedure for

Assessing Second language Abilities in Children. Language Testing, VOl.12, No.2, pp.157-175.

附錄一: 90年《小學普通話課程綱要》聆聽理解測驗題目示例三

是你呀

放學了，我回到家裡，媽媽不在家。我把地掃得乾乾淨淨，又把東西放得整整齊齊。

媽媽回來了，我就躲在門後邊，不讓媽媽看見。媽媽一進門，就說: 「誰把地掃得乾乾淨淨？把東西放得整整齊齊？」我在門後邊笑了，媽媽聽見笑聲，說:「是你呀！」

學生用的答題紙樣本

普通話科聆聽理解測試題目

姓名:

年級: 日期:

留心聆聽一段文字，然後把答案寫在答案紙上。

「是你呀」

問答題:

1. 媽媽不在家的時候，這個小朋友作了些甚麼工作？
2. 媽媽回來了，小朋友躲在哪裡去？
3. 媽媽一進門說甚麼？
4. 你會幫助媽媽做些甚麼事情？

答案:

1.
2.
3.
4.

（這樣本格式請完全依照《課程綱要》內文）

附錄二: 香港小學普通話科評估模式問卷

說明:

(1)本問卷目的在瞭解香港一般小學普通話科評估的安排，請據任教學校的實況作答。

(2)題目全是選擇題，請在方格內以 "✓" 號表示答案，有需要時以簡單文字作補充。

(3)這是不記名問卷，一切資料只供研究用途。

謝謝您的幫忙！

甲部：個人及任教學校資料

1. 教學年資
   - ☐ A 5年以下
   - ☐ B 6—10年
   - ☐ C 10年以上

2. 任教普通話年資
   - ☐ A 沒有任教普通話
   - ☐ B 2年以下
   - ☐ C 3—4年
   - ☐ D 5年以上

3. 貴校開設普通話科有多久?
   - ☐ A 2年以下
   - ☐ B 3—4年
   - ☐ C 5年以上
   - ☐ D 仍未開設（問卷完，謝謝！）

乙部：任教學校普通話科考試安排

4. 貴校的普通話科評估安排是:
   - ☐ A 設有筆試和口試（口試設有試卷）
   - ☐ B 設有筆試和口試（口試不設試卷）
   - ☐ C 只有筆試，沒有口試
   - ☐ D 只有口試（設有試卷）
   - ☐ E 只有口試（不設試卷）
   - ☐ F 自行安排
   - ☐ G 不設任何評估（問卷完成，謝謝！）

5. 貴校的筆試安排在甚麼時間舉行？
   - ☐ A 在考試週內
   - ☐ B 在考試週前的普通話課上
   - ☐ C 老師自行安排在課堂以外的時間進行
   - ☐ D 其他　請說明 _____

6. 貴校的口試安排在甚麼時間舉行？
   - ☐ A 在考試週內
   - ☐ B 在考試週前的普通話課上
   - ☐ C 基本安排在普通話課上，若時間不足，教師需另作安排。
   - ☐ D 老師自行安排在課堂以外的時間進行
   - ☐ E 其他　請說明 _____

7. 貴校老師擬定聆聽理解內容的方法是: （可選多個答案）
   - ☐ A 直接採用課本中的材料
   - ☐ B 直接採用課外材料
   - ☐ C 改寫課外材料
   - ☐ D 以學生學過的字、詞和句式重新組合
   - ☐ E 沒有既定方法，由擬題老師自行決定。

8. 貴校老師擬定聆聽理解問題的方法是: （可選多個答案）
   - ☐ A 參考《課程綱要》的示例
   - ☐ B 參考語言評估理論，多使用客觀性試題，有需要才使用主觀性試題。
   - ☐ C 沒有既定方法，由擬題老師自行決定。

9. 貴校普通話口試的內容包括:
   - ☐ A 朗讀、說話，有需要時加設語音知識
   - ☐ B 朗讀和說話
   - ☐ C 只有說話
   - ☐ D 沒有固定形式，由老師自行決定

10. 貴校有沒有設置普通話口試的評分標準?:
    - ☐ A 各級設有不同的評分標準
    - ☐ B 全校採用同一評分標準
    - ☐ C 沒有既定評分標準，由老師自決

11. 貴校普通話口試的評分方法是:
    - ☐ A 採用整體評分法
    - ☐ B 採用量表評分法
    - ☐ C 由各老師自行決定

問卷完，謝謝！

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中國大陸小學數學應用題編寫誤區分析

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教材是課程內容的主體。應用題是數學知識在實踐中的典型運用。如何將抽象的數學符號賦予生動的實踐意義，對學生知識的理解、智力的發展和情感的豐富起著重要的影響作用。研究中發現，中國大陸小學數學教材應用題的編寫存在著較為嚴重的"求同存異"、"避彎取直"、"有增無減"等現象，這些現象在一定程度上形成了學生逆向思維、多元化思維、辯證思維和創造力發展等方面的誤區。本文從小學數學教材及應用題編寫中存在的問題入手，分析了問題的危害與成因，在此基礎上嘗試提出數學教材改革的幾點建議。

Analysis of the Errors in Compiling Elementary School Mathematical Questions

Teaching material is the body of school curriculum contents, and mathematical questions in use are typical application of mathematics in practice. But how to endow the abstract mathematical symbols with some lively and practical meaning is very important, and it has a great effect on students in knowledge comprehension, the development of intelligence and the enrichment of emotions. In a study of this field, it was found that there are some statements like "seeking the common ground while reserving the differences", "avoiding the curves while taking only the straight lines", and "increasing without deducting". These phenomena in some degree, lead students into thinking against the normal ways, having scattered and dialectical thoughts and impairing their creative powers. In this article, the writer starts with some problems that exist in compiling the mathematical questions in use, analyses the harm and reasons, and tries to put forward suggestions in reforming teaching materials on these bases.

前言

教材是課程內容的主體，應用題是數學知識對實踐的反映。應用題的編寫形式與內在知識的統一，直接或間接地影響著學生對知識的理解、思維的發展與情感的豐富。中國大陸小學數學教材及應用題的編寫尚存在某些問題，它在一定程度上干擾著學生對數學知識及相關知識的理解與掌握，束縛著學生的思維，應當引起注意。

數學教材編寫中的主要問題

數學是學習其他學科的基礎。數學教材的編寫宜反映社會生活實際和現代科學技術；在應用與滲透其他學科的相關概念時需與之協調一致；在培養學生靈活的思維方式上宜做出較多的努力。中國大陸小學數學教材的編寫在這些方面做得還不夠妥當，使數學課程的積極作用受到了限制。

從聯繫實際來看，數學教材的編寫還停留在20世紀50年代或60年代的水平上。交通工具多限於汽車、火車；運輸工具多限於卡車、馬車；寫字工具局限於手抄……隨著科學技術的發展，學生對飛機、計算機、人造衛星等現代交通及通信技術早已熟悉，但教材卻不能反映就發生在學生生活之中的事實，卻停留在與學生相距甚遠的歷史時期。學生學到的與他們見到的、聽到的完全是兩回事。這種知識的學習與社會實際相脫節的狀況很難激發學生的學習興趣。

從與其他學科的關係來看，數學教材的編寫不能準確地反映有關學科對某些概念的解釋，影響到學生對基本概念的理解。例如，對生產計劃、生產效益、生態平衡等概念的反映只注意到了他們理想化的一面，忽視了他們現實性的一面。在教材的編寫中，生產計劃是超額

完成的，生產的產品是越來越多的，種植的農作物是增產的。這種教材編寫方式未能反映出計劃有等額或差額完成的狀況；產品生產的多少應當考慮市場的需求；農作物種植的面積和產量要受社會需要的影響及自然條件的制約等。

從對學生思維方式的培養來看，由於教材的編寫在聯繫實際和與其他學科的關係方面都處在一個較為機械的狀態，所以教材編寫中所設置的問題也比較僵化。例如，增加了多少，提前了多少，超額了多少，超產了多少，超過了多少等是常見的問題表述方式。這些表述方式實際上都是一種正向的思維方式。如果經常以此類方式影響學生，很難使學生形成逆向的、多元化的思維。

數學教材編寫中的問題明顯地反映在應用題的編寫之中。

數學應用題編寫誤區舉隅

1、 "求同存異"誤區。求同存異是指找出共同點，保留不同點 (商務印書館，1998)。這種做法在不同事物的發展中其作用是不同的，有時是積極的，有時是消極的。如果在某一問題討論之後需要統一意見，那麼求同存異是積極的；如果在某一問題討論之後需要找到不同的解決辦法，那麼求同存異是消極的。求同存異現象反映在數學應用題的編寫中是指忽視某些事物受客觀規律的制約而存在著的起伏或差異，一味地將實際問題單一化、片面化的應用題編寫方式。這種方式用相同的語言、相同的思維方式來表達應用題，使應用題的編寫與實際相脫節。例如，在計劃與是否完成計劃兩者之間發生的數量關係上，存在著超額完成計劃、等額完成計劃和差額完成計劃三種情況，而應用題只反映超額完成計劃不反映等額完成計劃或差額完成計劃的編寫方式則是一種誤區。據筆者統計，大陸九年義務教育五年制小學教科書《數學》第九冊、第十冊 (人民教育出版社，1996) 共編寫關於計劃與是否完成計劃方面的應用題21道，其結果全部是超額完成計劃指標 (注 1)。這種編寫方式可以舉出一個應用題為例。九年義務教育五年制小學教科書《數學》第九冊 (人民教育出版社，1996) 第23頁8題是這樣編寫的: 化肥廠原計劃八月份生產硫酸銨52吨，結果上半月生產26 1/5吨，下半月生產29 1/4 吨，超過原計劃多少吨？ (人民教育出版社，1996 a，P. 23) 其餘20題均與此種表述類似，題中所設的問題都在超額完成計劃之列，無一反映等額與差額完成計劃的情況。然而，計劃是工作或行動以前預先擬定的具體內容和步驟 (商務印書館，1998 a)。計劃的預先性必然使其實施之後有超額、等額、差額三種情況可能發生。應用題中只呈現一種情況與實際不相符合。受各種因素的制約，計劃未必能夠完全實現或超額實現。在這種情況下，就需要分析影響計劃完成的相關因素。

2、 "避彎取直"誤區。避彎取直是指躲開曲線，選擇直線。它在數學應用題編寫中的表現是忽視實際中存在著的曲線式範例，局限於實際中的直線式範例。這種做法比較突出地反映在路程、時間、速度關係式的應用題編寫之中。九年義務教育五年制小學教科書《數學》第九冊、第十冊 (人民教育出版社，1996)編進這類應用題24道 (注2)，只有兩道為明顯的曲線式應用題 (注3)，其他22道均局限於甲、乙兩地之間的直線式問題。例如，九年義務教育五年制小學教科書《數學》第十冊 (人民教育出版社，1996) 第162頁7題為: 甲乙兩港相距480千米。上午10時一隻貨船從甲港開往乙港，下午2時一隻客船從乙港開往甲港。客船開出1小時後與貨船相遇。貨船每小時行15千米，客船每小時行多少千米？ (人民教育出版社，1996 b，P. 162) 在解此類問題時需要采用甲、乙兩地直線連接的方式進行分析，題做多了學生就會形成一種思維定勢，即凡是關於路程、時間、速度關係式的問題都可能被學生認為是直線式的問題，以致於有的學生對運動場上出現的路程、時間、速度的關係式問題迷惑不解，他們認為運動場上的跑道是圓的而不是直的，那怎麼能計算呢？

3、 "有增無減"誤區。有增無減是指只有增加，沒有減少。它在數學應用題編寫中的表現是: 表示未來時行為結果的數量關係總是超過表示現在時和過去時的行為結果的數量關係的應用題表述方式。例如，學生數下一年級比上一年級多；種植面積今年比去年多；修路今天比昨天修得多等等。事實上，受不同條件、不同規律的制約，學生數、種植面積、修路速度等都會有增有減。如果應用題的編寫明顯地表現出有增無減的趨勢，必然對學生產生認識上的誤導。

數學應用題編寫誤區對學生的羈絆

1、 束縛學生的思維。思維是人的大腦兩半球反映事物的一般特性和事物之間的有規律的聯繫，以及以已有的知識為中介，進行推斷和解決問題的過程 (楊清，1981)。思維不同於感知覺過程卻以感知覺過程為基礎，學生對應用題的感知覺要以詞的形式反映出來。學生在教師的指導下，通過對詞所描述的數量關係進行有意識理解的同時，也在無意識地接受著詞在描述數量關係中定型化了的表現方式，它表現於非計劃的隱性的學習活動，這種學習活動對學生思維的發展起著不可忽視的作用。例如，在應用題編寫中總是以超額完成計劃的形式

設置數量關係，學生就可能會認為計劃在任何情況下都應當是超額完成的。發生在後面的量總是大於發生在前面的量，學生就可能會認為以後發生的事件的數量總是應當超越於以前發生的
事件的數量，如種植某一種農作物的面積應當越來越多，人口增長應當越來越迅速，甚至讀一本書也會一天比一天讀的頁數多。這種思維定勢是單向的、封閉的、平面的，它會對學生逆向思維、發散思維、辯證思維的形成產生負面影響，甚至導致影響學生的創造力。實踐中，逆向、多元化、辯證的思維方式會幫助人們創造出很多奇蹟。心理學家斯金納 (Skinner) 利用逆向思維提出了操作性反應理論 (Skinner，1978)；教育決策者利用發散思維設計了不同學制系統 (原國家教委，1992)；物理學家愛因斯坦 (Einstein) 利用辯證思維提出了相對論 (Einstein，1956)。中國大陸小學數學教材當然也注意到了培養學生不同形式的思維方式問題，但在應用題編寫形式上卻忽視了它在培養學生靈活思維方面的作用，因而可能導致事倍功半的效果。

2、 影響學生對知識的理解。學生掌握概念需要經過對概念多方面理解的過程。它要求教材能夠從不同的角度抓住事物主要的特殊屬性，概括出事物的一般屬性。學生掌握數量關係也要遵循這一規律。例如，學生理解路程、速度、時間三者之間的數量關係，教材應當盡可能多地呈現在相關情況下，路程、速度、時間三者之間存在的恒定關係，無論物體運動線路是直線的還是曲線的，是地面上的還是空間的。如果教材只呈現其中的部分情況，學生就會對問題產生片面的認識和理解，這無助於學生靈活運用知識。

3、 阻礙學生綜合掌握知識。學生對知識的掌握是多門學科綜合學習的結果，所以各科教材也要求在整體上協調統一。例如，語文教給學生計劃一詞，其他學科中反映計劃概念的內容就應當與之和諧；地理教給學生大自然變化的規律，其他學科中反映的內容也不能與之矛盾。目前，中國大陸小學數學應用題的編寫在這方面表現出了一定的欠缺，它會影響學生綜合掌握知識，導致學生對知識的割裂。

數字應用題編寫誤區的主要成因

1、 忽視應用題的形式與內容的統一。教材是課程內容的表理形式。課程的建構需要以心理學、社會學、哲學等學科作為理論基礎，其中最為重要的是哲學。因為哲學是心理學與社會學的母體，心理學和社會學又以哲學假設為支柱 (施良芳， 1996 ， P. 74)。數學應用題是數學課程內容的重要組成部分，它的編寫也無法脫離哲學理論基礎。以哲學理論為依據，首先應當考慮數學應用題的形式與其要揭示的內容的統一。前文所揭示的數學應用題在形式上機械、片面地從某一個角度或某一個方面去設置數量關係的做法則是忽視了形式在反映內容方面的作用，這勢必會影響到學生對應用題意欲揭示的某些數量關係及客觀規律的認識和理解。

2、 忽視應用題編寫中正向表述與負向表述的辯證統一。數學應用題的編寫以哲學為理論依據除了應當考慮形式與內容的統一之外，還應當考慮編寫形式中的正向表述與負向表述的辯證統一。在以往的數學應用題編寫中，有一種片面的思維方式，似乎人口越來越多，速度越來越快、產量越來越高、種植面積越來越大……就會對學生產生積極的正面的教育，所以"有增無減"的現象隨處可見。這種思維方式雖然從教材反映的思想性一個方面來看動機是積極的，但動機與效果並非完全統一。受客觀規律的制約，任何事物的發展都不會永遠是一往無前的。例如，受人口規律的制約，學生數量會有多有少；受生理規律的制約，讀書的速度會出現疲勞期；受自然規律的制約，產量會有增有減；受經濟規律的制約，種植面積應不斷調整……應用題中實事求是地反映客觀規律，有助於學生認識客觀規律，有助於幫助學生恰當地分析問題與解決問題。正向表述與負向表述並不是對學生進行思想教育的分界限，我們不應培養學生非此即彼的思維方式。有些知識在此時是正確的，在彼時可能是錯誤的；在此處是正確的，在彼處可能是錯誤的；效率高並不等於效益好。這種辯證的思維方式和實事求是的科學態度恰恰是數學學科對學生進行思想教育所應考慮的問題。

3、 忽視應用題的編寫在學生學習起因中的作用。認知主義心理學關心學生學習的過程 (Piaget，1970)，而人本主義心理學卻關心學生學習的起因，即學生的情感、信念和意圖在學習中的作用，認為課程應為學生提供一種促使他們自己去學習的情境。因此，數學應用題的編寫需要考慮學生的生活實際，需要考慮生活實際對學生思維、情感、行為形成的重要作用，這幾者之間是相互制約的。不符合實際的應用題不利乎學生正確理解前主與後退，正向與負向等相互矛盾著的事物的辯證統一性，無助於學生理智地去對待順境與逆境，成功與失敗的事實。而這種思維與情感的交融又恰恰是學生學習過程中不可缺少的起因，失去這些便難以實現課程目標。

數學教材改革的幾點思考

1、 數學教材的編寫應當進一步聯繫實際。數學教材聯繫實際的目的在於教給學生真實的知識和幫助學生學會運用知識於實際。數學教材要聯繫實際首先要聯繫生活實際。教材在編寫中應在考慮學生年齡特徵的基礎上，由淺入深，循序漸進，系統地向學生介紹數學知識在生活實際中的廣泛運用，使學生真切地感到數學知識不是枯燥的，抽象的，而是活靈活現的就在他們身邊的知識。其次要聯繫生產實際。教材要將生產實際中的客觀規律辯證地、真實地展示給學生，使學生了解數學知識在生產實際中的作用，並學會運用數學知識去解決基本生產實際問題。再次要聯係社會實際。社會是一個大系統，在這個大系統中存在著紛繁複雜的事物 (孫耀君，1987)，數學教材要有意識地適當反映社會不同側面的有關問題，使學生感到數學無處不在。最後要聯繫科學發展實際。科學技術的發展速度幾乎無法用語言描述，它為教材的改革提出了一最大的難題，即如何解決學制的長週期性與科學知識的裂變性之間的矛盾。當然，布魯納(Bruner) 曾經提出用教給學生最有用的知識結構的辦法來解決這一矛盾(Bruner，1961)。除此之外，我們是否可以認為改革教材的內容與形式，將與數學知識聯繫密切的科學研究成果真實、直觀地介紹給學生也是幫助學生關注科學發展，適應時代要求的重要途徑之一。

數學教材要聯繫實際可以具體化到應用題的編寫之中。例如，學習、生活和生產實際中文具的價格、衣物的價格、電器的價格、農產品的價格等都可以反映給學生；社會中經濟的增長與虧損、教育的投入與支出、人們對大自然的保護與傷害，現代科學發展中的新技術、新產品、新成果等也可以反映給學生。這樣編寫應用題有助於學生了解生活、了解社會、了解世界。

2、數學教材的改革應當考慮有利於學生對其他學科的學習。學生學習的知識是一個整體，各科知識是相互促進並相互制約的。在這個整體中數學知識既是基礎又是尖端。它的基礎性表現於不學好數學就無法學好與其相關的物理、化學等知識，它的尖端性表現於學習數學所形成的良好的思維方式將有助於學生攀登其他學科的高峰。數學知識的重要位置不能不提醒教育工作者在改革數學教材的過程中要考慮是否對學生學習其他學科有利。顯然，形式與內容的統一，數學知識與其他學科知識的統一，都是數學教材改革需要注意的，也是幫助學生學好知識的基礎。例如，為了幫助學生理解計劃的概念，在數學應用題的編寫中一方面可以分別編寫反映超額、等額及差額完成計劃的應用題；另一方面可以在同一應用題中通過變換不同的數量關係來反映超額、等額及差額完成計劃的不同情況。這兩類應用題的編寫方式可以下面四道應用題為例：

(1) 某地去年原計劃造林 12 公頃，實際造林 14 公頃。實際造林比原計劃多百分之幾？
(2) 某地去年原計劃造林 12 公頃，實際造林 10 公頃。實際造林比原計劃少百分之幾？
(3) 某地去年原計劃造林12公頃，實際造林等於計劃造林數。實際造林是原計劃的百分之幾？
(4) 某地去年原計劃造林 12 公頃，如果實際造林 10 公頃，比原計劃少百分之幾？如果實際造林14公頃，比原計劃多百分之幾？如果實際造林12公頃，是原計劃的百分之幾？

3、數學教材的改革應當滲透現代觀念，注意培養學生的思維。受社會發展變化規律和人們對規律的認識規律的制約，許多觀念在數學中的反映都會體現出由片面向全面，由錯誤向正確，由傳統向現代轉化的過程。傳統與現代並不是正確與錯誤的互分標誌，但卻能反映出社會的發展向人們提出的客觀要求，在要求中滲透著人們對客觀事物的認識。課程改革，不僅僅要在課程內容設置多少的數量上反映人們對客觀規律正確認識的新觀念，更應當在應用新觀念去設置課程內容、設置教材形式等方面反映人們對客觀規律正確認識的新觀念。例如，在路程、時間、速度關係式的教學中，應當多編寫一些現代科學技術、立體空間中的應用實例。如地球繞太陽的運轉、月球繞地球的運轉、人造衛星繞地球的運轉等都可以引入數學教材。這些實例不僅有助於學生對宇宙空間知識的了解，也有助於學生立體感的形式。又如，在農作物的種植上，市場需求的變化、農作物品種的改良等都可以作為影響農作物種植多少的變化因素來設置應用題的數量關係。如某農戶原計劃今年種植蘋果樹1200棵。根據最新預測，市場對蘋果的需求將有所減少。因此，農戶決定減少原計劃種植蘋果樹的 1/3 。農戶今年種植蘋果樹多少棵？實際種植蘋果樹是原計劃的百分之幾？這樣編寫應用題的目的在於使學生從實際出發，辯証地思考問題。它比一味地追求超額完成計劃更有價值。當然，這類應用題也可以反編，從而避免從一味地追求超額完成計劃的一個極端走向一味地追求差額完成計劃另一個極端。

結束語

小學數學教材改革是一項艱苦複雜的工作。傳統的教材尚有許多值得發揚的方面，但也存在某些不足。本文分析的幾種現象和提出的幾點建議僅提供參考。

註釋

注1　九年義務教育五年制小學教科書1996《數學》第九冊：23頁8題，36頁9題，102頁7題，122頁16題，166頁5題；九年義務教育五年制小學教科書《數學》第十冊：21頁4(2) 題，31頁例3，32頁4題，71頁5題，155頁例2(1)、(2)、(3)，155頁 "做一做"，157頁6(1)、(2) 題、7題，164頁1(1)、(2)、(3) 題，165頁例5，169頁7題。北京：人民教育出版社。

注2　九年義務教育五年制小學教科書1996《數學》第九冊：17頁12題，44頁11題，106頁9題，115頁1題，131頁10(1)、(2)、(3)、(4) 題，134頁4(1)、(2) 題，136頁5(1)、(2) 題，137頁7(1)、(2) 題，178頁28題，179頁34題；九年義務教育五年制小學教科書《數學》第十冊：71頁4題，159頁例3(1)、(2)、(3)，161頁3(1)、(2) 題，162頁7題，164頁5題。北京：人民教育出版社。

注3　九年義務教育五年制小學教科書1996《數學》第九冊：17頁12題；九年義務教育五年制小學教科書《數學》第十冊：71頁4題。北京：人民教育出版社。

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Toward a Vocabulary for Third-Wave Critical Thinking

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The goal of critical thinking is intellectual integrity - wholeness. Such wholeness derives from an explicit understanding of the human intellect. In this paper, I attempt to show the cognitive operationalism underlying critical thinking. That is, reflecting upon thinking critically: conscious, systematic thought rather than unexamined impulsive reaction. The concept of truth will be examined terms of human cognition; the concept of 'stage' theory so important to psychology and philosophy is defined and its implications followed out. How one ought to think is grounded in how we naturally, unavoidably already think and reason. Third wave critical thinking integrates common sense, explanatory and existential ways of knowing.

第三浪批判思維簡介

批判思維的目標是智慧的整全，這整全是由清楚明白人類智慧而得。本文作者嘗試表達識知過程如何在批判思維中運作，對思考過程作審慎的反省：在意識和系統思考方面而非未經考証的即時反應。通過人類的思維去認識真理的觀念，界定在心理學和哲學中頗為重要的進程理論及其所包含的意義；無可避免地，人怎麼樣思考很自然地是建基於其以往的思考和論証，第三浪批判思維將常識、解釋、和存在的經驗整合起來。

Introduction:

"The intellectual roots of critical thinking are as ancient as its etymology, traceable, ultimately, to the teaching practice and vision of Socrates 2500 years ago, who discovered by a method of probing questioning that people could not rationally justify their confident claims to knowledge. Confused meanings, inadequate evidence, or self-contradictory beliefs often lurked beneath smooth but largely empty rhetoric. ...Socrates set the agenda for the tradition of critical thinking, namely, to reflectively question common beliefs and explanations, carefully distinguishing those beliefs that are reasonable and logical from those which - however appealing they may be to our native egocentrism, however much they serve our vested interests, however comfortable or comforting they may be - lack adequate evidence or rational foundation to warrant our belief" (Paul, 1996).

The above quote gives us the aim and method for self-examination. First-wave critical thinking was dominated by philosophy and logic. The method was a formal or informal logic course emphasizing fallacy identification and deconstruction. But there was a contradiction between the concerns: good thinking, and ideals: broad and ambitious, and the narrow and limited practice. Second wave critical thinking moved from the first-wave question, "How should one design an isolated critical thinking course for college students?" to the second-wave question "How can critical thinking be integrated into instruction across all subjects and all grade levels" (Paul, 1996)? Second-wave critical thinking sought to include emotions, intuition, creativity and other affective modes of thought. Because there was not a clear understanding of cognitive process agreed upon, second-wave critical thinking stumbled about sporadically. Third-wave critical thinking seeks to integrate first-wave and second-wave critical thinking. According to Paul (1996), third-wave critical thinking has not progressed. It is the purpose of this essay to

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provide an understanding of human cognition and a vocabulary for moving ahead with the process of making whole the previous efforts at teaching students to become their own teachers - good, questioning thinkers, slow to judge, establishing and organizing their beliefs carefully.

First-wave critical thinking was grounded in analytic philosophy, or logical empiricism[1]. Second-wave critical thinking was grounded in cognitive and affective psychology. Neither was found to be adequate to the task. I will try to show why these popular methods were inadequate, and share what I believe is an adequate and verifiable understanding. Let us examine the limitations of empirical psychology and the profession.

Scientific rational method: limitations

Psychology separated itself from its parent discipline, philosophy, during the latter part of the last century, in order to legitimate itself as a profession in its own right. This was a period when the Enlightenment project was still a matter of intellectual fascination, and every field of inquiry wanted to get in on the benefits (political and social status, large fees, etc.) of scientific method. Seven elements which legitimate a profession became fully visible circa 1900, 1) a professional association; 2) a cognitive scientific base; 3) institutionalized training (usually within higher education); 4) licensing; 5) work autonomy; 6) colleague control; and 7) a code of ethics (Adams & Balfour, 1998). The cognitive scientific base for the social sciences meant scientific method applied to the study of the behavior of people - statistical analysis of empirical data. Throughout the 20th century, professionalism has followed this pattern; even philosophy, of which the analytic strand noted above has trivialized epistemology to commentaries on the history of science. Statistics applied to human behavior takes one of two tracks: first, the comparison of organized data to the probability of the chance event. Second is the comparison of organized data from one group to the data from another group. In both cases, the claim to validity is the comparison of a person/group to a hypothetical 'average', or composite as determined by the latest study, or a set of studies. It should be emphasized that statistics catalogues only events, never processes.

This mode of regard for the human person has prevailed in the social sciences for nearly a century, and has now become 'normal'. Indeed, no professionals dare make any claim to truth or reality without an empirical study and the concomitant statistics. Conversely, the report of the statistics is presented as if there were no credibility to any other mode of knowing, and no further questions will be entertained. The media is rife with such reports. So great is professional pressure to couch their claims in empirically derived statistical terms that hardly any other method of inquiry is used. We need a paradigm shift from statistical hypothesis testing to critical thinking as meaningful human self-understanding and support. Statistically testing our 'best guess' is flawed. One's best guess means to identify some fact, note that it seems to occur repetitively, pose a hypothetical question and conduct a survey to ascertain whether the probability of recurrence of the event is better than chance. All factual observation occurs from some point of view, and description of a fact is notorious for variety among observers. So a fact may be described from another point of view that would change the hypothesis, and therefore radically change the outcome of the study.

The data of sense...

Analytic philosophy is about identifying the logical constructs in claims to knowledge, beliefs about what is true, and seeks to identify logical fallacies and deconstruct beliefs that are logically flawed. Neither hypothesis testing, the concomitant hypothetical results of statistics, nor logical deconstruction satisfy the ideals of critical thinking. Though both are examples of thinking, critical thinking means more. Psychology and analytic philosophy are connected to factual, material, observable things; but thinking is an existential, inward process - not an empirical facticity - and thus requires a like unifying theory. The problem is centered in that statistics cannot address process of change - rather centered in sense data.

1 The phrase, 'heuristic method' refers to the way we know ourselves and the world around us. We can have a common-sense, religious, scientific, skilled trade or any of many other heuristic methods. To so describe ourselves is to define who we are by some method - our heuristic method.

Third-wave critical thinking, as an integrated, comprehensive theory of thinking and critical thinking must, it seems, step beyond empirical method to deeper levels of self-understanding. Only then can we help others to discover themselves. "The third wave of critical thinking ... needs a clear set of intellectual standards ... an integrated set of dispositions. It needs a comprehensive concept of logic which accommodates the role of emotion, intuition, imagination and values in thinking. It needs to make clear the leading role of thinking in the shaping of human feelings and behavior. It needs to provide a framework into which can be set integrated theories of teaching and learning in the widest variety of human contexts. It must provide both for the universal elements in reasoning and those which are domain and context-specific" (Paul, 1996). I read this as a call to a deeper and more universal vocabulary.

Professional legitimation as noted above, restricts the cognitive base to a specific kind of data: the data of sense. There is, however, another kind of data: the data of consciousness (Lonergan, 1977). The data of consciousness is no less real than the data of sense, but as it does not lend itself to thc statistical study, it has only the dimmest professional awareness and nearly no credibility. This sad state of affairs is the legacy of the Enlightenment project[2], and has been a point of contention between disciplines since the Enlightenment. I think this is the central challenge for third-wave critical thinking. Life meaning is not of the data of sense, but rather of the data of consciousness. Examining the problems of social science more deeply helps explain why first and second wave critical thinking were inadequate.

Fr. Bernard Lonergan notes four biases prevalent in the social sciences that seem apropos to our purpose. Professionals, both as researchers and practitioners, might examine themselves and their profession for these, and do what is needed to minimize them.

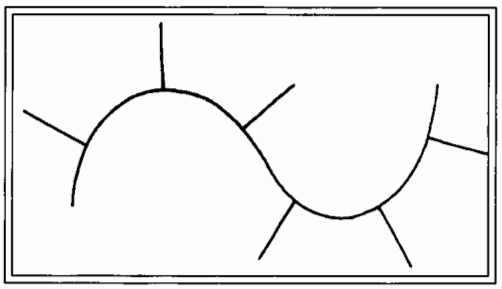
"1) The latent bias of unconscious motivation,

2) the conspicuous bias of individual egoism that endeavors to circumvent public purpose for private gain,

3) the shared delusions of group bias which considers its self-interest a contribution to the well-being of mankind, and

4) the general bias of all persons of common sense, for common sense includes the common nonsense of its omnicompetence and so it insists on palpable short-term benefits at the cost of long-term evils." (Lonergan, 1977)

Research in the social sciences has an overwhelming bias toward the scientific paradigm due to the seven points of self-interested professional legitimation noted before. Thus, Lonergan's third bias arises: professional egocentricity. The data of consciousness is *categorically* ignored, therefore reference to the data of consciousness is quickly discredited. The act of discrediting is the effect of scientific egoism which defines its own standard of success (Hamblet, 1999). It is all too easy to forget or attenuate the maxim, correlation does *not* necessarily imply causation (Ferguson, 1989, p.133). A restatement of this maxim is that the data of sense does not necessarily imply the data of consciousness. Herein lies the difficulty and trap inherent in analyzing the data of sense to make statements about thought processes, life meaning and intention - data of consciousness. Perhaps this failure to distinguish categories of data contributes to the pervasive misunderstanding of what constitutes genuine critical thinking.



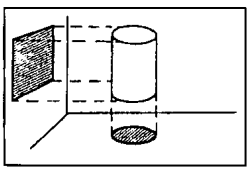
The scientific paradigm certainly has its place in our self-understanding, but it is quite limited, and these limitations need to be made explicit. First, there is the illusion of certainty attaching to statistical studies. This assumption ignores an ancient Latin proverb, *Quidquid recipitur, recipitur in modus est* - whatever is received, is received in the mode of the receiver. Subjective components are always present - knowledge is not objective, but resides within the human intellect (Polanyi, 1962). There are three ways a study can be distorted: 1) the researcher mis-interprets the data; 2) the

2 Michael Polanyi, Beyond Nihilism in "Knowing and Being", Marjorie Grene, ed. (Chicago: University of Chicago Press, 1969), pages 14, 16ff. See also Guy B. Adams & Danny L. Balfour Unmasking Administrative Evil (Thousand Oaks, California: Sage, 1998), page xxi; Augustine Enchiridion (Washington, D.C.: Regnery, 1996) page 14, and the New English Bible (New York: Oxford, 1971), Isaiah 5:20, page 815.

data itself is flawed; and 3) the wrong question was hypothesized in the beginning.

Second, the study can only examine behavior as a fact. Behavior is the outcome of several *a priori processes* and states. It is the end link of a chain of events originating in the consciousness, yet also includes circumstance via experience. Behavior ensues when data of sense is processed according to the individual's criteria of judgment, in terms of some present intention organized by a more general way of being-in-the-world, and finally the subject of a choice. There is just too much in this process that is empirically unavailable, and so leaves consciousness out of the question for mere behavioral analysis.

Dr. Frankl must have been acutely aware of these difficulties when he formulated the first Law of Dimensional Ontology. For that is exactly what it means to emphasize the data of sense to the exclusion of the data of consciousness.



We analyze the circle (data of sense) and ignore the rectangle (data of consciousness), both of which are valid projections of the composite cylinder (the whole person) (Frankl, 1988).

The locus of meaning...

Research into the category of life meaning[3] would seem to have a special character. Such research would not follow the usual statistical study. We might even suggest that the usual logic of science - that is, a system of inquiry based upon the Principle of the Excluded Middle[4] (Copi, 1986) - would not be appropriate for this research. Reflect upon the following structure of the human mind, and consider fuzzy logic (Kosko, 1993) as a richer pattern of operative organization.

Three levels of the mind have been explicated (Otto, 1958): **the instinctive, the rational cognitive, and the non-rational**. The instinctive level includes feelings and urges of two types: those that seek to annihilate themselves: hunger or thirst, and states and trends which we experience as waxing and waning in degrees over time: joy or depression. (Lonergan, 1979). The rational is our normal mode of consciousness - logical, scientific, linguistic - the territory of conceptual process; but even here, the concept must always be open to correction by the particular (James, 1904). The non-rational is where Otto locates aesthetic appreciation, love, and spiritual awe; and these elements have no conceptual content. Life meaning: the actualization of that which we value, would seem to be in the non-rational mode as well. Scientific inquiry certainly belongs to the rational, cognitive mode. But the rational and the non-rational communicate via analogy and metaphor - indirect forms of communication. Now we can work with the reason why correlation does not imply causation and other problems ensuing from an attempt to address the non-rational with the tools of the rational. Let us examine our rational cognitive structure more closely and bring these ideas into focus.

Facts, as elements of reality, are the results of mechanical causal nexus. Value is a judgment by the conceptually intelligent person, not a property of the fact per se. Factual existence does not constitute a judgment of value. The link between fact and value is intelligence (self). It is our set of values that determine what we find meaningful in our lives, and these values are part of our ethical structure: the set of principles out of which come our choices and decisions. An organism is morally sensitive to the extent that it is conceptually intelligent. The commonness of intelligence warrants closer examination.

Human cognitive structure: an example of the data of consciousness

Human cognitive structure is empowered by two fundamental drives: the universal desire to know (expressed as questions) and the innate **demand for sufficient reason**. The human desire to know expresses itself in questioning; the demand for sufficient reason in judgment. The demand for sufficient reason allows distinction of the mythological from the factual; separates dream from reality, description from understanding. Turning these basic drives toward the human mind links experience: the confrontation of the intellect with reality, to meaning. Understanding is constituted by

3 "No statement can be both true and false".

4 The works of M. Scott Peck, especially the Road books, elucidate this point in many different contexts. Indeed, in The Road Less Travelled and Beyond, he explicitly identifies critical thinking with spiritual growth.

accumulated answers to relevant questions about experience. When all the relevant questions we can raise are answered, judgment ensues about the integrity of our understanding. An affirmative judgment suggests that our understanding accounts for the experience, has good explanatory power, and so we are confident in our grasp of the experience. Curiosity is the driving force, and the process of reason channels the intellect through the stages of experience, understanding, judgment and reflection.

The answer to the question, "What is the structure of my basic human knowing?" is experience, understanding, judgment and reflection. Further, it is a pattern which repeats itself in four contexts, layered according to the kinds of questions raised as we experience reality. At the egocentric level is an attentive, descriptive, or 'common sense' understanding of reality **as related to oneself**. The common-sense insight is of sensible qualities conducive to description. But this is ultimately unsatisfying, since the world is not **causally** grasped by mere description. Descriptive cognition is about the relation of the things of the world to me: an answer to the 'what?' question. This is the impulsive, uncritical, impressional category of appearance. To remain at this level yields easily manipulated people without the intellectual competence to discriminate manipulating words from real communication; separate mythology from reality. It is the level of political rhetoric, commercial advertising slogans and media drivel.

Common-sense description leads to questions of correlation, causation, frequency and development. We need to identify why appearance is mostly not reality. At the explanatory level (an answer to 'why/how' questions) we are no longer posing questions about reality as related to us, but rather about things of the world as related to each other. Removing the knowing subject yields objective knowledge: the method of science. Scientific insight is four sided: 1) classical: why is it as described; 2) statistical: how often does it occur; 3) genetic: why does it develop; and 4) dialectical: how does it develop (Lonergan, 1992, p. 509). 'It' refers to the common-sense description. That is, the *terminus ad quem* of our common-sense mode of inquiry becomes the *terminus* a quo of the explanatory, or scientific mode. Notice that we are still in the process of analyzing experience, but the object of experience, that is, the common sense description, becomes increasingly more critically specified. Note that the statistical category of the social sciences criticized above is only one of four aspects of explanatory inquiry.

Pause here for a moment and reflect. You have just confronted a theory of your human cognitive structure. As you are drawn to **understand** the **experience**, note that the cognitive structure as described is already operating. The accuracy of the description of your cognitive structure is self-evidently true in a strong sense. A judgment that this description of your cognitive structure is false would be self-contradictory, since the very content of that judgment would be denied. So this cognitive structure: experience, understanding, judgment and reflection, is not open to revision and so is normative to all horizons of meaning. The literature on critical thinking distinguishes between thinking and critical thinking. Lonergan's description of our cognitive structure shows us why the distinction is needed. Mere fact processing - the didactic educational method now in place - is of the common-sense level. First wave critical thinking recognizes this, and attends to the logic of common sense. Second wave critical thinking moves to the explanatory level - seeks to answer the four categories of questions applied to the fact of human thought. Failing to formulate more refined questions leaves us with a common-sense description followed by a statistical probability of factual recurrence. This is a tragically anemic heuristic method[5]. All ethical and moral discomforts are disallowed; moral inversion[6] (evil) and good are equally valid (Polanyi, 1969). Does this not describe our present society?

We turn now to the existential stages of consciousness. It is at these levels that the self returns to examine the intellectual explanatory understanding - the formulations of science. The meaningful judgment here is about value: about the state of human affairs possible from the application of our scientific knowledge. Now we can see the need for a

5 The phrase, 'heuristic method' refers to the way we know ourselves and the world around us. We can have a common-sense, religious, scientific, skilled trade or any of many other heuristic methods. To so describe ourselves is to define who we are by some method - our heuristic method.

6 Michael Polanyi, *Beyond Nihilism* in "Knowing and Being", Marjorie Grene, ed. (Chicago: University of Chicago Press, 1969), pages 14, 16ff. See also Guy B. Adams & Danny L. Balfour *Unmasking Administrative Evil* (Thousand Oaks, California: Sage, 1998), page xxi; *Augustine Enchiridion* (Washington, D.C.: Regnery, 1996) page 14, and the *New English Bible* (New York: Oxford, 1971), Isaiah 5:20, page 815.

critically developed ethical being - the crucial importance of virtuous character. Personal integrity becomes a pivotal factor in this cognitive operation. Since scientific knowledge attaches to coercive power, the question is whether such knowledge will be used for good or evil. This inner struggle was acutely felt by some of the participants in the Manhattan Project (the development and construction of the first Atomic bomb, and later the hydrogen bomb).

The last level of our structure is the deeply spiritual. It is here that personal integrity, common good and Being itself merge and fuse. Wisdom, empathy and compassion are the hallmarks of this pattern of knowing. Self-interest is quite minimal, and universal awareness and acceptance of others is paramount. People of religions of grace become permeated with the love of God. For those of religions of enlightenment, the wisdom and compassion of realized Sunyata becomes infinite love and empathy with all being. Now, to form a judgment before we have answered all relevant questions is the essential definition of bias. To refuse, or be unable to understand is the definition of stupidity. The absence of the demand for sufficient reason is silliness (Lonergan, 1979, p. 18). Since no one can raise all relevant questions, we must admit to a certain degree of incompleteness of our knowledge and wisdom, even in the most rigorous process of understanding.

There are three worlds: 1) physical; material natural; 2) biological; and 3) human historical - intelligible. There is no evil or problem of evil in the material - physical or biological worlds. Because value is a property of the conscious, self-aware intelligence includes self-discovery as part of its development. Only when we recognize the human intelligible world does the distinction of 'is' and 'ought-to-be' arise (Nishida, 1987; Snell, 1982). The power of intelligence implies its own discovery, which presupposes its prior operation. The metaphorical allusion of the word intellect as both an affective and effective object of thought, is a necessary grammatical device, permitting 'discover' to be predicated of 'mind', and 'mind' predicated of 'discover' when it is equally true that it is the mind that discovers (Snell, 1982, Intro.). In the special case of the human intellect, it is at once both subject and object. Thus, we cannot avoid the metaphor as the linguistic device connecting ideas which turn upon themselves, allowing us to say 'The human mind discovers the human mind'. That is, the operation of intelligence and its self-discovery are dependently co-arising. There is no provision in western thought for a causal relation, an order of dependency, independent of the principle of succession (linear time). Dependent co-origination is easily accommodated in eastern thought (Nagarjuna, 2nd century, CE). I suspect that this order of dependency will become more important as third-wave critical thinking reexamines the elements of reasoning and intellectual standards to find that they dependently co-arise when the insights of first and second wave critical thinking are integrated.

Logic, to the western mind, usually means a system of deduction grounded in the Principle of the Excluded Middle and the Principle of Contradiction[7] (Copi, 1986). Logic is defined as the laws of thought. Certain categories of logic, however, tend to soften the edges of these principles. Modal logic, logic of terms, informal logic and now fuzzy logic (Kosko, 1993) come to mind. Eastern thought extends these to paradoxical logic - the legitimacy of both-and, as well as either-or. The point is that to regard logic as **laws** of thought may be too strong. We are better served, I believe, to redefine logic as an *ordered pattern of consciousness.* It may turn out to be the case that third-wave critical thinking will depend upon such refinement of definitions, but great care is necessary, and we must always articulate our tentative definitions with rational integrity and intellectual humility. Intention is a critical element of conceptual awareness. Western causation, whether in terms of Aristotle's final, agent, formal and material or Descartes's necessary and sufficient, refers to natural process. That is, these elements of the coming-to-be of things do not depend upon human awareness or decision. Natural processes follow their own course in linear time. As science discovers the natural processes and their operation, we say that we can predict, with high probability, that certain things will happen due to causal chains which we have identified. But when we say there is a reason for some event or condition, we implicitly introduce human intentionality. As Frankl illustrates the point: when he sheds tears over cutting an onion, there is a cause for his tears; but when he grieves the death of a loved one, there is a reason for his tears (Frankl, 1986, p.295).

7 "No statement can be both true *and false*".

Of all the ways that we seek to confirm our conceptual positions, mere agreement is the weakest and most elusive. Agreement is not transportable to other persons, contexts or occasions: agreement has no extendable character. But in some philosophical traditions, agreement has replaced the word 'true'. With these traditions, there is merely a 'view to be argued'. Although there are many inferences of the word 'true', we will confine ourselves to two closely related meanings. Truth is predicated of a proposition in two senses: in a weak sense, we mean that we cannot think of the conclusion any other way, or have not seen the phenomena result from any other process (scientific law). Self-evident truth in a strong sense means that to think in any other way is self-contradictory. Scientific knowledge appeals to the weak sense because of reductionist uncertainties, so must always be open to revision. Scientific method (reduction) always leaves an unsystematic component requiring further research. Failure to distinguish between these two kinds of efficacy results in placing demands upon science which it cannot fulfill.

Horizontal freedom (will directing attention) clarifies the horizon of meaning in which we are now present to ourselves. Curiosity drives the analysis of experience which yields understanding when all of our relevant questions are answered. But when reflection upon understanding reveals contradictory or irreparable deficiencies (cognitive dissonance) in our present horizon, then we may exercise vertical freedom (Lonergan, 1979). Engaging vertical freedom is to move through intellectual, moral or spiritual conversion: the paradigm shift (Kuhn, 1970). Conversion inevitably requires a new criteria of rationality (paradigm) suitable to the novel experience. Assertions which we call 'true' in the weak sense reflect the application of our standards of rationality (which inform our present horizon) to examined and understood experience. Assertions of such truth will change as our horizons change. While our cognitive structure may be trans-conversionally normative, our criteria of rational judgment will surcly be extended or subsumed. Conversion is sometimes a subsumptive judgment, sometimes an inherence judgment (Abe, 1988). We cannot change facts, but we can certainly endow them with revised meaning.

I have used the human cognitive structure to illustrate the data of consciousness, and tried to show that it is vastly more important than sense data. The pattern of consciousness comprising an educational experience is bringing the student to cognitive dissonance, introducing a novel standard of judgment, then supporting the student through the process of conversion. Indeed, this is the history of Critical Thinking. Teachers and professors must be shown that they are not requiring good thinking and adequately assessing students' thinking in terms of good standards (cognitive dissonance - sometimes taken as threatening). Then comes the introduction of specifically articulated methods and standards, and if there is sufficient integrity and curiosity, intellectual conversion takes place.

Jean Piaget defines a 'stage' as a cognitive reorganization (Druska & Whelan, 1975). This is just what occurs in all of us as we learn - cognitive dissonance caused by the inadequacy of our present criteria of judgment, followed by acquiring a fresh criteria of judgment that accommodates our new experience. This is the process and conversion I hoped to engender by this essay. For Critical Thinking to advance, we will have to move beyond the common-sense and explanatory (scientific) levels of cognitive operation. My intention here was to share insights and readings that foster such an advance. None of the ideas in this essay can be claimed as original, but some may be said to have been forgotten or ignored. I have tried to offer a vocabulary which will integrate critical thinking as rational operation, spirituality, intuition, meaning and value. Integrating the data of sense and the data of consciousness is the human pattern of consciousness employed all our lives; we must regain the intellectual honesty to do so with our science and teaching one another. What is divided in the order of knowing is unified in the order of being. We can research metaphorical expressions, indirect communication, analogical relations and our human way of being beyond the limitations of science. I hope this essay presented opening suggestions, and I certainly hope that others will take up the quest. We must help one another, and infuse our educational systems with refreshed spiritual and intellectual depth, and finally come to see that these also are dependently co-arising[8].

Conclusion...

The ancient Hebrews denounced a puzzling (to the modern mind) practice of "idol worship". For this, they were

8 The works of M. Scott Peck, especially the Road books, elucidate this point in many different contexts. Indeed, in *The Road Less Travelled and Beyond*, he explicitly identifies critical thinking with spiritual growth.

corrected and punished in a variety of ways. In a theocracy, it is the state/tribal god who does the punishing and correcting. But the 'sin' is very real. Sin is that which is humanly destructive. "An idol is anything or anyone that claims, explicitly or implicitly, to be above question" (Williamson, 1999, p.4). Science is our modern idol; and I have tried to show in several ways that science is quite limited in its description of humans, and teaching is presently grounded in an exclusively scientific paradigm that is failing us. I have tried to show why obsession with the physical-material aspect of human being explains the disintegration of our societies and dehumanization of our educational institutions. In the US, we are now reaping the fruit of a value-free, morally neutral public school system; the second generation that thinks armed police roaming the schools is normal; a commercial pseudo-society grounded in irrational fear. Our childrens' intellectual development is organized by a self-interested commercial media racing to legitimate moral inversion and graphically portray the lowest forms of human depravity. And the public is largely ignorant of these intentions and forces shaping their lives because they are not taught to critically think or allowed to develop in a loving environment. They still appeal to the coercive powers that inflict this upon them for the solutions to the problems those powers created - the legacy of activated ignorance!

Third wave critical thinking, as integrating first and second wave concepts, must move to the existential levels of our cognitive structure. Indeed, to formulate the need for third wave critical thinking is to have already assessed, at least to some degree, the value (third cognitive level - questions of value) of first and second wave critical thinking. The sketch of our human cognitive structure explicates how human learning takes place - evolving through categories and stages of understanding. Making the discovery of human thought (cognitive structure) explicit, having a valid definition of the learning (conversion) process, and given tests for critical questioning (four biases) ground a vocabulary for third wave critical thinking. Again, my intent here is to suggest a way of contemplating ourselves as developing spiritual beings on a human journey. Didactic teaching is to answer, factually, unasked questions, hence seems meaningless and irrelevant. Further study, development and examined practice will be needed to give our students real competence to become their own life-long teachers.

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學習輔導的研究與實踐

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本文從分析目前中小學生的學習適應性水平和特點以及主要存在的問題入手，探討中小學校開展學習輔導的目的意義、主要內容、途徑和方法，並且總結出近年開展學習輔導實驗研究的效果與體會。

Research and Application of Learning Guidance

This article investigates the characteristics and level of learning adaptability of primary and secondary school students. It explores the aim, content, ways and methods of learning guidance in primary and secondary schools. Experimental results and experience in learning guidance are also summarized.

一・開展學習輔導的目的和意義

學習是學生的主要任務和主導活動，學生的身心發展主要是通過學習來實現，因此學習輔導應是學校輔導工作的重要內容之一，其目的是幫助學生開發自身的學習潛能，解決學生在學習過程中出現的心理上的困惑，以優化學習心理，提高學習效果(吳增強,1998）。

我們曾對廣州市某小學 161 名三至六年級學生和某中學 305 名初一至高三年級學生進行過學習適應性測驗（學習適應性是指克服種種困難取得較好學習效果的一種傾向，也可以說是一種學習適應能力、學習適應性測驗量表由華東師範大學心理學系編制，具有全國常模），結果發現目前中小學生的學習適應性水平不高，具體表現在：

1・在學習適應性總體水平上，中小學生的平均等級均達到中等，即學習適應性發展水平一般、從表一可見，有 73.29％ 的小學生和78.36％ 的中學生達到了中等或中上或優等水平，但有 26.71％ 的小學生和21.64％ 的中學生僅處於中下或差等水平，也就是處於學習適應不良甚至適應困難的狀態，須對他們加強學習輔導，幫助他們逐步提高學習適應能力，以適應學習生活。

表一　中小學生學習適應性等級分布情況

學習適應性等級	小學生（n =161）		中學生（n =305）	
	人數	百分比(%)	人數	百分比（%）
5・優等	3	1.86	14	4.59
4・中上	47	29.19	85	27.87
3・中等	68	42.24	140	45.90
2・中下	36	22.36	57	18.69
1・差等	7	4.35	9	2.95
平均等級		3.02		3.12

2・在學習適應性各因素（即學習態度、學習方法、學習環境和身心健康）發展水平上，都有 20-30％ 的中小學生僅處於中下或差等水平，即存在一些學習適應性問題（見表二）、因此，對這部分學生也須加強學習輔導，以改變其學習適應不良狀況。

表二　中小學生中主要存在的學習適應性問題

學習适應性問題	小學生	中學生
	（n =161）	（n =305）
1. 學習態度不夠端正，學習熱情不高漲，學習動機不足	22.98％	27.54％
2. 未掌握正確的學習方法技術和發成良好的學習習慣	20.50％	20％
3. 家庭或學校學習環境不良，難以適應	24.22％	21.64％
4. 身心健康水平低下，存在程度不同的身體健康和心理健康問題	21.74％	23.61％
5. 獨立性差、意志（自制性、堅持性）薄弱	30.43％	25.41％

3．學生的平均智力水平明顯高於學習適應性水平和學習成績水平、如表三顯示，161 名小學生的平均智力水平達到等級 3.85 ，但學習適應性水平只達到等級 3.02 ，學習成績水平也只達到等級 3.40 、另外調查還發現，在 161 名小學生中，有 34 名學生（占 21.12 %）的學習成績處於中下或差等水平，但他們的平均智力水平並不低，其中 23 人達到中等， 9 人達到中上或優等，只有 2 人屬中下。不過，他們的平均學習適應性總體水平較低，其中屬中下或差等的有 19 人，中等的有 12 人，中上的僅有 3 人、這表明目前中小學生普遍存在著智力水平較高而學習適應性水平不高的傾向，以致不少學生未能充分發揮學習潛力，無法取得與智力相應的學業成就水平，有些甚至出現學習困難、學業不良的現象。

表三 161名小學生的智力、學習適應性及學習成績情況

等　級	優等或中上		中　等		中下或差等	
	人數	百分比（%）	人數	百分比（%）	人數	百分比（%）
智力92	57.14	64	39.75	5	3.11	3.85
學習適應性50	31.06	68	42.24	43	26.71	3.02
學習成績78	48.45	49	30.43	34	21.12	3.40

從目前中小學生的學習心理現狀，我們可以看到學習輔導的重要性、必要性和緊迫性、廣大中小學校應重視和加強對學生進行學習輔導，幫助學生樂學、會學、優學，促使學生形成良好的學習行為，克服不良的學習行為，使學生的學習更為有效、讓學生樂於學習、學會學習，既是培養二十一世紀人才的需要，也是學生素質發展的迫切需要，是素質教育的重要內容、教育和引導學生「學會學習」，不僅有助於學生素質的全面發展，而且更有助於學校教育教學質量的全面提高。

二．學習輔導的主要內容

我們知道，影響學生學習、導致學生學習成就差異的原因是多方面的，主要因素有學習態度、學習方法、學習環境、學習能力、考試心理等，也就是既有智力因素，又有非智力因素，還有環境因素、根據影響學生學習的因素和學習輔導的目標，學校在開展學習輔導工作時，應注意圍繞以下幾個方面的內容：

1. 學習態度輔導

這個輔導是解決學習動力和情感問題，即願不願學、為什麼要學習、為誰而學習、學習是苦還是樂等問題。這些問題解決得好就能變「要我學」為「我要學」，變苦學、厭學、恐學、不願學為樂學、愛學、想學、願學。學習態度輔導主要有端正學習態度、增強學習動機、激發學習興趣、培養學習情緒、磨煉學習毅力等方面的內容、如開展「我喜歡上課」、「學習是苦還是樂」、「成功之路」、「我的理想」等輔導活動，可端正學生們的學習態度。

2. 學習方法輔導

這個輔導是解決學習行為問題，即解決會不會學、怎樣學習、如何提高學習效率等問題，從而使學生會學、善學、活學。學習方法輔導主要有掌握科學有效的學習方法、技術、策略，養成良好的學習習慣，矯正不良的學習習慣等方面的內容。如開展「我有一個小竅門」、「5個學習上怎麼辦」、「學習醫生」、「學習格言集錦」等輔導活動，有助於幫助學生掌握學習方法。

3. 學習環境輔導

這個輔導是解決學習環境(包括學校、家庭、社會）是否利於學習的問題，以幫助學生適應及改善學習環境、學習環境有物質環境與心理環境之分，物質環境主要是指學習的物質條件，如桌椅、照明、溫度、通風、噪音等，心理環境主要是指人際關系的和諧，學生的人際關系主要是師生關系、同學或朋友關系、親子關系，此外，校風班風、課堂學習氣氛、家庭氣氛、社會風氣等也屬心理環境。學習環境輔導主要有創設良好的心理環境氛圍、建立和諧的人際關系、培養學生適應及改善學習環境的能力等方面的內容。如開展「我創造的小天地」、「歡樂的留影」、「我心目中的父母」、「師生情感交流」等輔導活動，可幫助學生改善學習環境。

4. 學習能力輔導

這個輔導是解決學習智慧的問題，即能不能學的問題，是學習輔導的核心和歸宿。學生的各種學習能力（包括一般能力和特殊能力)尚處於發展階段，具有較強的可塑性，完全可以通過開發、培養、訓練加以提高。學習能力輔導一方面促進學生的學習能力特別是智力的發展，另一方面也有助於提高他們的學習成績、如開展「注意力訓練」、「觀察力訓練」、「記憶力訓練」、「思維能力訓練」、「想象力訓練」等輔導活動，可提高學生的學習能力水平。

5. 考試心理輔導

這個輔導是解決會不會考試的問題。學生既要會學習，也要會考試；既要學習好，也要考試好。考試心理輔導主要有樹立正確的考試觀念、掌握考試策略、減輕考試焦慮、做好應考期的身心保健與自我調適等方面的內容、如開展「快樂體育」、「優點轟炸」、「在困難面前」、「全班之最」等輔導活動，有利於促進學生的身心健康，培養學生良好的考試心理。

三・學習輔導的途徑和方法

學校開展學習輔導，可採取如下多種行之有效的途徑和方法：

（一）實施團體輔導

團體輔導是指以班級為單位，面向全體學生，主要開展預防性、發展性輔導（游黎麗玲,1990）。根據目前較多學生在學習態度、學習方法、學習環境、身心健康等方面存在一些不適應問題，因此，我們應注意圍繞這些方面，透過開展一系列生動活潑、寓教於樂的團體輔導活動，使學生不知不覺地從中受到啟發，從而進一步改善學習適應性，提高學習效果。

如圍繞學習方法這個主題開展「我有一個小竅門」的活動，讓學生分組介紹自己在學習上的小竅門，有的介紹新課前怎樣提前預習，有的介紹做計算卡片、英語單詞卡，還有的介紹自己怎樣進行課外閱讀積集好詞好句等。這樣，在團體互動的情境中讓參加的學生通過和同學之間的交流分享，進行榜樣化的學習，就能協助學生養成良好的學習習慣，掌握科學有效的學習方法，適應學習生活。學生們一致反映，開展這些團體輔導活動，十分生動有趣，大家沒有什麼壓力，可以想什麼就說什麼，既輕松又能知道別人的看法，學習到別人的經驗、心得，因此都很喜歡參加。

為了保証取得良好的輔導效果，團體輔導應根據團體發展階段設計成系列性的單元活動，每一單元活動應有明確的單元名稱、單元目標和活動內容。輔導教師可在每個階段（如每周或每月）圍繞一個主題（如學習態度、學習方法、學習環境、學習能力、身心健康以及考試心理等），按照團體輔導活動方案，組織全班學生開展一次預防性、發展性的團體輔導活動、團體輔導可採用下列多種方法和形式：

1） 講授式，如講學、講座等；
2） 討論式，如專題討論、辯論、經驗交流、座談等；
3） 活動式，如游戲、競賽、小品表演、自我測評、角色扮演、講故事、繪畫、聯想等；
4） 訓練式，如學習能力訓練、心理穩定訓練等；
5） 實踐式，如參觀、訪問、調查、採訪等。實施活動式團體輔導時，可按照熱身活動、創設情境、活動體驗、共同分享、歸納總結這樣的程序來進行（江耀強，1997）。

（二）開展個別輔導

個別輔導是指針對個別學習有困難的學生，主要實施矯治性、補救性輔導。學生的心理既有共性又有個性，我們的工作不能只停留在團體輔導上，我們在開展團體輔導的同時，還必須針對學生的心理發展與個別差異開展個別輔導，特別要加強對學習困難學生的個別輔導、團體輔導與個別輔導必須有機結合，不能因為團體輔導節省人力和時間而用團體輔導形式取代個別輔導（吳武典,1980）。

由於造成學生學業不良的原因主要是身體原因、心理原因、學力原因，尤其是心理原因，如學習動機不足、缺乏學習熱情、對學科缺乏興趣、獨立性未發展、有情緒障礙、良好學習習慣未養成、精力沒用在正道上等。因此，我們必須改變以往只對學習困難學生進行單一的文化知識上的補缺補漏的做法，要重視和加強對學習困難學生進行個別的、心理和行為方面的有效輔導，幫助他們學會如何學習，及時表揚獎勵他們的點滴進步，為他們創造出成功的機會，增強他們學習的信心。只有全面提高學生的學習適應性，充分調動學生的主體作用，激發起學生的非智力因素，才能有效放變其學習適應的不良情況，使學生的智力水平得到最大限度的發揮，真正收到較理想的、標本兼治的輔導效果。

在開展個別輔導前，首先要利用各種方法（如觀察法、心理測量法、訪談法、問卷法、自述法等）收集資料，全面深入具體反系統地對個別輔導對象的學習適應性、智力、身體狀況、學習能力水平等作出正確的分析和診斷，設立學習輔導個案記錄，然後要針對學生的實際情況和特點，制定相應的個別輔導方案、計划，採取一系列有效的輔導策略，遵循針對性原則、共同進步原則、師愛原則、成功原則等輔導原則，進行矯治性的、補救性的個別輔導，以提高這些學生的學習適應性和學習效果，輔導結束後還應寫個案輔導報告。只有因勢利導，並進行跟進鞏固以及爭取家長的積极配合，才能較好地幫助學生在學習上作出良好的適應，進一步提高學習效果、同質個案可組成輔導小組，進行團體輔導與個別輔導相結合（李坤崇,1998）。

（三）進行學科滲透

學科滲透是指結合學科教學，發掘學習輔導因素，進行有機滲透。由於學校育人的主要途徑是學科教學，課堂教學是學校最主要的教學形式，因此，教師在學科課堂教學過程中，除了要向學生傳授知識、發展學生智力外，還應根據各學科的教學特點，充分挖掘教材中丰富的能進行學習輔導的有利因素和結合點，适時、适度、有針對性地滲透學習心理輔導的內容，以加強學生學習態度的培養、學習方法技術的指導和學習習慣的養成，促使學生學會學習，提高學習效果。如在語文課堂教學過程中，向學生推荐優秀的有針對性的文章、讀物，介紹行之有效的閱讀和寫作方法，指導學生編寫讀書卡片、制作手抄報，播放勤學好學的錄音故事，組織開展讀書討論、交流讀書心得等，這樣既可以激發學生對語文學科的學習興趣和學習熱情，調動和提高學生學習語文的積极性、主動性，又能引導學生掌握學好語文的科學的學習方法，培養學生形成良好的學習習慣，幫助學生克服「閱讀難」、「作文難」的現狀。

學科課堂滲透應抓住下列幾個要點：

1. 了解學生、熟悉教材，這是進行學習輔導的基礎關鍵；
2. 制定目標、巧設教案，也就是制定教學和輔導雙目標，精心設計教案；
3. 抓住契機、滲透輔導，即抓住結合點進行有機的滲透；
4. 總結全課、深化。

除了上述三種主要途徑外，我們還可以利用咨詢信箱、熱線電話、心理輔導室、校園廣播站和宣傳欄等其它途徑，多渠道、全方位立體式地開展學習輔導。

四・開展學習輔導的效果與體會

為了探索學習輔導的內容、途徑和方法，我們曾在廣州市人民中路小學開展了為期兩年的學習輔導的實驗研究、實驗步驟和方法是：

1 對二至六年級學生進行實驗前測，收集實驗前數據（學習適應性測驗成績、期末考試成績）。
2 在二至六年級分別選取一個實驗班和一個控制班，並在每個實驗班確定3個學習困難學生作為個別輔導對象。
3 對實驗班教師進行有關學習輔導理論與技術技巧的培訓。
4 在實驗班開展實驗（團體輔導、個別輔導、學科滲透）。
5 對實驗班、控制班進行實驗後測，收集實驗後數據（學習適應性測驗成績、期末考試成績）。
6 統計分析實驗數據，總結實驗效果，撰寫實驗報告。

實驗數據表明，經過開展團體輔導和學科滲透輔導，各實驗班學生的學習適應性成績和學習成績都有不同程度的提高。另外，經過有針對性的個別輔導，實驗班個別輔導對象的學習適應性成績和學習成績都有不同程度的提高。通過實驗，我們對學校推行學習輔導工作有如下幾點認識：

1 對全體學生進行系統的、科學的團體性學習輔導，能有效提高全體學生的學習適應性水平和學習效果；
2 運用各種輔導技術和技巧，有針對性地對學習困難學生進行個別性的學習心理輔導，是轉化學習困難學生的有效途徑；
3 在學科課堂教學中注意滲透學習輔導，可有效提高學生對學科的學習興趣，提高學科成績。由此可見，開展學習輔導的確是一條優化學生的學習心理提高學生學習適應性和學習效果的有效途徑和方法。

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徵稿

教育曙光整年徵稿。歡迎教師、學校行政人員、輔導工作者、教育學者及研究人員投稿，發表他們從研究和實踐所得的新思維和新啟示。每年五月及十一月出版。

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1．稿件請以電腦軟件中文Word製作，並以原檔及文字檔格式貯存於無病毒之磁碟內。文件(包括中、英文題目及中英文提要）須打印三份，以示粗體、斜體及表格等之樣式。磁碟外須註明作者姓名及軟件名稱。
2．請用中、英文在另頁列明作者、所屬機構、職銜、地址、聯絡電話、傳真、電子郵件號碼等。並附回郵信封（連郵費）三個。
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二零零零年十一月

香港教師會
教育學報

JOURNAL OF EDUCATION
HONG KONG TEACHERS' ASSOCIATION

香 港 教 師 會

香港教師會於一九三四年成立，以促進教育同工之間的密切合作、提高教育專業人員的地位、維護會員的權益、增進會員的福利、加強國際間的了解為宗旨。香港教師會除了是本港一個教育團體外，同時亦是多個國際性組織的會員，如世界教師專業組織聯合會及國際閱讀協會會員。

香港教師會的週年學術活動有：(一)教育研究大會，如一九九七年舉辦的「優質教育新挑戰：愉快的教與學」研究大會、一九九八年舉辦的「質素保證視學如何提升學校教育質素？」研究大會、及一九九九年舉辦的「邁向2000年教師何去何從？」研究會等；(二)本港教育專題研討會，如「幼稚園、小學與中學的銜接研討會」、「特殊學校音樂教育研討會」、「如何為成績稍遜的學生提供有效學習研討會」、「教室管理的科學與藝術」及「母語教學問題及解決方法研討會」等；(三)定期出版教育曙光。近年舉辦的國際學術活動，則有一九九二及一九九九年主辦的海峽兩岸四地學術研究會及一九九八年主辦第三屆東北亞教育論壇。

教 育 曙 光

*教育曙光*是一份香港教師會出版的教育學報，每期均請專家評審；每年五月及十一月出版，分發全港幼稚園、小學、中學及大專院校。

*教育曙光*以促進專業發展與教學實踐為宗旨，每期均刊登具實踐和研究價值的文章。文章的範疇包括專題探討本港當前教育問題的剖析，教學、輔導及學校行政的研究，教育新趨勢和新意念的介紹等。

歡迎教師、學校行政人員、輔導工作者、教育學者及研究人員投稿。詳情請參閱每期刊登的徵稿啟示。

*教育曙光*歡迎各教育機構免費訂閱。請將訂閱表格及郵費寄來香港教師會。

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The Hong Kong Teachers' Association (HKTA), founded in 1934, aims at developing close cooperation among educational workers, promoting the professional status of teachers, protecting the rights and improving the welfare of its members and strengthening international understanding of teacher organizations. Apart from being a Hong Kong-based educational body, HKTA is also a member of international organizations such as Education International and the International Reading Association.

The academic activities of HKTA include: (1) the annual education conference, such as and the 1999 Conference on Towards 2000 the Right Way for Teachers; the 1997 Conference on New Challenge of Quality Education: Pleasurable and Effective Teaching and Learning, the 1998 Conference on Promoting Quality Assurance Inspection and School Quality, (2) Seminars on local educational issues such as: "Continuity in Preschool, Primary and Secondary Education", "Music Education in Special Schools", "Effective Learning for the Less Able Students", "The Science and Arts of Classroom Management" and "Seminars on the Problems and Solutions of Mother-Tongue Teaching", and (3) the publication of New Horizons in Education. In 1992 and 1999 HKTA is proud to be the chief organizer and the host for The First and Fifth Educational Conference of China, Taiwan, Hong Kong & Macau and hosted the 1998 Third North-East Asia Teachers' Forum.

NEW HORIZONS IN EDUCATION

New Horizons is a refereed journal of education published in May and November by HKTA. It is distributed to kindergartens, primary and secondary schools and teriary institutions in Hong Kong.

New Horizons is intended as a forum to stimulate and enhance professional development and practice in education. We publish papers that speak directly to practical school and classroom concerns as well as papers that are based on systematic inquiries into educational issues and practices, including those related to the announced theme(s). We also publish presentations of new developments and innovative ideas tried out in schools, in Hong Kong or elsewhere.

Submissions are invited from teachers, school administrators, persons with pastoral duties, educationists and researchers. General information about submissions can be found in the Call for Papers in each issue of the journal.

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第四十二期，二零零零年十一月

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編者語

本刊自從公元2000年開始，每年出版兩期。下半年繼續收到２７篇來稿，經過雙重不記名的評審後，能被接納而又趕及在付印前修正寄回的稿件不及一半。本刊今期來稿的評審需時平均為八星期，最長的要五個月，最快的兩星期便可知道結果，主要視乎個別評審者的效率及合作程度，編者能做的只是盡力多和評審者溝通及催促。

讀者能在美國教育研究資源中心(ERIC)的光碟系統及在萬維網中閱讀本刊各期文章的摘要。(網址： http://www1.fed.cuhk.edu.hk/en/nh/nhindex.htm)。

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徵　稿

教育曙光整年徵稿，由2000年開始每年刊登兩期。歡迎教師、學校行政人員、輔導工作者、教育學者及研究人員投稿，發表他們從研究和實踐所得的新思維和新啟示。獲接納及修訂後，將於每年五月或十一月刊登。

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The Relevance and Applicability of Cloze in English Language Benchmarking in Hong Kong

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This paper details the development and validation of the multiple-choice cloze test for the Hong Kong SAR Government's English language benchmarking initiative. The paper briefly describes the background to and rationale behind the benchmarking initiative. It then discusses how well the test worked and the suitability of a cloze test for use with teachers in a high-stakes examination context. The paper describes two cloze tests, set within the Reading Test component of the test battery, which were destined to be used as specimen benchmark test material and prepared for trailling, together with an established anchor test with known values. Efforts were made to include item types which tapped more than mere lexical / grammatical features, e.g., features of discourse and cohesion. The means which emerged on the two cloze tests would appear to indicate that the difficulty levels of the cloze tests trailling for use with teachers are appropriate. Item discrimination figures were also high, indicating that item types generally worked well and that the cloze test is able to differentiate teachers of differing abilities effectively.

英語基準試中的多項選擇填空測驗的發展與成效

本文詳述由香港特別行政區政府倡議的英語基準試中的多項選擇填空測驗(Multiple-choice cloze test)的發展與成效。文中先簡介基準試的背景及其理論基礎，然後討論這個測驗運用上的適切性。本文論述的兩個填空測驗是屬於閱讀理解組內的測試類別，是預定作為基準試的測試材料樣本，同時更與一已建立信度的測驗一併使用。在測試項目的揀選方面，已盡量包括各項不同的類別，不僅側重詞匯及語法，還有其他如篇章結構等之特點。而這兩個填空測驗所得出的平均值正好標示上述測驗之程度是適合的，且各項目間的數據區分亦高，由此可見測試的項目大體上是運用成功的。填空測驗確能有效地辨別教師的不同能力。

Introduction

Within the context of the Hong Kong Government's decision to set and implement language benchmarks for all teachers in Hong Kong, not just language teachers (Coniam and Falvey, 1996), and the acceptance by ACTEQ (the Advisory Committee on Teacher Education and Qualifications) of recommendations that English Language benchmarks be set for Speaking, Writing, Reading, Listening and Classroom Language, this paper describes the trialling and validating of one component, the Multiple-Choice Cloze Test, in the battery of tests recommended by the English Language Benchmark Subject Committee (ELBSC) and used in the Pilot Benchmark Assessment (English) [PBAE]. The ELBSC was set up after ACTEQ accepted the main recommendation of the 1996 consultancy report. Its initial brief was to finalise, for the PBAE, the prototype specifications set out by the consultants, and to moderate and finalise task-types and their associated descriptors for the developing language benchmarks.

In the report on English Language Benchmarking (Coniam and Falvey, 1996), the following battery of tests was recommended to ACTEQ and subsequently to the ELBSC:

1. Formal pen and paper tests - Reading, Writing, Listening
2. A criterion-referenced assessment of Speaking
3. A direct Classroom Language Assessment performance test

The background to the English language benchmark initiative and the rationale for the different test types is discussed further in Falvey and Coniam (1997).

As stated above, the ELBSC was approved by ACTEQ

and convened in 1996 under the auspices of the HKEA. Its initial brief was to produce examination specifications and a draft examination syllabus for promulgation to Hong Kong teachers of English language prior to the PBAE. The purpose was to determine how well draft benchmarks of language ability were attained across the secondary school English language teacher cohort and how well the various task-types were operationalised, particularly those that were criterion-referenced. Following the PBAE, the ELBSC decided to adjust specifications in the light of feedback and results from the PBAE, to moderate the task types, and to finalise the benchmark syllabus for English language teachers.

The current paper originates from a series of reports that details the validation of different elements for English language benchmarking (see also the report detailing the validation of the Reading Test (Coniam and Falvey, 1998)). Its purpose is to outline the background to the development of the multiple-choice cloze test type, describe its moderation through an HKEA Moderation Committee (a sub-committee of the ELBSC), and discuss the subsequent trialling, analysis, final amendments and modifications to the test type in the context of a number of issues arising from the use of the test.

The Place of Cloze

As stated above, the Multiple-Choice Cloze Test forms part of the Reading Test, the purpose and value of which was discussed in a report to ACTEQ (Coniam and Falvey, 1998). As was discussed in that paper, the ELBSC requirements for an assessment of reading skills for teachers were that:

1. It should tap higher level reading skills.
2. It should neither duplicate HKEA school tests such as the CE or ASL examinations nor appear similar to them (This was for purposes of credibility and 'face'. Teacher informants made it clear that they did not want to see a battery of tests which resembled the tests for which many of them were preparing their students).
3. It should, ideally, not be in a multiple-choice format (This criterion was established because of the ELBSC's desire to promote the more modern paradigm of assessment which eschews large-scale multiple-choice testing.
4. The material should be authentic.
5. Its topic content should be based on domains that English language teachers might encounter in their professional life, i.e., English language teaching and language education.

The ELBSC was initially resistant to the inclusion of multiple-choice test items on the grounds that it contravened points (2) and (3) above. However, after much discussion, the Subject Committee finally agreed to the inclusion of a multiple-choice cloze test because of the reliability such a test might afford the HKEA as an anchor against the Reading Test. The ELBSC stated, however, that:

1. The items should be integrated into a text type such as a cloze passage and not consist of discrete point items.
2. Some of the items should test discourse-level skills.
3. The items should be properly pretested.

The multiple-choice cloze test is not a new test type. Its origins stem from the work of Taylor (1956) as a test of native-speaker reading ability. Since then the format has undergone many modifications and extensions. From the original 'every nth deletion' principle, we have seen variable deletion rates such as deletions according to certain grammatical structures, and multiple-choice cloze, amongst others. Deyes (1984), for example, first put forward a suggestion for a 'discourse cloze', where items are selected for deletion in such a way that the discourse context - whether cohesive ties, or lexical cohesion need to be taken into account. Lewkowicz (1991) proposed a type of paraphrasing cloze to sample listening abilities. Coniam (1993) describes a study involving the HKEA's use of English 'summary cloze' (see Pollitt and Hutchinson, 1987). The literature emphasizes the importance of pretesting any form of objective test material such as multiple-choice (see Ebel, 1965: 346 ff; Hughes, 1989, 52ff). In the current paper we discuss two relatively new initiatives: authenticity of text stimulus and the use of discourse-type items.

The Study

In early 1998, a Moderation Committee of the ELBSC was formed under the auspices of the HKEA. Possible material was prepared for the committee and vetted for suitability. Although time was extremely limited, the goal of the Moderation Committee was to produce good quality (ideally

pretested) material to be distributed to teachers as part of the syllabus and specimen material.

A number of cloze passages were prepared for the Moderation Committee. In line with the principle of authenticity mentioned above, the passages were prepared for pretesting with as little amendment to their initial state as possible. Most cloze texts undergo extensive alteration to the original in order to accommodate suitable testing points. Otherwise, as Alderson et al. (1995) note, too few of the items which make up the cloze test will actually be testing points of language which the tester wishes to test. Bearing this in mind then, as far as was possible in the preparation of the benchmark cloze test, setters and moderators attempted to make as few amendments as possible to the original in order to provide teachers with the type of text that they could encounter in their professional lives.

Item types included grammar and vocabulary, as do most cloze tests. However, an effort was also made to include items that required test takers to take the discourse context into account (c.f., Deyes, 1984). In this context, the passage "Comment: Linguistic non-imperialism" in Appendix 1 contains items, number 19, 28 and 31 for example, that focus on cohesive devices. In addition, there are longer content-based items that require test takers to consider the theme that the passage is pursuing at a particular juncture, e.g., items 8, 15, 22 and 24. Although the HKEA have attempted to use items in reading tests demanding answers on writer attitude, discourse-related items are only occasionally encountered in their cloze tests. It was felt, however, in keeping with the ELSBC's request for such linguistic contexts, that such items should be included in a test for English language teachers.

The HKEA has its own tried and tested internal procedures for pretesting and refining its local English language examinations for school students. As the test type to be analysed was multiple-choice, it was possible to include two multiple-choice cloze passages which were prepared for the specimen benchmark material to be pretested. The two cloze tests were administered to a sample of test takers (N=156) whose background and ability were judged to be of similar ability to the target teacher population for the English language benchmark test. It is not possible here, for reasons of confidentiality, to disclose the profiles of the participants that the HKEA used in the pilot except to state that they were comparable in their language profiles to teachers of English in lower secondary schools in Hong Kong. A cloze passage that had been administered a number of times as an anchor test, and whose reliability was a known quantity, was also included for the production of comparative data.

Results and Discussion

The initial version of one cloze test produced for pretesting is attached in Appendix 1. Two cloze tests were pretested, as mentioned above. To avoid duplication of comment, however, only Cloze 2 (which is attached in Appendix 1 and 2) is discussed in depth, since the results that emerged from the two cloze tests are broadly similar in terms of the comparative difficulty of the two tests and the relative number of acceptable items which emerged.

Results for the two cloze tests are laid out in Table 1. The discussion of item performance centres around two statistics commonly used for classifying items as 'good' or 'bad' - the facility index and the discrimination index. They are interpreted in this paper as follows:

Facility index

The range for an item with acceptable facility is taken as being in the range of 0.3 to 0.8. (See Falvey, Holbrook and Coniam, 1994: 119ff) While individual items may emerge as easy or difficult, if a test is to discriminate among test-takers effectively, it will achieve this more easily when the whole test mean is in the region of 0.5 (see e.g. Gronlund, 1985: 253). This figure will therefore be taken as the optimum mean in the current study and for assuming that the texts - and subsequent tests - match subjects' levels.

Discrimination index

An item discrimination (the point biserial correlation) of above 0.3 is considered 'good'. A discrimination of 0.2 to 0.3 is considered 'workable' while a discrimination of below 0.2 is considered unacceptable. (See Falvey et al, 1994: 126ff)

Table 1: Test results for the two cloze tests

Statistic	Anchor	Cloze 1	Cloze 2
Number of items	14	36	33
Mean	0.77	0.64	0.60
Standard deviation	2.47	4.17	3.80
Alpha	0.67	0.66	0.59
Standard error of measurement	1.41	2.44	2.44
Mean point biserial correlation	0.63	0.40	0.39
Good discrimination, good facility	8	10	7
Good discrimination, high facility	-	4	6
Good discrimination, low facility	-	5	-
Acceptable discrimination, good facility	6	7	12
Acceptable discrimination, high facility	-	-	1
Poor items	-	10	7

As can be seen, the means for the two cloze tests were .64 (SD=4.17) and .60 (SD=3.80) respectively, while a mean of .77 (SD=2.47) emerged for the anchor cloze test. This is a past Use of English cloze test, for which a mean in the region of .5 to .6 might be expected from ASL Secondary 7 test takers. The two cloze tests, which are destined as specimen benchmark test material, have emerged as more difficult than the Use of English cloze, which produced a teacher mean of .77. It would thus appear that the difficulty level, which is higher than the Use of English, is appropriate for a test destined for use with teachers of English in the lower secondary forms of Hong Kong schools as it would be hoped that the level of those teachers' English language proficiency would be higher than that of most Secondary 6 and Secondary 7 students.

With regard to reliability, Ebel (1965: 337) states that for a test consisting of 20 items, the expected reliability should be in the region of .5 and for 40 items in the region of 0.67. This reliability benchmark is achieved by Cloze 1 with a reliability coefficient of 0.66 and also by Cloze 2 with a reliability coefficient of 0.66. The standard error of measurement was 2.44 (6.7%) for Cloze 1 and 2.44 (7.1%) for Cloze 2. As a rule of thumb, the SEM should be below 10%. The standard errors of measurement of the SAT verbal and quantitative scores have been reported to be in the range of 29-34 points (Donlon, 1984: 33-34), or 4.4% - 5.7% of the score range.

The mean for the point biserial correlation index was .40 for Cloze 1 and .39 for Cloze 2. This is considerably above the .2 proposed as the definition of an acceptable item and illustrates that the majority of the items are performing well. Not all items, however, could be classed as 'good' - experience suggests that up to a third of items produced for a pretest may need to be either amended or deleted (see Coniam, 1997). The quality of the items produced was generally quite good, although as can be seen if Cloze tests 1 and 2 were to be treated as pretests to live examinations, about a third to a quarter would have been deleted.

Since the cloze tests were being trialled as to their suitability for use with teachers, however, and were intended to be promulgated to teachers as specimen material, the issue of item deletion was regarded slightly less stringently than it would have been had the material been intended as a live test. As can be seen on Cloze 2, 7 items have emerged as 'poor'; only the worst of these items were deleted; none in fact had disastrous discrimination (i.e., negative point biserial correlations) and might well have been retrievable with further moderation. The majority of these 'poor' items were items which are more discoursal in nature. Such items require test-takers to read further afield than the usual minimal context required to answer low-level grammatical items. Alderson et al. (1995: 44) assert that cloze passages encourage 'short-text' reading, suggesting that test-takers read cloze passages in a different manner from how they usually read. They read the immediate context before the blank, but pay little attention to the words after the blank. The decision to use discourse-type items with teachers was based on the desire, by the setters, to replicate reading patterns which are more normal than the low-level 'short-text' reading identified by Alderson et al (op. cit.).

Consider, item 22 below, for example, which would have been deleted in a live test. (Other items are provided, along with the answers in brackets, for contextual purposes.) Consequently, modifications and improvements were made to a number of items, and two items (numbers 8 and 13) were eventually deleted from Cloze 2.

ELT is where we can have choice in coping. _(19 Firstly)_, let us recognize that it is legitimate and _(20 inevitable)_ that native English-speaking countries will _(21 seek)_ to turn this reality to national advantage, by developing and _(22)_ . _(22)_

A. encouraging greater use of their mother tongue
B. keeping English to tightly-defined areas
*C. promoting their academic and commercial ELT industries
D. showing them new strategies for coping
(Facility .46; Discrimination .12)

Although, the facility for item 22 was .46, the discrimination was low at .12. It is an item that requires considerable global reading to get the correct answer. Part of the demands of this item is that it requires test-takers to retain the thrust and 'theme' of the text in their minds. It cannot be answered locally purely by grammatical clues.

A similarly item-type occurs in the final item of the test which was retained for purposes of face; i.e., that specimen material should not contain long stretches of text with no testing point.

The six worlds must not, however, define our total culture; local, national, and regional cultures must provide balance. Mother tongues must _(32 thrive)_ and must support the _(33)_ of these cultures. The politics of language education should start by considering how to achieve this balance and these outcomes.

_(33)_
A. new evolution
B. rapid development
*C. social cohesion
D. gradual change
(Facility .29; Discrimination .09)

Although the item is short compared to item 22 above, the fact that it consists of four noun groups again requires test takers to consider the global discourse context more than they usually would. This may account for the poor facility and discrimination.

After final moderation, the version of Cloze 2 which was included for publication as specimen material (ACTEQ, 1998) contained 31 items. The full item analysis for Cloze 2 can be found in Appendix 2.

While the items generally performed acceptably, it is important to consider how the test is able to differentiate between candidates' ability. Figure 1 below illustrates how test takers were distributed across Cloze 2.

Figure 1: Cloze 2 - Score Distribution Table

No. Corr		Freq-uency	Cum Freq	PR	PCT
1	1	1	1	1	I#
2	0	1	1	0	I
3	0	1	1	0	I
4	1	2	1	1	I#
5	0	2	1	0	+
6	0	2	1	0	I
7	1	3	2	1	I#
8	0	3	2	0	I
9	0	3	2	0	I
10	0	3	2	0	+
11	0	3	2	0	I
12	1	4	3	1	I#
13	1	5	3	1	I#
14	5	10	6	3	I###
15	7	17	11	4	+####
16	7	24	15	4	I####
17	11	35	22	7	I#######
18	14	49	31	9	I#########
19	14	63	40	9	I#########
20	21	84	54	13	+#############
21	16	100	64	10	I##########
22	20	120	77	13	I#############
23	19	139	89	12	I############
24	6	145	93	4	I####
25	6	151	97	4	+####
26	3	154	99	2	I##
27	2	156	99	1	I#
28	0	156	99	0	I
29	0	156	99	0	I

5 10 15
Examinees (%)

As can be seen from Figure 1 above, although Cloze 2 has a slight negative skew, the distribution table shows quite a spread of ability. Together with the high point biserial correlation figures presented above, it indicates that the test is discriminating among the more and less able. While the majority of the benchmark tests will operate in a criterion-

referenced manner, the distribution of scores across the percentile ranks indicates that an analytically-marked test is able to differentiate candidates of differing abilities effectively.

Discussion of Issues and Conclusion

This paper has illustrated how the multiple-choice cloze test which forms part of the Reading Test for the PBAE has been pretested, moderated and refined. The paper has illustrated how cloze tests, appropriate for teachers, were initially produced, and then moderated and refined after pretesting for publication as specimen material.

The paper has illustrated how the principles laid down by the ELBSC of using authentic texts for tapping, as far as possible, discourse-level skills have produced cloze tests suitable for English language teachers. The tests have emerged as appropriate both in terms of item difficulty level, and how well the tests discriminate among teachers of differing ability levels. A comparison of the results of the new benchmark cloze tests with a cloze test designed for Use of English candidates demonstrates that the cloze tests produced for teachers have emerged as more difficult. This indicates that the test-setting approach for this component of the benchmark assessment is feasible.

Although the use of discoursal-type items was not successful in terms of facility and discrimination indices, the wash-back effect could be considerable. Thus, the ELSBC have recommended that, if acceptable facility and discrimination indices can be obtained, such items should be used regularly in the cloze test for teachers as it encourages wide reading and militates against 'short-text' reading. It will only be possible to achieve acceptable facility and discrimination indices if the HKEA pretests large numbers of these test types over time.

Using an anchor cloze test is one means of ensuring a degree of comparability between different tests. The fact that the majority of the analysis is conducted on the basis of classical item analysis, however, limits the extent to which the results can be interpreted beyond the current population. This raises the question of the relevance, usefulness and suitability of this kind of test for teachers. Should a multiple-choice test be included in a battery of assessment instruments which include three major performance tests - Writing, Speaking and Classroom Language Assessment (conducted in a live classroom) - which assess direct samples of teacher language performance? It would appear that such a test would not, normally, be worthy of inclusion. However, if the test is able to discriminate well and, in addition, if one of the cloze tests, or a number of discrete items are calibrated on Item Response Theory principles (see Coniam, 1994, 1995; also the report on the benchmark Reading Test (Coniam and Falvey, 1998)), it may then be possible to include this calibrated cloze test or other/further items in future pretests of Reading Tests to indicate more closely the match of abilities between different cohorts of teachers taking the test. This would provide invaluable comparative data for standardisation purposes and answer one of the queries that those who worry about criterion-referenced assessment constantly raise - how do you account for changes from year to year in the cohorts of test-takers, assessors and the application by the assessors of the criteria for the benchmark scales?

Finally, with regard to the high-stakes nature of the English language benchmark examination, it is essential that any objective - and especially multiple-choice - test such as the Cloze must be pretested (following the HKEA's normal procedures for pretesting English language material). Test statistics must then be carefully scrutinised so that the test may be revised and improved, with potentially poor items deleted before any live test is administered to teachers sitting the benchmark examination.

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Appendix 1: Cloze 2 (Initial Version for Trialling)

Comment: Linguistic non-imperialism

Ian Seaton

Comment is a feature in which individuals are invited to express their personal, and sometimes controversial views on professional issues. These views are not necessarily those of the Editor, the Editorial Advisory Panel, or the Publisher. Readers' reactions to the views expressed here are welcome.

Much of the debate on language policy in recent issues of ELT Journal, and in those _(01)_ 1988 to 1995 _(02)_ in Hedge and Whitney (1996), seems to start with the _(03)_ that _(04)_ in ELT (English Language Teaching) are mainly responsible for the rise of English as the global language. The discussion then gets _(05)_ into who, in the profession, might be _(06)_ for this state of affairs!

The English language _(07)_ the only language for global communication in the following six 'worlds': transnational companies; Internet communication; scientific research; youth culture; international goods and services; and news and entertainment media.

This is not because of _(08)_ (commercial and academic), _(09)_ because English is _(10)_ 'better' than other languages but because a combination of economic, historical, and political _(11)_ has resulted in those who 'own', and all those who _(12)_ in the above six worlds, _(13)_ English to communicate.

For the _(14)_ future that is the social reality, just as surely as water flows downhill and _(15)_. So let us not, in discussing language policy, be too _(16)_ by what our ELT colleagues may or _(17)_ in the past. Let us rather concentrate on how to best _(18)_ the reality of English today.

ELT is where we can have choice in coping. _(19)_, let us recognize that it is legitimate and _(20)_ that native English-speaking countries will _(21)_ to turn this reality to national advantage, by developing and _(22)_. Secondly, non-native English-speaking countries should also turn this reality to national advantage by enabling those of their citizens who want or need _(23)_ to these six worlds _(24)_.

The British and international ELT profession as exemplified by IATEFL, ELT Journal symposia, English 2000 activities, TESOL, and so on, is in considerable agreement on the following _(25)_:

- that a reflective process of teaching and learning is at least as appropriate to ELT as an _(26)_, product-controlled approach;
- that _(27)_ is essential, and that native and non-native speaker teachers of English need to converge in their competence in, and understanding of, English and their learners' mother tongue;
- that, _(28)_, English as the global language does not reflect any particular native-speaker national culture, but the global culture of those in every country who _(29)_ the six worlds;
- that language education can humanise us all in the best sense, and connect us internationally, through understanding and choice rather than by _(30)_.

What, then, should we be doing in language policy work? In two words: promoting bilingualism. The six 'worlds' add up to a powerful global community which must not be _(31)_ inhabited by the elites of each nation. There must be access and participation for all, in other words democratic choice and influence. English and the way we do ELT can provide this. The six worlds must not, however, define our total culture; local, national, and regional cultures must provide balance. Mother tongues must _(32)_ and must support the _(33)_ of these cultures. The politics of language education should start by considering how to achieve this balance and these outcomes.

(adapted from ELT Journal, October 1997, Vol 51/4)

01
A. between the time
B. beginning
C. since
D. from the period

02
A. which collected
B. collecting
C. have been collected
D. collected

03
A. assumption
B. presumption
C. supposition
D. presupposition

04
A. they are involved
B. which involve
C. those involved
D. which are involved

05
A. side-tracked
B. side-stepped
C. sidelined
D. sidekicked

06
A. the blame
B. blaming
C. to blame
D. for blame

07
A. fast becomes
B. fast became
C. would fast become
D. is fast becoming

08 (deleted)
A. the efforts of native speakers' ELT industries
B. increasing global communication
C. higher professional standards
D. better teaching aids and materials

09
A. not
B. none
C. never
D. nor

10
A. instinctively
B. irreproachably
C. innately
D. insignificantly

11
A. environments
B. settings
C. circumstances
D. surroundings

12
A. engage
B. enroll
C. engross
D. enlist

13 (deleted)
A. use
B. to use
C. used
D. using

14
A. predictable
B. expected
C. foreseeable
D. predicted

15
A. the sun goes round the earth
B. the sun rises in the East
C. there is more democracy around the world
D. professional standards keep improving

16
A. averted
B. diverted
C. reflected
D. redirected

17
A. may not have said
B. may not say
C. did not say
D. might say

18
A. confront
B. encounter
C. combat
D. cope with

19
A. At first
B. At once
C. On the one hand
D. Firstly

20
A. inevitable
B. inescapable
C. irrevocable
D. inexplicable

21
A. ask
B. seek
C. pursue
D. chase

22
A. encouraging greater use of their mother tongue
B. keeping English to tightly-defined areas
C. promoting their academic and commercial ELT industries
D. showing them new strategies for coping

23
A. access
B. admittance
C. admission
D. entrance

24
A. to gain it through the public and private provision of ELT
B. to raise their sense of belonging in their own country
C. to encourage a greater sense of pride in their mother tongue
D. to expand the availability of higher education for all

25
A. analyses
B. plans
C. propositions
D. visions

26
A. outcome-oriented
B. quality-assured
C. exam-based
D. goal-determined

27
A. interpersonal communication
B. a laissez-faire policy
C. mutual respect
D. social compatibility

28
A. at this point in time
B. at length
C. eventually
D. over time

29
A. attend
B. control
C. inhabit
D. generate

30
A. commerce and industry
B. science and technology
C. war and diplomacy
D. control and coercion

31
A. solely
B. inclusively
C. completely
D. narrowly

32
A. succeed
B. thrive
C. advance
D. multiply

33
A. new evolution
B. rapid development
C. social cohesion
D. gradual change

Appendix 2: Item Statistics

Item No.		Facty	Discrimtn (PBC)	Key
01	A	.24	-.03	
	B	.01	-.33	
	C	.10	-.08	
	D	.65	.20	*
02	A	.10	-.19	
	B	.01	-.16	
	C	.18	-.12	
	D	.69	.26	*
03	A	.59	.21	*
	B	.33	-.22	
	C	.06	.02	
	D	.03	-.03	
04	A	.06	-.35	
	B	.00		
	C	.90	.41	*
	D	.03	-.09	
05	A	.06	-.29	
	B	.82	.43	*
	C	.10	-.11	
	D	.02	-.25	
06	A	.21	-.20	
	B	.01	-.04	
	C	.76	.34	*
	D	.01	-.33	
07	A	.05	-.06	
	B	.10	-.21	
	C	.03	-.15	
	D	.81	.35	*
08	A	.25	.15	*
	B	.18	.01	
	C	.37	-.06	
	D	.19	-.02	
09	A	.17	-.12	
	B	.02	-.34	
	C	.02	.02	
	D	.79	.29	*
10	A	.34	.31	*
	B	.47	-.09	
	C	.11	.01	
	D	.07	-.25	
11	A	.11	-.07	
	B	.34	-.07	
	C	.50	.23	*
	D	.04	-.17	
12	A	.12	-.12	
	B	.73	.39	*
	C	.03	-.19	
	D	.12	-.22	
13	A	.49	-.04	
	B	.25	.02	
	C	.10	-.08	
	D	.15	.18	*
14	A	.31	-.06	
	B	.12	-.06	
	C	.44	.17	*
	D	.12	-.11	
15	A	.06	-.28	
	B	.88	.47	*
	C	.03	-.30	
	D	.03	-.18	
16	A	.46	-.33	
	B	.50	.37	*
	C	.03	-.12	
	D	.02	-.03	
17	A	.80	.26	*
	B	.12	-.20	
	C	.06	-.02	
	D	.01	-.04	
18	A	.17	-.13	
	B	.03	-.10	
	C	.06	.01	
	D	.74	.21	*
19	A	.04	-.26	
	B	.02	-.19	
	C	.02	-.12	
	D	.91	.44	*
20	A	.83	.37	*
	B	.04	-.04	
	C	.10	-.22	
	D	.03	-.22	
21	A	.01	-.10	
	B	.68	.33	*
	C	.31	-.25	
	D	.00		
22	A	.49	-.01	
	B	.02	-.12	
	C	.46	.12	*
	D	.03	-.22	
23	A	.79	.29	*
	B	.08	-.10	
	C	.11	-.18	
	D	.03	-.22	
24	A	.44	.23	*
	B	.06	-.28	
	C	.14	-.08	
	D	.37	-.04	
25	A	.21	-.17	
	B	.14	-.07	
	C	.51	.19	*
	D	.13	.00	
26	A	.66	-.03	
	B	.18	.16	*
	C	.12	-.09	
	D	.04	-.09	
27	A	.59	-.05	
	B	.20	.18	*
	C	.13	-.11	
	D	.08	-.05	
28	A	.38	.24	*
	B	.09	-.14	
	C	.37	-.06	
	D	.16	-.13	
29	A	.07	-.11	
	B	.10	-.06	
	C	.72	.32	*
	D	.11	-.21	
30	A	.10	-.19	
	B	.12	-.11	
	C	.29	-.07	
	D	.48	.32	*
31	A	.87	.32	*
	B	.04	-.16	
	C	.07	-.15	
	D	.02	-.05	
32	A	.05	-.34	
	B	.72	.24	*
	C	.20	.02	
	D	.01	-.05	
33	A	.25	-.08	
	B	.29	.06	
	C	.29	.09	*
	D	.16	-.10	

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教師專業成長行動研究計劃：校本多元智能學習評量系統設計

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近年澳門學校致力推行素質教育，其中關於如何妥善處理學生能力差異問題，如何設置課程因「才」施教，如何有系統的進行多元化評量，從而因勢利導，充分發揮學童各種潛能，達到「想學」、「會學」、「樂學」的教學理想，乃素質教育成敗關鍵所在。

本計劃試圖通過行動研究，由筆者帶領，讓數所學校共同商議如何實踐因「才」施教，從而促進教師專業成長。經商議後，行動研究的首要目的是建立一個以學校為本位的多元智能學習評量系統(SMILES)，教師可以通過評量學童多元智能發展情況，提供反饋訊息開展適性素質教育。本文著重描述此系統的設計原理，以及闡明參與此研究的學校需要注意的地方，讓有興趣加入本研究計劃的學校瞭解研究規模和要求，已成功完成是項研究的學校的成果將陸續令文發表。

Action Research Proposal for Teacher Professional Development: Design of School-based Multiple Intelligences Learning Evaluation System

Recently, quality education is high up in the educational agenda of Macao schools. Students should be willing to learn, able to learn, as well as happy to learn. There is a need to examine student ability variations, curriculum design and implementation, and systematic performance assessment so that students' inner potential can be maximally developed.

Through action research, it is hoped that schools can work together with the researcher to experiment practices of individually-configured education for purposes of teacher professional development. Based on Gardner's Theory of Multiple Intelligences, participating schools agreed that the main purpose of action research is to develop a school-based system assessing students' spectrum of multiple intelligences so as to provide formative information for the implementation of quality education. This paper outlines the design aspects of this School-based Multiple Intelligences Learning Evaluation System (SMILES). It draws attention to the participating schools on the issues pertinent to the success of the study. This paper is a proposal written to inform schools interested in this project on the scope and commitments. The research findings of the individual schools are to be reported in due course.

前言

近年澳門學校致力推行素質教育，其中關於如何妥善處理學生能力差異問題，如何設置課程因「才」施教，如何有系統的進行多元化評量，從而因勢利導，充分發揮學童各種潛能，達到「想學」、「會學」、「樂學」的教學理想，乃素質教育成敗關鍵所在（參閱張國祥，2000a & 2000b關於優化澳門課程發展架構的提議）。

研究目的

本行動研究旨在讓學校實現建立一個以學校為本位的多元智能學習評量系統（School-based Multiple Intelligences Learning Evaluation System - SMILES），教師通過評量學童多元智能發展情況，利用反饋訊息開展適性素質教育。在研究過程中，校長按筆者提出的研究計劃，帶領老師開發此評鑑系統，從中

達致教師「賦權增能」的專業成長目標（張國祥，2000b）。本研究的系統設計力求符合各學校教育目標，以及充份尊重教師的專業判斷，發展一個最終可以在互聯網上運行的校本多元智能學習評量系統，方便家長與教師進行溝通，共同商議學童教育計劃。本研究計劃成敗繫於校長是否全情投入，能否調動老師的積極性，與教師共同因應各校實際情況，更新教育觀念，以及協商行動研究路線。

理論基礎

本研究採納美國哈佛大學心理學家Gardner 教授的多元智能理論(Gardner, 1983, 1985 & 1999, 張國祥, 2000c & 2000d)，認為每位學童都具有發展八種重要潛能的可能性，教師若果能夠了解學童各項潛能的發展規律，就可以據此實踐因「才」施教，真正的培育五育並重的人材（有興趣從事多元智能教學的讀者可以參考Armstrong, 1987 & 1994, Gardner, 1991 & 1993, Lazear, 1999a & 1999b）。

待答問題

各所學校獲告知校本多元智能學習評量系統如果部署成功的話，研究員經統計分析後是可以協助學校回答下列二道問題的：

1. 學校裏各個班級學童的八種智能的發展進度和分佈如何？
2. 反映學童潛能概況的多元智能剖面圖（profile）通常有那幾種類型？

根據這些訊息，學校便可研究如何實踐因「才」施教這教育理想（因篇幅所限，各參與學校的研究成果和推行情況將令文發表）。

研究程序

由於參與是項行動研究的學校背境各異(如香港/澳門，公立/私立等)，且選擇不同年級（幼稚園/小學各級）試驗是項計劃，以下章節提供一個所有參與是項計畫的學校所共同遵守的評量架構和研究程序。

1. 經校方同意，每個年級〔從幼一至幼三、小一至小六，由參與學校按自身情況選定〕隨機抽樣100名學童進行多元智能評量，若某年級學生人數少於100名則全部選取。此抽樣方案可以對每一年級學童之智能百分位數〔Percentile〕和百分等級〔Percentile Rank〕提供簡單易明的說明：意指這百名學童依照高低次序排列的名次所對應的智能原始分數。*值得注意的是：在本研究中常模的計算是不會用作比較學童間的智能差異，它的作用只是用來指導研究員如何判斷SMILES評鑑系統八項智能的發展進度(progression)的基準而已。本研究遵照Gardner的主張，不會將學童相互比較，無論所比較的學童是否同校或同級*（有興趣的讀者可以參考Torff, 1997, Lazear, 1999c的解釋）。再者，由於中學學習階段受到升學就業的影響。校長普遍認為在應試教育辦學模式底下實施多元智能教學的難度頗大，因此目前參與此計劃的學校主要是幼稚園和小學，惟數目不斷增加中，反映多元智能理論的魅力。
2. 研究員與教師研習Gardner多元智能理論（教材由筆者提供，輔以專題講座），以及共同設計供教師考查學童多元智能的量表，並就各智能的評量環境和評量標準達成初步共識，以鞏固量表的信度與效度（請參看Lazear, 1999c如何落實多元智能評量，以及本文章節F關於量表設計與施測的詳細說明）。經實踐表明，下述設計方式比較受到學務纏身的教師歡迎：首先選定1至2項智能開始進行小組研討，嘗試弄懂其內涵，以及舉例說明在那些學習和活動環境可以容易觀察得到兒童是項智能的表徵，再通過嘗試介定評量標準（即何謂優勢、何謂相當於年級/年齡、何謂有待發展），來加深瞭解是項智能的發展規律，當相關老師達成共識並經研究員認為可行後編制量表，再繼續選定其他2至3項智能進行設計，直至所有8項智能的量表設計完畢為止。經多所學校實踐表明，評量方式可以根據智能項目的評量環境而有所變化，例如在人際智能評量方面，從整群學童中是比較容易知悉那些學童已具優勢，那些尚待發展。
3. 完成隨機取樣和量表設計後，各班班主任按照研究員議定的編排，在一星期內對指定的學童進行觀察及評量。以每年級5班合共抽樣100名學童舉例，每班學童樣本數目約20名，研究員可以編排每班每週5位學童進行評量，教師大約利用4週的時間便可完成全部評量工作。若果時間充裕的話，學校是可以進行更為詳細的潛能觀察和記錄（參閱 Cohen, Stern & Balaban, 1958）。
4. 評量完畢後，教師將學生背景資料和多元智能數據輸入研究員提供的校本多元智能學習評量系統（參看張

國祥、韋輝樑、趙鈞鴻，2000的SMILES使用說明手冊），經數據分析和處理後便可得到每位學童常模參照的多元智能剖面圖（參看附錄 1 多元智能光譜 Multiple Intelligences Spectrum的式樣）。此系統自動檢驗量表的信度和項目的鑑別度，排除不良項目後計算樣本常模，以便據此評定兒童在八項智能的進展水平，經電腦作圖後製成多元智能光譜（請參看本文章節 G 關於 SMILES 的設計要求）。

5. 研究員協助學校進行統計分析（量表分析、因素分析等），進一步檢驗量表的建構效度，並參考SMILES所提供關於 8 項多元智能分數的四分位數 Q1, Q2, Q3（即 25%, 50%, 75% 百分位數）調較多元智能發展進度的基準，解釋基準含意後再利用 SMILES 為每一位參與是項研究的學童發布標準參照的多元智能光譜（所需注意事項請參閱本文章節H關於量表建構效度的說明）。
6. 最後分析多元智能剖面圖通常有那幾種類型，以及瞭解學童多元智能按年級發展的分佈情況。接著研究員與學校教師進行研討，利用研究結果設計多元智能教學活動，至此研究邁向第二階段，即如何開展「因勢利導、因才配套」的多元智能學習計畫，本階段研究計畫將令文詳述（有興趣讀者可參閱 Fogarty & Stoehr, 1995, Chapman & Freeman, 1996, 陳佩正等，1999，張國祥，2000d）。

量表設計與施測

由於研究取向，是希望通過學校開展行動研究，來促進教師多元智能評量和教學，因此沒有引進外國現成的多元智能量表（例如由美國學者 Shearer 開發的 MIDAS - 多元智能發展評量程序），也不需顧及評量工具的版權和本地化問題。本研究的成敗關鍵，有賴多元智能量表的建構效度是否充分確立，因此各所學校的教師，在評量學生時對八種智能建構的內涵和評定標準，以及標準化評量過程，是需要介定和遵從的。由於每一種智能都有其發展規律，在人生不同階段萌芽、開花和結果，所以幼稚園、小學、和中學生的多元智能量表的內涵和表徵是會有所不同的（例如關於空間智能的情況請參看張國祥2000e）。 現按Campbell, Campbell & Dickinson (1992)，特將 Gardner 之八種智能簡介如下：

1. 語文智能（Linguistic Intelligence）：利用文字思考、用語言表達，以及欣賞語言深奧意義的能力。
2. 邏輯 - 數學智能（Logical-Mathematical Intelligence）：計算、量化、考慮命題和假設，以及能夠進行複雜運算的能力。
3. 空間智能（Spatial Intelligence）：隨心所欲地操弄物件的位置，產生或解讀圖形的訊息，知覺到外在和內在的影像，重現、轉變、或修飾心像的能力。
4. 肢體 - 動覺智能（Bodily-Kinesthetic Intelligence）：巧妙處理物體和調整身體，善於支配自己身體的能力。
5. 音樂智能（Musical Intelligence）：對音準、旋律、節奏、和音質等顯現敏感的能力。
6. 人際智能（Inter-personal Intelligence）：善解人意，與人有效交往的能力。
7. 內省智能（Intra-personal Intelligence）：有關如何建構正確自我知覺的能力，並能善用這些知識來計畫和導引自己的人生。
8. 自然觀察者（Naturalist Intelligence）：辨別自然環境中各種事物的能力，並能善用這種分門別類的能力於人造物世界中。

研究員希望跟教師研討多元智能的基本概念，共同制定觀察量表去考查常模樣本的多元智能發展情況，所評量項目必須顧及重要性和操作可行性兩項原則（詳情請參閱臺灣網站：《童年網事網路學園》）。 附錄 2 載有澳門一所學校為它的小一至小四學習階段而設計的「多元智能觀察量表」題目樣本，同時列舉了教師進行評量活動時應該注意的事項 （黃意舒，1996，第 84-86 頁），這些事項和項目評量標準（即按李克特 Likert 三點量表：S = 優勢、展現高度興趣，A = 相當於年級/年齡水平，L = 展現低度興趣），每所參與學校都是一致的。

SMILES 設計要求

多元智能光譜（Multiple Intelligences Spectrum）是以學童在「多元智能觀察量表」評量八種智能所得之分數，利用組型分析（Pattern Analysis）或剖面圖分析（Profile Analysis）達成心理診斷和預測的目的（葛樹人，1996，第 38 頁），本研究所擬建立的 SMILES 可根據此光譜的特點進行設計。設計考慮了下列三個方面的要求：

1. 學生方面：教師需要定期將形成性評核結果通知家長。反之，家長在有需要時亦可以要求學校進行持續

性評估，以長期監控學童綜合成長，共同商議教育計劃。報告須扼要標明學童8種多元智能表現水平的剖面圖（多元智能光譜），評量分數可依標準參照解釋，指出學童潛能發展優勢及性向所在。

2. 教師方面：系統匯報各個班級各種智能分佈情況，以及典型多元智能光譜類型，以便教師設計「智能公平」(Intelligence Fair) 課程，達到「因勢利導、因才施教」的目標。
3. 學校方面：配合學童綜合成長計劃，定期重覆是項研究，以便適時更新學童智能進展水平，掌握學童智能發展情況。

考慮到以上系統特點和要求，研究員選定Microsoft Excel 作為SMILES的操作環境，學童背境資料和觀察數據輸入系統之後，系統會自動進行一系列運算和數據整理，最後按樣本常模制定每位學童的多元智能光譜。至此，量表設計的最後一步至為關鍵，研究員跟學校嘗試確立此系統的建構效度，具體作法是按下述Messick四個步驟修正和解釋多元智能進度基準，使SMILES達到標準參照的境地。在確立建構效度的過程中，Excel 的數據按研究員要求是可以出口到SPSS作更深入的分析，此系統也可以很容易連結到互聯網上，使SMILES最終成為一個網上運作的多元智能報告及諮商系統。

量表效度

評鑑測量首重效度的通盤考慮，Messick（1989）的統一效度理論提供了四個指引性步驟，讓各學校按序評定「多元智能觀察量表」的建構效度，特綜合整理如下：

	評量分數之解釋	評量分數之用途
證據之搜集	第一步：分析智能分數所代表的意義。例如，學生解難的能力如何？創造力的表現如何？潛能已具優勢，或是尚待發展？須知分數的合理解釋，有助教師對多元智能之建構（Constructs）作出全面的了解。	第二步：分析分數解釋對適性素質教育這目標是否切題？是否符合評量背境和環境？有那些情況不適用？
評量後果之考慮	第三步：分析因應智能分數所作的建議是否建基於Gardner教育理念？教學安排和配套措施對學生會否產生積極或消極的後果？	第四步：評鑑此量表是否符合預期的後果？會否可引起其他副作用？

總結

本文扼要描述一個基於「因勢利導、因才施教」教育理想的校本多元智能學習評量系統開發情況，特別闡述清楚此系統的理論基礎、設計原理、以及行動研究所著重回答的問題和需注意的地方。本系統在華人社會是首創的，對實踐適性素質教育的重要性是不言而喻的。

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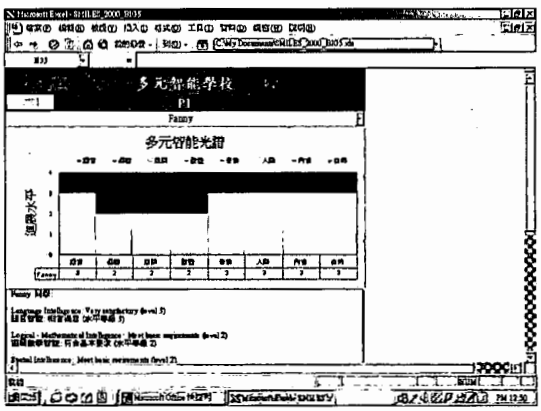
附錄一：SMILES 之多元智能光譜（常模參照）式樣



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附錄 2：澳門一所小學為小一至小四年級而設計的「多元智能觀察量表」題目樣本

學生姓名：_____ 性別： 男 / 女 樣本編號：_____
班別：_____ 學號：_____ 出生日期：_____年_____月_____日
評量老師姓名：_____ 評量完成日期：_____ 年_____月_____日

注意事項：

1. 避免在資訊不全的情況下，以偏蓋全，主觀地作有欠根據的推論。
2. 避免先判斷後觀察，讓偏見妨礙自己虛心求證學生的正確行為表現。
3. 避免不適當的期望和要求影響學生行為的自然表現，應該讓學生自由的表現其真正的心理需求和性向。
4. 評量基準須遵照全級參與評量的教師所達成的共識，教師之間應多交換意見，避免自以為是胡作評量，影響量表的效度。
5. 評量標準：S = 優勢、展現高度興趣， A = 相當於年級 / 年齡水平， L = 展現低度興趣

智能	觀察項目例子
1. 語言	a. 說話有條理，表達清楚。 b. 善記人名、地點、日期或瑣事。
2. 煆輯 -- 數學	a. 喜歡將事物分類、排序，找出規律。 b. 具快速心算的能力。
3. 空間	a. 正確繪畫人 / 事物的比例、方向和位置。 b. 喜歡用圖像來表達思想感情。
4. 肢體動覺	a. 善於模仿他人的動作。 b. 在肢體動作中顯露平衡感、協調感、柔軟度、靈敏度及彈性。
5. 音樂	a. 配合歌曲、用肢體或樂器即興伴奏。 b. 很投入在演奏樂器 / 歌唱之中。
6. 人際	a. 與父母及家人關係良好。 b. 懂得使用不同的方法與人溝通，如身體、語言、眼神等。
7. 內省	a. 能客觀地去描述自己的優、缺點。 b. 誠實、坦白、勇於認錯。
8. 自然觀察者	a. 對動物及植物有特別興趣和好奇心。 b. 對自然界事物具敏銳（聲音、氣味、香味等）的感覺。

註: 每種智能量表由10-15項觀察項目構成，負責評量的教師都要清楚每個項目的評量環境和評量標準。相同的項目在不同的學校，其評量環境和評量標準是可以不同的。

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A Preliminary Study of the Staff Development Programmes in Hong Kong Schools

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Hong Kong schools experience an era of educational change in the 1990s. The major change items fall into the categories of school management (SMI - School Management Initiative and SBM - School Based Management); curriculum (TOC - Target Oriented Curriculum and curriculum adaptation); medium of instruction (EMI and CMI - English or Chinese Medium Instruction schools); educational technology (SAMs and information technology in teaching) and funding system (Quality Education Fund). To further enhance the quality of school education, the Education Commission Report No.7 recommends the setting up of (1) a framework for raising the professional standards of principals and teachers and (2) quality indicators for school performance. These changes denote a demand for professional development programmes for teachers so that they can better meet changing needs and difficulties. The purpose of this study is to look into the issue of staff development programmes in local schools and see how the professional needs of teachers and schools are met.

香港學校教職員發展計畫初探

在一九九零年代，香港的中、小學校經歷了不少教育方面的轉變，當中主要的類別，包括了學校管理、課程、教學語言、教育科技及撥款制度等。為了提升優質教育，教統會第7號報告書更建議(1)提升校長及教師的專業水平，(2)制訂學校的表現指標，面對種種轉變，學校有需要提升教職員的專業能力和水平，本文的目的，是就香港學校對教職員的發展計劃，作一些初步的探討和報導。

Background

The 1990s were an era of educational change for Hong Kong schools in areas such as school management, curriculum and educational technology. The SMI (School Management Initiative) was first introduced in 1991 and later replaced by the SBM (School Based Management) in 1999, allowing school management greater autonomy in general administration, finance and personnel matters but at the same time requiring a higher degree of accountability for school performance. Other major changes include curriculum (TOC, curriculum adaptation), medium of instruction (EMI and CMI schools), educational technology (SAMs and information technology in teaching) and funding system (Quality Education Fund).

These changes mean that teachers and principals need to constantly develop their professional competence to meet changing needs and priorities. However, as reported by Brandt (1994), many people are not convinced that they could depend on higher education to develop the host of new skills and attitudes of professionals in a changing society. They would rather enhance professional competence through conducting staff development programmes. This is no exception in education. Peterson (1994) points out that most of the current staff development in education is driven by new demands on the schools, the rapidity of change in curriculum and technology and the need to improve schools as total learning communities. Cole (1995) also illustrates that staff development and training balance the shortfall between levels of knowledge, skills and attitudes possessed by employees and those required by the job.

Staff development programmes may take many different forms. The more familiar programmes include conferences, seminars, workshops, visits and training courses. They can be offered by an organization or sought independently by an individual. They can be required or voluntary. Lieberman and Miller (1991) regard staff development not as an isolated set of workshops but as part of the school culture. The following are some of the themes raised by Lieberman and Miller (1991) that illuminate the perspective of staff development programmes in education.

1. Understanding the importance of the teacher as a learner, leader and colleague in helping shape a professional community;
2. Confronting the fact that serious staff development involves personal learning about self in relation to one's students;
3. Seeing staff development as a continuous means for "growth in practice";
4. Recognizing the significance of informal networks as a means for intellectual learning and social support.

Butler (1992) focuses on how to structure staff development programmes to support learning. Based on various research studies, he sums up three areas for effective staff development:

1. needs of participant learners;
2. programme characteristics (purpose, structure, content, process, follow-up);
3. organizational characteristics that support effective staff development.

Butler (1992) refers a learner as a person (teacher) who wants something, who notices something, who does something and who gets something. Effective staff development programmes should take into account the needs of learners and involve them in determining their own programmes. Korinek and others (1985) argue that the major purpose of an effective staff development programme is to achieve desired outcomes in terms of information transfer, skill acquisition and behaviour change of learners. Sparks and Loucks-Horsley (1990) suggest five types of staff development models as effective structures. They are individually guided staff development, observation/ assessment, involvement in a development/improvement process, training and inquiry. Of these five structures, the most widely used and researched one is training.

Research in the content of staff development programmes suggest that effective programmes are planned in response to assessed needs of the participants and content matches the current developmental level of participants (Butler, 1992). A systematic delivery process and a follow-up component to provide support and assistance in the actual implementation and application of new knowledge/skills are also important elements of effective staff development programmes (Butler, 1992; Joyce and others, 1989). At the organizational level, characteristics of successful staff development programmes are also identified (Sparks and Locks-Horsley, 1990; Hargreaves and Dawe, 1989). Overall, staff development programmes should be based on the expressed needs of participants revealed as part of the process of collaborative planning and collegial relationships.

In Hong Kong, schools have been encouraged to run staff development programmes. Since the 1990s, a lot of training programmes have been provided by tertiary institutions and sponsored by the Education Department. There are approved released time and partial reimbursement of course fees for teacher participation in these programmes. Local schools are also provided government money to run their own staff development programmes. According to Wong and others (1999), principals and teachers regard staff development as an important item for school development in their needs assessment exercise. To a certain extent, the popularity of staff development programmes in school can also be reflected by the increasing number of services provided by the Division of Continuing Professional Education of the HKIEd. Appendix 1 shows the topic items offered by the Division in 1998-1999.

The purpose of this study is to look into the issue of staff development in local schools and find answers specifically to the following questions:

1. What is the current situation of staff development in local schools?
2. What are the policies and modes of staff development programmes taken by schools?
3. How effective are these programmes? Do they meet the professional needs of teachers and schools?

Method of Study

The methods used to collect data in this study include questionnaires and follow-up group discussion. 34 serving qualified teachers from both the primary (15) and secondary (19) sectors were asked to complete a preliminary questionnaire with structured and open-ended items related to the research questions. The 34 subjects are the total number of course participants attending two refresher training courses offered by the Department of Educational Management and Professional Support, Hong Kong Institute of Education in 1999-2000. To a certain extent, they represent a pilot study of 34 schools. All these teachers have teaching experience for more than 3 years.

The data of the preliminary questionnaire and two follow-up group discussions, one for each sector, will be used to refine and enrich the final version of the questionnaire, which will then be piloted and distributed to all local schools to collect data for analysis. Additional questions on the professional needs of teachers for coping with the changes in school in terms of attitudes, skills and knowledge will also be included in the final questionnaire. The intended subjects in the second round will be school principals and teachers in charge of staff development programmes. Follow-up interviews will also be conducted if necessary. Findings of this study will be reported in two phases. In the first phase, those of the 34 schools will be reported. In the second stage, the report will cover findings for all local schools in Hong Kong.

This paper reports the preliminary findings from 34 teachers and schools. The 34 schools were made up of 19 secondary schools and 15 primary schools. Of the secondary sectors, 17 schools were grammar-type, 16 were subsidized schools, 15 were co-education and CMI-type, 10 had religious sponsorship and 10 had a history of over 20 years. All the teachers were below the age of 35 - 15 were female, 12 were non-degree holders and most of them were cultural subject teachers. With the exception of one teacher, all of them had more than 3 years of teaching experience in their existing schools.

In the primary sector, 8 were whole-day school and 7 were bi-sectional; 15 were subsidized-type and 2 were government-type; 5 were religious and 10 were non-religious. Six schools had a history of 6 years; 4 a history from 11 to 20 years and 5 from 6 to 10 years. As for the teachers, 15 were female, 5 teachers were above the age of 46; 8 from 31 to 40 and 2 from 26 to 30. Six of them were degree-holders. All of them had more than 5 years of teaching experience in their schools. Two were promoted within the last 3 years and one was promoted more than 3 years ago.

Results

The following tables provide data collected from the primary and secondary teachers respectively. Tables 1 and 2 are for primary schools while Tables 3 and 4 are for secondary schools.

Table 1 provides general information of the staff development programmes organized in primary schools. 93.3% of the respondents reported that their schools organized staff development programmes in the last three years. 80% of the respondents reported that there was no change in staff development policy in their school compared to three years ago. The form of staff development includes outside programmes (88.6%), particularly those organized or sponsored by the Education Department. This is followed by in-school programmes conducted by guest trainers or speakers (86.6%), approved paid study leave (73.3%) and subsidies (including reimbursement of course fees) in attending training programmes (40%). Most respondents (86.6%) reported that the themes of the programmes match the needs of the school, although quite a large percentage of respondents held the idea that the nature and themes of the programmes were decided by their school principals (40%), and school principals and senior staff (26.6%).

Table 1: General Information of the Staff Development Programmes (Primary schools) in terms of percentage

Questions/Items	Percentage
1. Did your school organize any staff development programmes in the last three years?	
(a) Yes	93.3
(b) No	6.7
2. Policies of school in offering staff development programmes	
(a) Invitation of outside trainers to conduct programmes at school	86.6
(b) Encouragement and arrangement of staff to attend outside programmes (mainly organized and sponsored by ED)	88.6
(c) Release time for approved paid study programmes	73.3
(d) Offer reimbursements or subsidies for approved training programmes	40
(e) Others	Nil
3. Any change of staff development policy in comparison with 3 years before?	
(a) Yes	20
(b) No	80
4. Do you identify that the themes of the programmes match with the needs of the school?	
(a) Yes	86.6
(b) No	Nil
(No response)	13.4
5. In your opinion, who decide the nature and themes of the staff development seminars, workshops or courses run at school?	
(a) Teachers	26.6
(b) Senior staff	6.6
(c) Senior staff and teachers	13.3
(d) School principal	40
(e) School principal and senior staff	26.6

* With the exception of questions 1, 3 and 4, many respondents chose more than one option as their answers. Thus, the overall percentages for questions 2 and 5 cannot be rounded up as 100.

Table 2 provides more structural details of the programmes. The themes that attracted most frequencies were information technology and computer (f=15), TOC (f=11) and SMI/SBM and its related items (f from items 1 to 6=9). The programmes offered were mainly for all staff (f=28) or relevant subject/committee teachers (f=6). Most of them were in the form of training or refresher courses (12), seminar/ talks (9) and workshops. There were also a variety of others, namely visits and residential courses. As for speakers and trainers responsible for the programmes, Education Department staff made up the largest group (f=11), followed by staff from the tertiary sector (f from items 5 to 7 =5) and school principals (f=2).

Table 2: Details of Staff Development Programmes (Primary schools) in terms of frequencies

Themes	f	Targets	F	Modes	f	Speakers	f
1. SMI?SBM	3	1. All Teachers	28	1. School seminars and talks	9	1. Education Department	11
2. Annual School Plan	2	2. Relevant subject/ committee teachers	6	2. Workshops	9	2. Commercial agencies	1
3. Concept and application of value-added	1			3. Demonstration	1	3. Principals of another school	1
4. Parent-teacher Association	1			4. Outside seminars and talks	1	4. Principals of schools in China	1
5. Team building	1			5. Training or refresher courses	12	5. Baptist University	2
6. Role of teachers	1			6. School visits to China	3	6. Chinese University	1
7. TOC	11			7. Visits	1	7. HKIEd	2
8. Curriculum adaptation	1			8. Learning camp	1		
9. Activity approach	1						
10. IT/computer	15						
11. Discipline/ guidance	3						
12. Special education	1						
13. Language proficiency, including putonghua	3						

Table 3 gives an overview of staff development programmes in secondary schools. Similar to the primary sector, a large number of respondents (94.7%) reported that their schools had organized staff development programmes in the last three years. 64.7% reported that there was no change in staff development policy in their school compared to three years ago. The practice of the "whole-school-day system" and the availability of more resources relative to primary schools may have made in-school programmes conducted by guest trainers or speakers the most popular (94.7%). This is followed by outside programmes, particularly those organized and sponsored by the Education Department (78.9%), time release for study programmes (57.8%), reimbursements or subsidizes for approved training programmes (31.5%) and others (5%), namely joint-school functions and networking, etc. Most of the respondents, but relatively less when compared with the primary sector, thought that the themes of the programmes matched the needs of their school (78.9 %), although the nature and themes of these programmes were mainly decided by school principals and senior staff (42.1%), and school principals (36.8%). Data from the follow-up group discussion reveal that it was quite common to have staff development committees in secondary schools. The committee is usually made up of 2 to 3 senior staff or a senior staff with 2 or 3 teachers, chaired by the vice-principal or approved by the principal. The committee's task is to determine the planning and implementation of annual staff development programmes.

Table 3: General information of the Staff Development Programmes in secondary schools in terms of percentage

Questions/Items	Percentage
1. Did your school organize any staff development programmes in the last three years?	
(a)Yes	94.7
(b)No	5.3
2. Policies of school in offering staff development programmes	
(a) Invitation of outside trainers to conduct programmes at school	94.7
(b) Encouragement and arrangement of staff to attend outside programmes (mainly organized or sponsored by the Education Department)	78.9
(c) Release time for approved paid study programmes	57.8
(d) Offer reimbursement or subsidises for approved training programmes	31.5
(e) Others	3
3. Any change of staff development policy in comparison with 3 years before?	
(a) Yes	35.3
(b) No	64.7
4. Do you identify that the themes of the programmes match with the needs of the school?	
(a) Yes	78.9
(b) No	Nil
(No response)	21.1
5. In your opinion, who decide the nature and themes of the programmes organized at school?	
(a) Teachers	10
(b) Senior staff	5
(c) Senior staff and teachers	10
(d) School principal	36.8
(e) School principal and senior staff	42.1

* With the exception of questions 1, 3 and 4, many respondents gave more than one option as their answers. Thus, the overall percentages for questions 2 and 5 cannot be rounded up as 100.

Table 4 provides details of staff development programmes in secondary schools in terms of frequencies. The two popular themes for the programmes were SMI/SBM and its related items (f from items 1 to 6=16), and information technology and computer (f=11), followed by themes related to students, namely discipline, guidance and getting along with young people (f from items 11 to 13=7). It is interesting to note that two programmes were related to TOC, a programme that would only affect secondary schools in one or two years' time. This shows that some schools would like to get acquainted in advance with potential issues affecting them. The programmes were directed more at all teachers (f=30) than to relevant subject/committee teachers (f=8). Similar to primary schools, most of the programmes took the form of seminars and talks (f=14). This is followed by workshops (f=12), outside courses (f=4), school visits to China (f=3), visits to local schools (f=3) and learning camp (f=1). However, unlike the primary sector, speakers or trainers for secondary programmes are drawn mainly from the tertiary sector (f=12), followed by secondary school principals (f from items 4 to 5 =6) and staff from the Education Department (f=6).

Table 4: Details of the Staff Development Programmes in secondary schools in terms of frequencies

Themes	f	Targets	F	Modes	f	Speakers	f
1. SMI/SBM	3	1. All Teachers	30	1. School seminars and talks	14	1. Education Department	6
2. Annual School Plan	2	2. Relevant subject/ committee teachers	8	2. Workshops	12	2. Social worker	3
3. School vision, mission and goals	2			3. Demonstration		3. Commercial agencies	1
4. Middle management	1			4. Outside seminars and talks	6	4. School principals	3
5. Team building	5			5. Paid leave for training or refresher courses	4	5. School principals of another school	3
6. Staff appraisal	3			6. School visits to China	3	6. Universities/HKIEd	12
7. Teacher quality	1			7. Visits to local school	3		
8. TOC	2			8. Learning camp	2		
9. Probem solving activities	1						
10. IT/computer	11						
11. Discipline/ guidance	3						
12. Classroom management	3						
13. Getting along with young people	1						
14. Teaching in English	2						

Discussion

This paper has provided a general picture of staff development programmes in 34 secondary and primary schools. It has also provided good foundations for a more comprehensive phase-two study investigating policies and planning strategies for staff development programmes in local schools. In the phase-two study, the instruments will be refined accordingly and a more representative sample of local schools and teachers will be drawn.

While the phase-two study is being conducted, several points that emerged from the phase-one study are worth discussing. They are the three areas of effective staff development programmes suggested by Butler (1992), namely learner, programme and organizational characteristics.

Learners

Our preliminary findings support Peterson's (1994) data that schools organize staff development programmes of their own in response to the changing needs imposed upon them. The awareness of the needs of schools as illustrated in this study is relatively externally driven, by the top-down educational innovations imposed by the Government. The nature and themes of the needs of the 34 schools as reflected by the programmes organized and adopted do not differ much between primary and secondary schools. Most of the objectives and themes of the programmes organized are more directly related to the educational innovations initiated by the Government. These include the SBM and Information Technology in general and TOC for primary education in particular. Since many educational innovations were initiated firstly in the secondary sector, there were some variations in

the pace of development between primary and secondary schools. Overall, secondary schools have started their staff development programmes much earlier than primary schools.

As for the involvement of teachers in the decision-making process, the respondents in secondary schools reported that their principals or principals with senior staff decided the themes of annual staff development seminars and workshops. In primary schools, although more involvement of teachers was reported in the decision making process, this was confined to teachers being delegated for such duty. Not many teachers mentioned surveys, formal or informal discussions being used to collect their opinions on themes or purpose of the annual seminars or workshops. To most of the teachers, they were passive instead of participant learners.

Programme characteristics

It is interesting to note that despite the non-participatory characteristics of the decision-making process, most respondents regarded the nature and themes of the programmes suitable for the needs of their schools and thus most of them perceived them as effective. In their opinion, the primary purpose of running staff development programmes was to allow teachers to get acquainted with the government-initiated innovations. When the themes were related to the innovations, to a certain extent, they were effective. Besides, some teachers see effectiveness simply as the smooth running of the programmes. Such lack of a thorough understanding of the concept of effectiveness among teachers might hinder further development and utilization of staff development programmes.

While there are variations in the pace of development, the structure adopted by primary and secondary schools fall mainly within the category of "Training" out of the five staff development models proposed by Sparks and Louch-Horsley (1990). However, the characteristics of "Training" differ slightly between the two sectors. For example, the main policy adopted by secondary schools is to invite outside trainers to conduct seminars and workshops at school, whereas primary schools prefer to make use of outside training programmes organized and sponsored by the Education Department. Attending "refresher and training programmes" has therefore got a high frequency for primary schools but not for secondary schools. Overall, in both sectors, there is heavy reliance on short-term seminars, talks and workshops, although some exchange visits with local schools and schools in China were organized. Other models of staff development programmes such as observation/assessment (e.g., peer observation in teaching), involvement in a development/improvement process (e.g., curriculum design) and inquiry (e.g., action research) have not been fully utilized.

Another point to note is the status of trainers or speakers in the staff development programmes. Apart from the training programmes organized or sponsored by the Education Department, it is found that primary schools relied heavily on Education Department officials (frequency =11 out of 19). On the other hand, secondary schools relied more on trainers from local universities and the Hong Kong Institute of Education (frequency =12 out 28). School principals came next in both cases. The two parties, namely the Education Department and tertiary institutions, therefore, play a very important role as supportive agencies for staff development and educational innovations in schools. The establishment of an interface or further collaboration and co-ordination among the government, schools and tertiary institutions is recommended.

Organizational characteristics

Organizational characteristics for effective staff development programmes identified by Butler (1992) were not evident in our study. There is little evidence showing a culture of overall planning for the professional development of teachers in teaching and learning as self and learners. Staff development programmes are not generally seen as career development in the different stages of the teaching profession. Neither are there any follow-up supportive measures after the programmes were initiated. Sharing among staff after teachers' participation in outside programmes is also rare. In this regard, the programmes organized could only contribute more to the personal development of individual teachers in terms of knowledge, skills or behaviour change (Korinek and others, 1985), if there is any, than to school improvement as a whole. The staff development policies of most of the sampled schools appear to be too passive in that they only respond to the innovations initiated by the Government.

Our follow-up group discussions reveal that there is a need for communication and consensus building in staff

development among educators in school. Quite a number of teachers feel that their schools neither understand nor support the idea of staff development, even though their schools allow them to attend training programmes. Some teachers mentioned that their schools would not allow teachers to attend programmes that last for more days. Two primary teachers were very pessimistic and they anticipated that the number of staff development programmes conducted in their schools would diminish once teachers got familiar with the requirements of the Government on TOC and Information Technology. They used the writing of annual school plans as an example. Once their schools got the format of writing school plans, the school plans became merely documents and were adapted for use every year. No more follow-up or further improvements were made. Some teachers argued that the incentive of running staff development programmes in their schools was simply to use up funding received from the Government. "We have to spend the money and satisfy every party." The parties the teachers referred to include the Education Department, school management boards and principals.

The findings of this pilot study have certain implications for staff development in education and lessons for school administrators or educational policy-makers. While government-initiated innovations supported by training opportunities are able to induce some staff development programmes in school, they are not sufficient to help establish a culture of life-long staff development, as suggested by Lieberman and Miller (1991). Apart from the continuous improvements in the mandatory innovations and training mechanism, much has to be done at the school level. The provision of financial resources such as subsidies and the setting up of staff development committees in some secondary schools can be a good start for more proactive measures. However, the committees should not confine their membership and work merely to planning and implementation of annual programmes directly related to the administration of mandatory innovations. Instead, wider and greater involvement of teachers in the development and follow-up process of various kinds of programmes should be encouraged. School principals should help teachers recognize the SWOT (strengths, weaknesses, opportunities and threats) of their own schools, and thus the specific professional needs of staff in school development. It is also essential to promote a better understanding of the concept of programme effectiveness so that elements or indicators at various levels, namely the learners, the programme and the organization will be taken into consideration in the management of staff development programmes (Butler, 1992). While these issues will be further investigated in the second phase of this study, research on programme effectiveness and school culture building in relation to staff development in Hong Kong schools is also recommended.

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Appendix

Division of Continuing Professional Education
In-School Support service (ISSS) for Primary/Secondary Schools
List of ISSS topics suggested for lectures, seminars and workshops (1998-1999)

Educational Management

1. Educational leadership
2. Managing change in school
3. The implementation of SMI
4. Developing annual plans in SMI schools
5. The writing of school missions and implementation of objectives
6. Quality assurance in school
7. Team building
8. Teacher appraisal
9. Developing home-school relationships

Professional Development

1. Supporting newly-qualified teachers
2. Establishing a mentoring scheme in school
3. Managing a subject panel
4. The role of a form teacher
5. Teacher development
6. Teacher effectiveness training
7. The changing role of the teacher
8. Enhancing student-teacher relationships
9. Promoting effective human relationships in school
10. Helping children to be self-disciplined
11. Conflict management
12. Supporting academically low achievers in school
13. Organizing remedial support in school
14. Helping children with learning and behaviour difficulties
15. Stress management

Curriculum Development, Assessment & research

1. Developing TOC in school
2. Teaching and assessment of TOC in the classroom
3. School-based action research

4. School-based curriculum development
5. Personal and social education
6. Moral, civic and sex education
7. Running a life skills programme in school
8. Creative teaching and pleasurable learning
9. Organizing project work for learning
10. Developing task-based learning
11. Organizing activities for active learning
12. Inclusive education

Subject Teaching Enhancement

Remedial teaching in basic subjects

Chinese language:

1. TOC development in chinese

English language:

1. TOC development in English
2. Collaborative design of a school-based English language enhancement/enrichment programme

Mathematics:

1. TOC development in mathematics
2. Implementation of a problem-solving approach in primary/secondary mathematics teaching

Science:

1. Teaching science-related topics in general studies

Social Science:

1. Basic law education

Art and crafts

1. Workshop on art and crafts curriculum development in primary/secondary schools
2. Workshop on the planning of art and craft teaching scheme in primary/secondary schools
3. Exploration on art and craft teaching resources in primary schools
4. Setting up and improving art & crafts facilities in primary/secondary schools
5. Towards effective teaching and management of the art and crafts subject in primary schools

Music:

1. Workshop on curriculum integration of information technology based music instruction
2. Creativity in the music curriculum for primary/secondary children

Education Technology for Teaching

1. Design and use of teaching packages in the primary/secondary classroom
2. Teaching with new technology and multimedia packages

School functions and activities support

Art and design

1. Design and planning art works for special school events and functions
2. Displaying and exhibiting students' art work in the school premises
3. Organizing art and design extra-curricula activities: art club, exhibition, bazaar, etc.
4. Organizing art and crafts functions and activities in primary/secondary schools

Music

1. Preparation and planning for special school events and functions (music)
2. Consultancy service for school instrument and orchestral/band/ensemble programme organisation and development (western music)
3. Consultancy on organizing a western orchestra
4. Consultancy on organizing a percussion band

Special Education

1. The use of multi-media technology to children in special schools
2. Staff appraisal in special schools
3. Supporting academically low achievers in school
4. Organizing remedial support in school
5. Remedial teaching in basic subjects
6. Helping children with learning and behavioural difficulties
7. Helping children with behavioural problems to study in ordinary primary schools
8. Teaching children with special education needs

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誰是中國古今最有創造力的代表人物——京、穗、港和臺北四地大學生的調查及思考[1]

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本研究表明，北京、廣州、香港和臺北的大學生在對創造力人才的提名和認知上甚為一致。在對創造力人才的認識上，四地的大學皆首推政治名人，次推科技界名人。四地大學生最不看重的創造力人才是藝術界和音樂界名人。這說明，兩岸三地的中國人雖然分離長久，但其對創造力的認知上仍相當一致，都甚看重政治與科技人物的影響，並存在某種“政治先占效應”的作用。

Who are the Most Creative People in Chinese History and at Present Times: A Comparative Study among University Students in Beijing, Guangzhou, Hong Kong and Taipei and Its Implications for Education

This study examined the nomination of most creative people in Chinese history and at present times among 451 undergraduates in Beijing, Guangzhou, Hong Kong and Taipei respectively. The results indicate that despite the social and educational differences in the four cities, the respondents gave quite similar results. Politicians and scientists are among the most nominated candidates for creativity and that artists and musicians are among the least nominated candidates for creativity. The paper attributes the finding is to a "political preoccupation effect" and concludes with a discussion on its implications for educational reforms in Hong Kong, Taiwan and Mainland China..

一. 兩岸三地中國人對創造力認識的研究

創造力泛指個人創造新事物、新概念、新產品的能力。有研究表明，西方人對創造力的理解主要包括動機、自信、審美觀、獨立性、幽默感和批判思維等因素（Cropley，1992），而中國人對創造力的理解則缺乏審美觀和幽默感的因素（e.g.，Rudowicz & Hui，1997）。此外，中國人對創造力的理解也很強調道德的影響。例如，在臺灣，吳武典曾著文指出，自古以來，中國人在對創造力的理解和開發中都很強調道德規範的作用（Wu，1996）。在香港，陳永昌也指出，在香港的中小學教育中，教師會不鼓勵學生去開發那些與社會公德所不容的創造力（Chan，1997）。在中國大陸，查子秀等人發現，培養良好的道德行為是培養創造力的一個重要條件（查子秀，1994）。近年來，在中國大陸教育政策的討論和規劃中，人們甚強調“非智力因素”對智力的影響，其本質上也是在強調通過培養各種人格和動機因素對開發學生的智力及創造力（岳曉東＆龔放，1999）。

另一方面，也有研究表明，兩岸三地的中國人對創造力理解的不同在於：大陸和香港的中國人易將創造力與古往今來的重大科學技術發明聯繫在一起（Wang，1997），而香港的中國人易將創造力與商業和金融上的巨大成就結合在一起（Chan，1997）。例如，大陸在創造教育（creativity education）超常教育（gifted education）方面發表的書籍、研究文章及舉辦的講座大多以中、外科學、技術、文學、藝術上的重大突破為示範。而在香港，創造力的開發通常是以國際金融和貿易上的奇念異想為教材的（Chan，1997）。

雖然兩岸三地的學者都對中國人怎樣看待創造力做過大量的研究，卻很少有人做過兩岸三地的比較性調查，特別是對古往今來創造力代表人物的調查。據此，

[1] 本作者特借此機會感謝香港城市大學研究委員會為本研究撥款（Project No. 9030623）

本作者完成了此項研究，其目的主要有兩個：(1)比較兩岸三地中國人對創造力代表人物的認識差異；(2)就兩岸三地在創造教育上存在的問題提出建議。最後，筆者也希望，通過本項研究可以促進兩岸三地學者在創造力方面的學術交流與合作。

二. 研究方法

受訪者

共有451名大學生參與了本項研究，其中包括192名北京大學生、70名廣州大學生、117名香港大學生和72名臺北大學生。北京大學生取樣于四所大學(清華大學、北京理工大學、北京師範大學、北京工業大學)，其中男性占53.3%，女性占47.7%，平均年齡為19.7歲(SD=1.1)。廣州大學生取樣于兩所大學(中山大學、華南師範大學)，其中男性占48.6%，女性占51.4%，平均年齡為20.4歲(SD=1.5)。香港大學生取樣于兩所大學(香港城市大學、香港浸會大學)，其中男性占29.9%，女性占70.1%，平均年齡為20.2歲(SD=1.4)。臺北大學生取樣于一所大學(臺灣政治大學)，其中男性占38.9%，女性占61.1%，平均年齡為21.2歲。絕大部分學生是文科、理科和商科的一、二年級學生。選擇這四地的大學生，是為了使大陸、香港和臺灣三地的取樣可具比較性，因為上述大學在學校環境、師資條件、知名度和學生生源方面都相?等同。

測量方法

本研究所用的問卷要求受訪者分別填寫出三名中國古代和現代最有創造力的人物，並具體指出其突出方面。這樣做的目的是使受訪者在提名最具創造力代表人物時，明確知道其成就，而不是根據某人的知名度來隨意提名的。此外，要求受訪者提名三名而不是一名中國古代和現代最有創造力的人物，是為了使本研究的取樣更具代表性和多樣性。

為避免兩岸三地受訪者在閱讀理解上的差異，大陸的問卷皆用簡體字印刷，香港和臺北的問卷皆用繁體字印刷。另外，對於個別兩岸三地之用義不完全一致的詞語，問卷做個特別調整，並請有關專家做了互返翻譯(back translation)。

資料處理

由於本研究採取了開放式問卷調查方法，所以怎樣有效地處理其收集資料是正確解析本研究成果的關鍵。在此當中，筆者採取了如下步驟：(一) 將所有的提名人物及其提名原因全部輸入資料庫；(二)將這些提名人物及其提名原因按與創造力的相關程度進行分類。其中作者先與一位研究助手分別鑒別，然後再一同匯總。例如，與創造力有關的因素包括科技發明與創造(如發明指南車、造紙術)、政治改革(如變法維新、改革開放)、政治創見(如三民主義、"一國兩制")、獨到的見解(對"雞鳴狗盜"另有解)等，而與創造力無關的因素包括名聲(如偉大人物)、人格因素(如有勇有謀、思維敏捷)、個人政治成就(如統一中國、建立某王朝/政權)等；(三)當在分類過程中出現分歧時，筆者會尋求第三者、甚至第四者的意見，以最後確定其屬性；(四)將分類結果通過適當的圖表表現出來。

三・結果報告

1、四地大學生所提名最具創造力人物之類型對比

表 1：羅列了北京、廣州、香港和臺北大學生所提名中國古代和現代最具創造力人物的分類比較。下列發現值得特別注意。

表 1. 北京、廣州、香港、台北大學生提名之中國古代与現代創造力代表人物類型對比[4, 5, 6]

	北京 (n=185)				廣州 (n=69)				香港 (n=117)				台北 (n=50)			
	古代 (總數=531)		現代 (總數=610)		古代 (總數=152)		現代 (總數=199)		古代 (總數=249)		現代 (總數=317)		古代 (總數=135)		現代 (總數=118)	
	人數	百分比	人數	百分比	人數	百分比	人數	百分比	人數	百分比	人數	百分比	人數	百分比	人數	百分比
政治人物	275	49.9	429	70.4	67	44.1	142	71.3	113	45.3	232	70.2	43	32.9	65	55.1
科學家	108	20.3	84	13.8	31	20.1	31	15.6	12	4.8	9	2.8	24	17.8	12	10.2
發明家	73	13.8	1	0.2	18	11.8	1	0.5	52	20.9	0	0	32	23.7	0	0
作家/詩人	16	3.0	66	10.8	18	11.8	17	8.5	19	7.6	55	17.4	22	16.3	27	22.3
哲學家/教育家	53	10.0	5	0.8	14	9.2	0	0	47	18.9	4	1.3	3	2.2	0	0
軍事家	14	2.6	1	0.2	4	2.6	2	1.0	5	2.0	0	0	5	3.7	0	0
歌星/影星	0	0	2	0.3	0	0	1	0.5	0	0	2	0.6	0	0	1	0.8
導演	0	0	3	0.5	0	0	1	0.5	1	0.4	3	0.9	0	0	4	3.4
音樂家/作曲家	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.8
商人/企業家	0	0	1	0.2	0	0	0	0	0	0	6	1.9	0	0	4	3.4
藝術家/畫家	0	0	2	0.3	0	0	0	0	0	0	2	0.6	0	0	0	0
其他	2	0.4	16	2.6	0	0	4	2.0	0	0	4	1.3	0	0	2	1.7

[4] 本表中所有的名人是由本文作者和另外兩位助手先分別鑒別，再一同匯總而定的。
[5] 在本表中，凡 20 世紀前的人物皆算作古代人物，凡 20 世紀后的人物皆算作現代人物。
[6] 這里指所有被提名人物之總數。

一、四地大學生皆視著名政治人物最具創造性，其百分比之高令人側目。具體地說，在北京大學生提名人物中，有 50% 的古人和 70% 的現代人是政治人物；在廣州大學生提名人物中，有 44% 的古人和 71% 的現代人是政治人物；在香港大學生提名人物中，有44%的古人和70%的現代人是政治人物；在臺北大學生提名人物中，有 32% 的古人和 55% 的現代人是政治人物。除臺北大學生外，其他三地大學生的提名比例也相當接近。這突出表明，兩岸三地的大學生都易將創造力與治國的突出成就緊密結合起來。

二、著名科學家和發明家之提名比例僅次於政治人物，其百分比遠遠超過其他人物種類。具體地說，在北京大學生提名人物中，有 44% 的古人和 14% 的現代人是科學家和發明家；在廣州大學生提名人物中，有32%的古人和16%的現代人是科學家和發明家；在香港大學生提名人物中，有25%的古人和9%的現代人是科學家和發明家；在臺北大學生提名人物中，有42%的古人和12%的現代人是科學家和發明家。除香港大學生外，其他三地大學生的提名比例相當接近。這表明，兩岸三地的大學生也易將創造力與科學技術的重大突破緊密結合起來。

三、著名藝術家、音樂家、歌唱家、導演和演員等十分強調個性和獨立風格之人物的提名極其低，其排名竟在軍事家、作家、教育家、哲學家等類人物之後。這表明，兩岸三地的大學生都不將創造力與藝術上的成就結合起來。

總而言之，本研究表明，兩岸三地的中國人都易於從政治和科學技術的角度來看待個人的創造力，而不怎么從文學和藝術的角度來加以判斷。值得特別一提的是，香港大學生在看待創造力代表人物時，竟絕少考慮商界的成功人士。這似乎表明，香港大學生在對創造力的認知上，也深受中國文化的影響。

2、四地大學生所提名最具創造力人物之排名前十名對比

表2和表3：展示了北京、廣州、香港和臺北大學生所提名中國古代和現代最具創造力人物之前10名排位。在中國古代最具創造力人物之前10名排位中（見表2），四地大學生的提名相當接近，只是排名次不大一致。相比之下，北京和廣州大學生的提名最相接近。在兩地十名提名人當中，有八位人名是重疊的。他們分別是秦始皇、諸葛亮、孔子、張衡、蔡倫、孫子、李白和畢升。而在前五名提名人中，有兩位人的排位是一致的，他們分別是秦始皇（第1位）和張衡（第2位）。在兩地所有提名人中，有三位是政治人物，四位是科學家或發明家（北京為五位），其餘均為文學家。在香港和臺北大學生的提名人中，有八位人名是重疊的。他們分別是蔡倫、秦始皇、諸葛亮、張衡、孫子、李白、黃帝和大禹。在兩地所有提名人中，有四位是政治人物，有三位是科學家或發明家，其餘均為文學家。

表2. 北京、廣州、香港、台北大學生提名之中國古代創造力代表人物之前10名人物對比[7] [8] [9] [10] [11]

	北京 (n=546)[11]		廣州 (n=164)		香港 (n=396)		台北 (n=186)	
	位置	百分比	位置	百分比	位置	百分比	位置	百分比
四地提名								
秦始皇*	1	14.1	1	14.6	5	6.6	4	6.5
張　衡**	2	12.1	2	12.8	9	2.5	2	8.1
諸葛亮*	6	4.2	6	4.3	1	13.4	2	8.1
李　白***	10	4.0	7	3.7	6	6.1	8	3.8
三地提名								
蔡　倫**	-	-	7	3.7	1	13.4	1	12.4
孔　子***	4	4.9	3	6.1	3	10.1	-	-
畢　昇**	6	4.2	3	6.1	8	3.0	-	-
兩地提名								
林則徐*	3	7.5	5	5.5	-	-	-	-
武則天*	6	4.2	9	3.0	-	-	-	-
祖沖之**	6	4.2	9	3.0	-	-	-	-
黃　帝**	-	-	-	-	4	6.8	6	4.8
孫　子***	-	-	-	-	7	4.3	8	3.8
倉　頡**	-	-	-	-	9	2.5	7	4.3
大　禹*	-	-	-	-	9	2.5	10	3.2
一地提名								
魯　班**	5	4.8	-	-	-	-	-	-
曾母芹***	-	-	9	3.0	-	-	-	-
蘇　軾***	-	-	-	-	-	-	5	5.9

*　爲著名政治家
**　爲著名科學家、發明家
***　爲著名文學家、哲學家

表3. 北京、廣州、香港、台北大學生提名之中國現代創造力代表人物之前10名人物對比[12] [13] [14] [15]

	北京 (n=806)[15]		廣州 (n=233)		香港 (n=525)		台北 (n=251)	
	位置	百分比	位置	百分比	位置	百分比	位置	百分比
四地提名								
毛澤東*	2	17.7	2	16.8	3	10.5	5	4.5
孫中山*	3	8.7	3	11.8	2	18.2	1	12.6
三地提名								
鄧小平*	1	20.6	1	26.8	1	20.3	-	-
魯　迅***	6	2.8	5	4.1	7	2.3	-	-
詹天佑**	5	3.0	4	6.4	10	1.5	-	-
周恩來*	4	3.4	8	1.4	9	2.1	-	-
兩地提名								
錢學森**	7	2.5	5	4.1	-	-	-	-
康有爲*	8	2.1	8	1.4	-	-	-	-
梁啓超*	9	1.8	7	2.3	-	-	-	-
一地提名								
金　庸***	-	-	-	-	4	7.6	-	-
朱鎔基*	-	-	-	-	5	3.4	-	-
江澤民*	-	-	-	-	6	3.1	-	-
貝聿銘**	-	-	-	-	7	2.3	-	-
李遠哲**	-	-	-	-	-	-	2	6.5
胡　適***	-	-	-	-	-	-	3	5.3
陳水扁*	-	-	-	-	-	-	3	5.3
徐志摩***	-	-	-	-	-	-	5	4.5
李登輝*	-	-	-	-	-	-	7	3.2
蔣經國*	-	-	-	-	-	-	8	2.4
吳　京*	-	-	-	-	-	-	9	2.0
何大一**	-	-	-	-	-	-	9	2.0

*　爲著名政治家
**　爲著名科學家、發明家
***　爲著名文學家、哲學家

[7] 本表中所有的名人是由本文作者和另外兩位助手先分別鑒別，再一同匯總而定的。
[8] 如兩名以上的提名人之百分比一致時，它們並列其位，如：諸葛亮, 祖沖之, 武則天的提名百分比相同(4.2%)，所以並列第6名，
[9] 這里的百分比是按所有被提名人數之總和來計算的。
[10] 在本表中，20世紀前的人物皆算作古代人物。
[11] n此處表示所有被提名人物之總數。

[12] 本表中所有的名人是由本文作者和另外兩位助手先分別鑒別，再一同匯總而定的。
[13] 這里的百分比是按所有被提名人數之總和來計算的。
[14] 在本表中，20世紀內的人物皆算作現代人物。
[15] n此處表示所有被提名人物之總數。

在四地大學生所提名中國現代最具創造力人物之前10名排位中（見表3）。北京也與廣州大學生的提名相當雷同。在前十名提名人中，有九位人名是重疊的。而在前五名提名人中，有四位人的排位是一致的，他們分別是鄧小平（第1位）、毛澤東（第2位）、孫中山（第3位）和林則徐（第4、5位）。在兩地所有提名人中，有七位是政治人物，其餘為科學家或文學家。比較香港和臺北大學生的提名人選，香港大學生的提名排位更接近北京和廣州大學生的提名人選。特別是其前三名人選鄧小平、孫中山和毛澤東，與北京和廣州大學生的前三名人選完全一致。在香港大學生的提名中，有五人是政治人物，有三位是文學家，有兩位是科學家。在臺灣大學生的提名中，有四位是政治家，有三位是文學家，其餘是科學家和文學家。

總而言之，在四地大學生所提名創造人物排位前10名中，政治家占主導地位，其次為科學家和文學家。秦始皇、諸葛亮、孔子和張衡是四地公認的最有創造力的古代人物。鄧小平、孫中山和毛澤東是四地公認的最有創造力的現代人物。

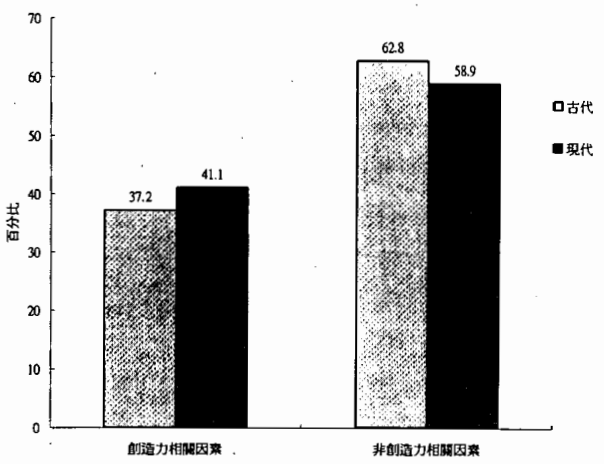
3. 四地大學生所提名政治人物之創造力與非創造力因素對比

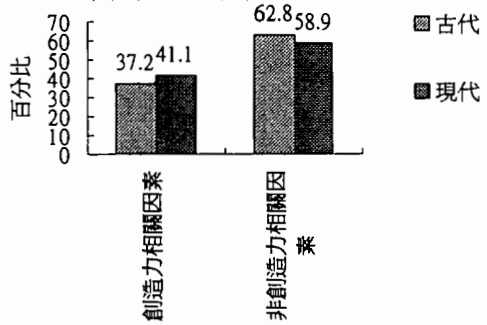
鑒於四地大學生所提名創造力代表人物中有相當比例的人物是政治名人，作者特別對比了四地大學生所提名中國古代與現代政治人物作為創造力代表人物之創造力與非創造力因素個人成就、名氣或人格魅力之間的比例關係[2]，見圖1)。

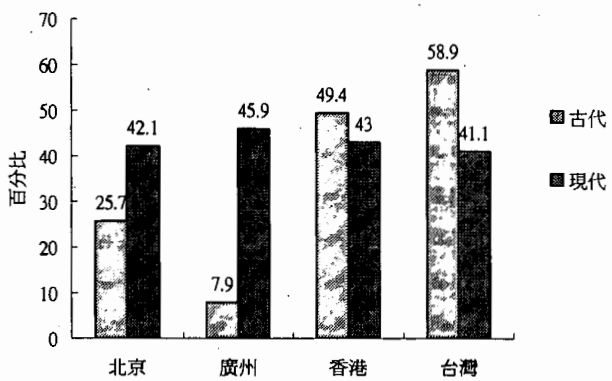
圖1. 中國古代與現代政治人物被提名創造力代表人物之原因分析

	古代	現代
北京	25.7	42.1
廣州	7.9	45.9
香港	49.4	43
台灣	58.9	41.1
北京	74.3	57.9
廣州	92.1	54.1
香港	50.6	57
台灣	24.3	75.7

	古代	現代
創造力相關因素	37.2	41.1
非創造力相關因素	62.8	58.9







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[2] 在對比中，筆者特別將那些只提人名而未注明具體原因的提名都刪除掉，以為避免分析中出現任何含混不清的局面。

如圖 1 所示，四地大學生的提名原因更多地與非創造力因素有關，其中對古人的因素對比更顯著(中國古代政治人物創造力和創造力因素對比，37.2：62.8；中國現代政治人物創造力和創造力因素對比，41.1：58.9)。為進一步揭示其中因素對比，筆者又特別對四地大學生提名政治人物之前三名的原因做了詳盡的內容分析 (content analysis) 3。表4和表5分別羅列這了這一分析結果。

表4. 中國古代政治家被提名為創造力代表人物之前三名人物因素分析[16] [17]

	諸葛亮	秦始皇	武則天
創造力相關因素			
科學發現/發明	15.8%		
有創造力	20.4%	2.9%	
反傳統意識			25.0%
百分比總數	36.2%	2.9%	25.0%
政治相關因素			
有治國才能	24.5%	2.9%	
有政治謀略	15.3%		
統一中國		48.9%	
統一文字与度量衡		3.6%	
修筑長城		12.9%	
當第一個女皇			42.5%
有個人魅力與名氣		7.9%	
百分比總數	38.8%	71.2%	42.5%
沒有具体注明原因	27.6%	28.1%	30.0%
其他	3.1%		7.5%

表5. 中國古代政治家被提名為創造力代表人物之前三名人物因素分析[18] [19]

	毛澤東	鄧小平	孫中山
創造力相關因素			
創立軍事理論	8.4%		
創立農村包圍城市理論	4.2%		
創立中國特色社會主義		11.0%	
創立“一國兩制”理論		32.8%	
創立“三民主義”思想			29.8%
有創造力	2.1%	2.5%	3.6%
百分比總數	14.7%	46.3%	33.4%
政治相關因素			
有治國能力	6.7%	22.1%	
有個人魅力	8.4%	3.7%	
建立新政權	12.2%		13.3%
發展馬列主義	5.9%		
發動文化大革命	5.5%		
實施國內改革	5.5%		
發動辛亥革命			22.0%
百分比總數	44.2%	25.8%	35.3%
沒有具体注明原因	40.8%	31.9%	31.2%
其他	0.4%	1.5%	3.7%

[16] 本表之前三政治与科技名人之選取是以四地大學生提名人物總百分比排位來確定的，所以沒有地域差异。

[17] 本表中的理由分類是由本文作者和另外一位助手先分別鑒別，再一同匯總而定的。

[18] 本表之前三政治与科技名人之選取是以四地大學生提名人物總百分比排位來確定的，所以沒有地域差异。

[19] 本表中的理由分類是由本文作者和另外一位助手先分別鑒別，再一同匯總而定的。

在對於中國古代三位政治人物的創造力認知上，四地的大學生考慮政治方面的因素明顯多過創造力方面的因素(見表4)。具體地說，在對諸葛亮的提名因素中，有將近40%的因素與政治有關，而只有36%的因素與創造力有關；在對秦始皇的提名因素中，有超過70%的因素與政治有關，而只有2.9%的因素與創造力有關；在對武則天的提名因素中，有超過40%的因素與政治有關；而只有25.%的因素與創造力有關。

同樣，在對於中國現代三位政治人物的創造力認知上，四地的大學生考慮也大多考慮政治方面的因素(見表5)。具體地說，在對毛澤東的提名因素中，有超過40%的因素與政治有關，而只有15%的因素與創造力有關；在對孫中山的提名因素中，有超過35%的因素與政治有關，而只有33%的因素與創造力有關。唯一例外的是對鄧小平的提名因素中，有超過25%的因素與政治有關，而與創造力有關的因素占46%。

總而言之，四地大學生在看待創造力代表人物的表現時，多從個人影響力和歷史作用的角度來看問題，而甚少看其創造力表現的實際效能。這再次表明，中國人在對創造力的認知上，明顯易受政治或道德因素的影響。

四・結果討論

本研究表明，北京、廣州、香港和臺北的大學生在對創造力代表人物的理解甚為一致。首先，在對創造力代表人物的認識上，四地的大學生皆首推政治人物，次推學術界和文學界人物，四地大學生最不看重的創造力代表人物是藝術界、音樂界人物。這表明，四地大學生在看待創造力表現時，多從政治和學術的角度看問題，而甚少從其他學科的角度看問題。其次，四地大學生在看待創造力代表人物的表現時，多其看個人的社會影響，而少看其實際效能。這也表明，中國人在對創造力的認知上，明顯易受政治和道德因素的影響。

對於上述現象的出現，岳曉東(2000)以“政治先占效應”一詞來加以解釋。它具體表現為：中國人在對創造力人才的認知當中，有相當大比重的因素與創造力本身無關，而是與其創造力人才的社會影響和成就有關。而就其成因來說，這一現象的出現是多種社會文化因素綜合作用的結果，其中包括諸如中國儒家思想之“修身、齊家、治國、平天下”理念，中國社會之“官本位”思想，中國人對權威人物的傳統崇拜與順從，中國人的社會中心取向等因素的作用。至於其何種因素占主導地位，其相互之間又有何關係，尚有待於人們做進一步探討和驗證(楊國樞，1981)。鑒於上述發現，筆者認為，兩岸三地的教育工作者在教學實踐中，應特別注意以下幾點思考。

首先，本研究表明，四地大學生對創造力的理解上相當單一化，主要從政治和科學的尺度來理解創造力，忽略了創造力在其他領域的應用。這與當今知識社會之不穩定性，不可測性、跳躍性和複雜性的特點十分不吻。所以，我們在教育實踐中，應培養學生多元化理解創造力的構架和表現方式，實現對創造力理解的深刻的思想解放。在此意義上講，學生對創造力代表人物的理解應包括各行各業的人士才算理想。事實上，目前兩岸三地的教育模式，本質上都是“應試教育”的模式。其教育目的狹隘，教育手段單調，教育評估“一刀切”。在這種制度下，學校幾乎成為了“教育機器”，學生也都成為了模子。學生的個性不能受到應有的重視，學生的創造力受到嚴重扼殺。其結果，兩岸三地的中國學生皆以擅長考試而聞名於世，可以獲得一個又一個國際奧林匹克知識競賽的獎牌。但我們學生的創造意識遠不如歐美一些國家的學生活躍，除了熟識“主課”知識外，其他領域的知識知之甚少，嚴重缺乏想象力(岳曉東&龔放，1999)。因此，從應試教育向素質教育的轉變，本質上也是教育觀的轉變，它也包括了對怎樣接受和創新知識的轉變。知識的傳遞與評估，再也不能採取“一刀切”，“一道杠”的做法了。哈佛大學心理學家加登納(H. Gardner，1993)就提出，人類的智力有不同的表現方式，它主要包括：語言智力、音樂智力、邏輯－數理智力、空間智力、身體運動智力、人際關係智力、個人內部智力，這本質上是對智力的多元化理解。在對創造力的理解上，也同樣存在著一個多元化的問題，我們要大力培養我們的下一代從各個方面理解創造力，不要將它定位在某個或某幾個領域當中。事實上，早在中世紀，捷克教育家誇美紐斯就呼籲，教育不應成為人類智慧的屠宰場(盧曉中，1994)。五個世紀過去，他的話仍對我們的教育深具指導意義。

其次，本研究的發現顯示，兩岸三地的大學生在看待創造力代表人物時，只看重政治和科技界傑出人物的表現，不看重其他領域中傑出人物的表現。這本質上是“創造力非凡論”的表現，它忽略了創造力的絕大部分表現是在日常生活中這一事實。美國康奈爾大學心理學家瑞普(Ripple，1999)指出，自古以來，人們在對創造力的認識上，一直存在著“非凡論”和“平凡論”兩種對立的觀點。持“非凡論”觀點的人，將創造力與某些科學技術的重大突破和發明聯繫起來，認為創造力是少數

天才人物的專長，是特殊能力的表現，他們甚至試圖從人大腦神經網路的差異來鑒定天才人物的特殊能力。而持“平凡論”觀點的人，將創造力與日常生活的革新能力結合起來，認?創造力是人人與生俱來的能力，是所有人具有的潛能，需要加以不斷地開發和利用。因此，創造力本質上就是人重新認識和解決問題的能力表現，在這層意義上講，人人皆有創造力，一如“三百六十行，行行出狀元”。美國著名心理學家馬斯洛(Maslow，1971)也提出，人的創造力可有特別技能的創造力(special-talent creativity)和自我實現的創造力(self-actualizing talent)之分。其中前者是人的個體差異，後者是人的共同潛能。由此，消除人們對創造力認識存在的種種誤解，對於大力開發個人的創造潛能具有重大意義。

所以，我們在教育實踐中應大力開發和培養學生的平凡創造力，使他們徹底擺脫“創造力非凡論”的束縛。現代教育應使學生懂得：創造力是每個人與生俱來的能力，只有懂得珍惜它的人，才能積極地加以開發和利用，才能使人的生活過得更加美好和充實。在這層意義上講，不斷認識和開發個人的創造潛力，才是現代教育的根本目標和意義之所在。臺灣師大教育系黃政傑(1998)亦指出，教育的本質在觀強調人性尊嚴、個人自由及個人價值，希望教育能重視發展學生個人自由開放的心靈，發揮個人的獨特性和創造性，養成樂觀而有信心，進取負責而能自我實現的個人。由此，大力培養學生在不同領域的創造力是二十一世紀教育的最大挑戰。就方法論而言，本研究採取了定性方法(qualitative method)和定量方法(quantitative method)相結合的方法來調查兩岸三地大學生對創造力的認識差異，為的是使兩種研究方法所取得的結果可以相互驗證(cross-validation)。令人滿意的是，本研究中所獲取的這兩方面結果甚相呼應。例如，無論是封閉式問卷還是開放式問卷的結果都表明，四地大學生對創造力及其代表人物的認識都相當一致。由此，採取這種開放式和封閉式問卷相結合的研究方法可進一步確保調查結果的可信度。另外，本研究還對開放式問卷所收集的資料進行了客觀的、系統的量化處理。這也是對如何處理開放式問卷資料的一種新嘗試。當然，本研究尚存有一些不足，如取樣規模不夠大，範圍僅限於大學生群體，男女比例不夠完全對等，研究方法單一等問題。所以，在今後的比較研究中，當儘量擴大取樣的範圍和比例，而不只限于學生群体，以使研究所得出的結果更具代表性和普遍指導意義。

最後，從研究意義來說，本文所引發的問題可能比其提出的問題更?重要。因為乞今為止，兩岸三地的學者還很少有人認真研究過中國人對創造力代表人物的認知特點，故此本文的意義亦在於開創這方面理論探討和研究。

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教育規模經濟與教育交流合作

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學校教育產出，是受到各校本身不同的比較優勢、競爭優勢、和教育要素投入能力所約制，所以須要通過學校教育要素和產出的跨校流動和配置，來互補校際間彼此在教育優勢和投入條件上的不足，讓各間學校教育發展達到應有的最佳規模點，並取得最高規模經濟效益。

Economies of Scale and Education Exchange and Collaboration

The educational output of schools is subject to limitations of their comparative advantage, competitive advantage, and input capacity of educational factors. It requires the mobility and distribution of school educational output and factors in an inter-school level to compensate for the shortcomings of educational advantage and factor input between schools, so that each school may achieve an optimal development and obtain maximum economies of scale.

一. 教育規模經濟與教育交流合作的基本關係

本文所謂的“教育交流合作”，是指學校的要素資源投入(例如人力、物力和財力資源)或教育產出(例如推行正規課程和課外活動)在校際之間自由流動、配置、交換和組合。遵照以上教育交流合作的“自由”原則，甲學校便可借用乙學校的要素資源作為本身教育生產之用，此外，甲乙兩學校還可融合和互補彼此要素資源來共同辦學和推行教育生產。李建興(1996)具體地就教育交流合作提出了綜合高中的課程規劃與試辦方案，其建議包括以下三項：

1. “合辦式”學校構想，即兩校以上，師資、設備資源彼此補足，共辦綜合高中課程，但他補充這構想須要解決校際間地理距離的有關技術問題；
2. 建立“地區性(職業)技術教育中心”，即學校本身只有普通科課程，需要上 某種職業類科目時，再到地區性技術類科教育中心上課；
3. 由一批“巡迴教師團”輪流到學校教學。

王善邁(1996)認為“教育規模經濟”是一種增加教育要素或資源投入所帶來的經濟效益，實現教育事業擴大和發展。而教育交流合作與教育規模經濟之關係受到了許多許多教育經學者的注意，以下便是一些例子。丁小浩和閔維方(1997)發現各校藉相互合併或聯合辦學來擴大教育規模，會提高規模較益和增加教育投入要素資源的生產力和效益率。蓋浙生(1996)說明了校際間的合作規劃可擴大辦學規模，有利教學設備的共同使用及教師的交換教學，促成人力、物力、財力和空間的最佳配置模式和最佳學校規模，最終引致教育經費節流和學校經營內部規模經濟效益，蓋浙生（1994）還解釋這是因為充分運用整體性及不可分性資源(例如校舍設施)、學校人力資源(例如教師)的分工與專門化、對學生多樣性的適應、和提供更多類型的課程和更多成本較高的課程。所以利用教育交流合作來達到教育要素和資源利用的充分性和適當性、實現學校教育規模經濟的理念，逐漸受到學術界的肯定。

Bannock等(1992)說明規模經濟的形成可包括如下三個因素，第一，擴大投入規模可降低生產的平均成本。第二，人力與物力資源能透過專門和分工而得以提高生產力。第三，容許昂貴和長遠的生產研究和發展。以下便是進一步論述這三因素與教育交流合作的邏輯關係。

二. 平均成本降低

當學校資源投入量不能處於最佳規模點，靳希斌(1997)視這情況為教育規模過小型或過大型，兩者都會降低教育投資效率和減少教育資源利用的充份性和適當性，其結果便是學校不能以最低平均成本來推行教育生產事業。所以教育交流合作的其中重要意義是協調和平衡各校在教育投入規模或生產量的過高或過少問題。

學校之間的交流合作的其中重要意義，便是透過均衡各學校的教育發展規模，讓各有關學校資源投入量能達至最佳規模點。其策略是容許各學校的資源要素投入或教育產出在校際之間自由流動、配置、交換和組合。例如當某一學校因學科課程供給的規劃出現失誤，高估了課程需求，在一些學科課程投入了過量資源要素，這會造成不必要的資源浪費，和可能減緩了學校本身其他方面(例如課外活動)的應有發展，就此可通過策略性學校協作夥伴關係，把本校多餘或沒有需求價值的資源要素或教育產出，輸出到其他相反因教育投入規模過小而出現教育產出(有關學科課程)不足的學校，其中可能辦法是容許外校學生在短期內就讀本校出現空缺或低需求的課程，來換取本身更加需要的資源要素或教育產出，好像批准本校學生參加外校的課外活動，這樣便可有助減少各學校在校內和校際間的教育發展規模不均的情況，最終有利各校教育事業，達到最佳教育規模點，讓學校教育生產事業保持最低平均成本水平。

但單靠教育投入量的操控，來擴大學校教育規模和降低平均成本的概念，不足全面解釋教育規模經濟下，所引發學校資源要素的優化配置、教育產出的策略性取向、教育規模經濟效益的實現的問題。因為規模經濟還牽涉校際間存在著專門化、分工協合和優勢互補的問題，這同樣成為了教育要素和產出如何跨校流動和配置的決定因素，跟著的便是要詳細討論這一點。

三. 專門化和分工

第二項要討論的是學校教育交流合作如何透過促成教育生產專門化和分工，促進教育生產力提升，取得學校教育規模經濟效益。教育生產專門化和分工的其中主要原因是學校之間存在教育生產要素稟賦的質和量差異(王衡生和吳有必，1996)，這樣會影響到學校教育生產的機會成本與比較優勢。

就此胡曉鶯和許明(1997)給了我們一關鍵思路，他們以比較優勢或機會成本原理來說明"教育貿易"觀念，把教育交流事業視為一種教育服務的"出口"與"入口"貿易項目，。他們認為學校可"出口"一些具比較優勢(即教育生產機會成本較低)的教育產出項目到外校。相反，學校也可從外校"入口"一此本校具比較劣勢(即教育生產機會成本較高)的教育產出項目。其實學校各異的要素資源稟賦決定了校際間的不同比較優勢，同時學校的比較優勢可從校際間不同教育產出項目上具差異的生產力和機會成本中體現出來，通常具比較優勢的學校在每單位教育產出上耗費機會成本較少，或相對地每單位機會成本可造成較多教育產出。因此不同學校可根據各自比較優勢來衡量各校的教育生產力，透過校際教育貿易，容許教育產出可在校際間自由流動和適當配置，來互補彼此生產力的不足，以下試舉出一假設性例子作進一步具體說明。

假設甲乙兩校彼此在體育和德育上出現比較優勢或生產力的差異，甲學校(具宗教背景但缺乏體育設施)在德育項目具比較優勢或教育生產力較強，但在體育項目具比較劣勢或教育生產力較弱。相反，乙學校(具較多體育設施但沒有宗教背景)在體育項目具比較優勢或教育生產力較強，但在德育項目具比較劣勢或教育生產力較弱，如果容許甲乙兩學校結盟，通過教育貿易互補彼此在比較優勢或生產力的不足，甲乙兩校在德育和體育項目的總體教育生產力和產出將會提升。

但波特(Porter ， 1990)認為在複雜工業科技社會下，比較優勢理論單純以生產力和成本因素來衡量優勢是不全面，因而提出競爭優勢(Competitive Advantage)理論，補充了一些非單純成本因素(例如需求條件、相關或支援性機構、機遇等考慮項目)來衡量優勢。所以辦學團體(聯繫相關或支援性機構)、地理位置(影響學生來源和教育需求情況)、教育改革令大學招生重視中學生課外活動表現(機遇)等等例子，都構成學校的非成本和非生產力因素、決定了它們的競爭優勢、影響校際間如何專門化、分工、發展互惠的協作與聯盟，實現校際教育貿易的策略性取向。

四. 研究和發展

第三項探討的是學校如何藉教育交流合作，實現昂貴和長遠的教育研究和發展，最終取得學校教育規模經濟效益。在研究方面，今天學校所承擔的複雜多樣的社會職能和面對千變萬化的教育問題，已絕非單靠一校本

身的辦學經驗和管理方式便可促進學校成長和實現教學目標，所以校際間有必要擴大資訊和經驗交流廣度和深度、藉跨校交流協作方式分享辦學心得和教育成果，並研究解決彼此教育問題和達成共同教育目標。現今已出現一些可喜的趨勢，就是高等院校和教育團體協助學校組織教育論壇、建立合作網絡和開拓電腦互聯網系統，其目的都是希望有利於研究教育路向和解決教育問題。

此外，學校的課程發展、設施改善、甚至開創教育新理想等等探索嘗試，都可能須要學校投入昂貴資源成本、甚至承擔一定風險，這些發展路向並非一所學校能輕易單獨面對的，所以香港便有“學校村”、“地區校長會”、“地區教師專業交流”等計劃方案出現，雖然它們重點各異，但其最終目的是促進各校結盟、拓展教育新路向。

五. 結論

跨校的教育交流合作是可促成學校的教育規模經濟，其原理可分三方面來分析。第一，教育交流合作可擴大學校教育生產規模，讓學校發展達到最佳規模點，使要素資源得到充份運用和優化配置，保持教育生產的平均成本在最低水平。第二，教育交流合作促進不同學校，在策略性協作機制下進行專門和分工，互補彼此比較優勢和競爭優勢的不足。第三，教育交流合作容許學校承擔起昂貴的教育研究和長遠的學校發展。

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從學生的角度探討小學中國語文科的課程與教學

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本研究是以問卷，配合抽樣訪談的方式，對本港九所小學的四年級和六年級的學生作出調查，探討他們對中國語文科的看法，以期從學生的角度著眼，探究本港小學中國語文的課程和教學，並對本港小學中國語文的課程和教學作出改善的建議。

Primary Chinese Language Curriculum and Instruction: Student perspective

This study employs questionnaire and sampled interviews to survey primary four and six students from nine schools in Hong Kong and explores their views of the subject of Chinese Language. It hopes that such an inquiry of the primary Chinese Language curriculum and instruction from the students' perspective can provide recommendations for the improvement of the primary Chinese Language curriculum and instruction in Hong Kong.

前言

一九九四年教育統籌委員會發表的《語文能力工作小組報告書》在探討本港學生的語文能力的問題時，認為“中文能力水平普遍被指為不理想，可能是與課程有關”。同時報告書也指出中文老師在教授中文的時候，所用的教學法“也許並非常常有效”(教育統籌委員會，1994)。課程的設計欠佳和老師的教學法不妥，或許是造成語文水平下降的原因之一，然而，在未經研究之前，要老師承擔語文水平下降的責任，除了影響教師的士氣外，也對提高語文水準沒有幫助，事實上，近年來，有關小學中國語文科的課程和教學研究也不少，可是，對課程的真正用家———我們的學生，對中國語文科的觀感研究卻做得較少。本研究是以問卷，配合抽樣訪談的方式，對本港九所小學的四年級和六年級的學生作出調查，探討他們對中國語文科的看法，以期從學生的角度著眼，探究本港小學中國語文的課程和教學，並以學生為主體，對本港小學中國語文的課程和教學作出改善的建議。

在課程定義的討論裏，塔巴(Taba, 1962)認為「課程」是與目的、內容等有密切的關係，至於「教學」則具有較為特殊而即時的性質，如教學方法。另一方面，在課室的層面而言，「課程」與「教學」的關係不易嚴格地辨認出來，例如教師原先為學生安排的學習計劃可能會因課室的情境和教師與學生的互動所產生的影響而作出即時的調節（李子建、黃顯華，1996）。在本研究裏，筆者嘗試從學生的角度探討小學中國語文科的課程與教學。小學中國語文科的課程的設計，重點的取向是能力的培養（包括讀、講、聽、寫、思考和想象的能力）、態度、道德觀念和中國文化的認識。對於教師教學的要求，《小學中國語文科課程綱要》(下稱《課程綱要》)有如下的一段話（香港課程發展議會，1990，頁14)：

> *教師在培養學生閱讀、寫作、說話聆聽和思維等各種語文能力的教學過程中，宜結合教材的內容、因應教學的時間、配合學生的心智發展和語文程度，靈活而隨機地利用本科課堂教學和課外活動，提高學生學習本科的興趣，啟發學生的思想，培養學生的品德，並使他們從語文學習的活動中，充實生活經驗，增加對中國文化的認識。*

《課程綱要》對教師的教學是有指引的。《課程綱要》要求語文教師(這裏所指的語文教師是任教小學中國語文的老師，下同)在教學的時候運用靈活的教學技巧，並因應課堂和教材作出靈活的處理。最重要的，是結合學生的學習心理發展而施教。近年來，語文老師在教育改革的壓力下，在課程的改革的前提下，已意識到需要對教

學法作出改變（謝錫金，1995；謝錫金、林守純，1992；謝錫金、黃潔貞，1995；關之英，1997；周漢光，1999，梁振威等，1999）。然而儘管老師們不斷作出改變，學生的語文水平仍為大眾所詬病。近年來，有關小學語文科的課程和教學研究也不少，可是對課程的真正用家——我們的學生對中國語文科的觀感研究卻做得較少。黃顯華等(1998)香港中小學中文科課程與教學研究「學生學習過程」部份透過訪問36位小五學生(12間小學）發現學生一般都喜歡老師採用靈活、多變化的教學方法，如討論、比賽、遊戲、故事及話劇等。此外，大部份同學都喜歡上教育電視課，因為他們覺得電視課較老師的講授或課本更為生動有趣。在考核方面，大部份同學都較喜歡默書，「因為有指定的範圍，溫習較易，壓力亦相應較小」(黃顯華等，1998，頁8-56)。Lee et al.等(1999)透過質化研究探討小學生對語文課室環境的觀感，結果顯示部份小學生覺得他們的課室環境傾向於嘈吵，缺乏秩序和沉悶，部份學生則認為他們喜歡課文課是由於生動的教學以及教師的教學表現和態度。本研究是嘗試跟進黃顯華等(1998)在九五年香港中小學中文科課程與教學研究及發展報告內有關學生學習中文科過程及困難部份以及相關研究作進一步探討。

研究的方法

研究過程

本研究採用了調查研究的方法進行研究。研究的過程是向本港九所小學的小四和小六的學生進行問卷調查，然後在兩個月後，以抽樣的方式向曾經接受問卷調查的學生就問卷的內容進行訪談，以便向學生蒐集更多的資料。選擇小四和小六作為研究的對象，是因為小四的學生已完成了目標為本課程第一階段的學習或已完成初小的階段，同時填寫問卷的能力也較小一至小三的學生強；至於選擇小六的學生作為研究對象，原因是他們經差不多完成了小學的階段，他們對小學中國語文的回顧，是語文老師教學的鏡子之一。研究小組在設定研究的過程時，首先是設計問卷，然後選取學校進行調查。研究小組在回收所有問卷後，便對問卷進行分析，然後與學生訪談，最後就所得的結果撰寫報告。

問卷的特點

由於研究的重點是從學生的角度對中國語文科的課程與教學作出探討，故問卷的內容設計也是以學生對中文課的整體印象為主，問卷的內容針對現行與小學中國語文科相關的課程內容(參見附件一)。現時的小學中文課大多以讀本、作文、教育電視、默書和閱讀計劃／圖書等範疇為主，這個分類是按學校的課節名稱為依歸。部份問卷設計的意念來自Lee et al. (1999)的研究，問卷的前部份首先瞭解小學生對讀本、作文、教育電視、默書和閱讀計劃／圖書等內容在興趣程度的排序和情意反應（如開心或悶，以5點Likect量表表示喜歡或不喜歡）。問卷的內容所涉及的概念主要有“感興趣”、“很悶”、“很開心”、“最喜歡”及“最不喜歡”等。茲將這些概念界定如下：

感興趣：　就本研究而言，是指學生對中文科發生喜好的情緒。

很悶：　就本研究而言，是指學生對上中文課時有煩悶厭倦。

很開心：　就本研究而言，是指中文課能使學生有快樂舒暢的心情。

最喜歡：　就本研究而言，是指學生對中文科的科目有強烈的喜愛。

最不喜歡：就本研究而言，是指學生對中文科的科目有抗拒的心態。

問卷也因應問題的不同性質而要求同學以不同的方式對問題作出回應，並以引導同學盡量說出他們上中國語文課的感受為設計取向。在設計時，也考慮到同學的語文能力，並曾以一班小四的同學對問卷進行先導試驗(pilot study)，以確保學生有能力回答問卷。

學校的選取

設定問卷以後，小組便選擇了九所小學進行研究，選取學校的主要條件是：

1. 這些學校必須是主流學校。研究小組所定位的主流學校必須是一所二十四班的學校，同時也較積極的學校。選擇主流學校的原因，是這些學校是比較大型的學校，學校老師和學校的領導對政府的教育政策及小學中國語文的教學和課程的安排的警覺性比較高。同時，研究小組在選擇研究的主流學校時，也選取了來自不同辦學團體的學校，有選自大辦學團體的學校、也有選擇一些非大型辦學團體的學校，作出這樣選擇的目的是希望找出一些有不同要求和辦學方針的學校作出研究。
2. 所選擇的學校分佈於本港的不同地區，有位於市區的、有位於新發展的市鎮的、也有位於已發展的老區

的。作出這樣的選擇，目的是希望更能廣泛收集不同區域學生的意見，同時也由於不同地域學校的學生，有不同的家庭背景，他們對中文科的學習，有不同的經歷，對老師的教學安排，也有不同的感受，這對於是次的調查，將有更闊的查調取樣。

問卷回收情況

為了讓學生能在沒有壓力下填寫問卷，問卷的設計是以不記名的形式進行填寫，同時學生在填寫問卷時，是在調查員的指導下進行的1。參與是次研究的學生人數約為2000人，同學也因為學生是在調查員的指導下進行填寫問卷，故問卷的回收率是100%。

問卷的分析

問卷的問題1 和問題2 主要是對學生的背景作出調查。假如學生不是連續四年或六年都在本港小唸書的，研究小組是會把該生的問卷放棄的。有關問卷調查的結果分析，分述如下：

學生對中文科最感興趣和最不感興趣的內容

學生的問卷顯示，在中文科的上課範疇中，選擇教育電視為最感興趣的範疇的，佔回收的問卷比率(下同)的40.8%；以閱讀計劃/圖書為最感興趣的，佔32.2%(但有些學校只是以閱讀計劃作為課外活動)；以讀本，亦即讀文教學，為最感興趣的，佔11.4%；以作文為最感興趣的，佔9.4%；以默書為最感興趣的，僅佔6.3%。從回收的問卷的百分率顯示，學生最感興趣的範疇，依次為教育電視、閱讀計劃/圖書、讀本、作文、默書。

在同一題目中，學生選擇最不感興趣的範疇中，以默書為最不感興趣的，佔37.2%；以作文為最不感興趣的佔36.3%；以讀本為最不感趣的佔9.7%；以閱讀計劃/圖書為最不感興趣的佔9.5%；而選擇教育電視為最不興趣的僅佔7.3%。從學生的選擇顯示，他們最不感興趣的選擇排名為：默書、作文、讀本、閱讀計劃/圖書、教育電視。

學生選擇最感興趣的中文教學內容(以回收問卷中填答"1"的百分率排列)	學生選擇最不感興趣的中文教學內容(以回收問卷中填答"5"的百分率排列)
教育電視	默書
閱讀計劃/圖書	作文
讀本	讀本
作文	閱讀計劃/圖書
默書	教育電視

學生認為很悶和很開心的範疇調查

問卷的調查顯示，在讀本、作文、教育電視、默書、閱讀計劃/圖書這五個範疇中，選擇讀本為很悶的佔回收問卷的10.3%，以它為很開心的佔12.1%；選擇作文為很悶的佔22.3%，以它為很開心的佔11.8%；覺得教育電視很悶的佔4.2%，認為它很開心的佔45.3%；選擇默書很悶的佔20.3%，覺得默書得開心的佔10.2%；認為閱讀計劃/圖書是很悶的佔6.9%，認為閱讀計劃/圖書很開心的佔46.6%。

學生覺得很悶的中文教學內容(以回收問卷百分率排列)	學生覺得很開心的中文教學內容(以回收問卷百分率排列)
作文	閱讀計劃/圖書
默書	教育電視
讀本	讀本
閱讀計劃/圖書	作文
教育電視	默書

值得一提的，學生認為上讀本、作文、和默書課是很開心的均僅佔1900多的回收問卷的10%而已。這是一個值得語文老師關注的數字。

對於上中文課的整體觀感，在1898份問卷裏，學生認為很悶的佔5.3%，學生認為頗開心(填答"4")的佔32.9%，學生認為「普通」的(填答"3")的佔28.7%，而認為上中文課很開心的佔26.9%。因此，總的來說，有一半以上的同學認為上中文課頗開心或很開心。小組也調查學生對中文、英文、數學、常識四科在喜愛程度上的排列，結果顯示學生認為最喜愛的科目(以填答"1")依次為常識(39.4%)、中文(22.3%)、數學(19.8%)及英文(18.4%)；學生認為最不喜愛的科目(以填答"4")依次為數學(37.1%)、英文(34.2%)、中文(17.2%)及常識(11.5%)，就這些結果看來，學生對中文課的整體印象算是頗佳。

學生喜歡上中文課或他們覺得上中文課很悶的原因

下表是學生喜歡上中文課或覺得上中文課很悶的原因調查

學生喜歡中文課或他們覺得中文課悶是因為		
	不是	是
教師的關係	68.1%	31.9%
上課的方式	36.8%	63.2%
獎罰制度	74.6%	25.4%
其他	93.9%	6.1%

從接近2000 份的回收問卷顯示，多於六成的學生覺得上課悶或他們喜歡上中文課的原因是和上課的方式有關，也有大約三成的同學認為與老師有關，從學生的反應，作為語文老師，我們實該注意我們的上課方式。

學生覺得上中文課悶的原因

就這問題作出回應的有364人，調查的結果如下：

老師因素	36.3%
個人因素	6.9%
功課因素	1.6%
上課方式/內容	22.8%
課堂情況/氣氛	3.0%
課本因素	11.5%
不知道	2.2%
其他	15.7%

從學生的回應，他們覺得上課很悶，差不多接近六成的學生認為和老師及上課的方式有關。老師的因素包括教師教書很慢、上課時太嚴肅和老師講書時很惡等。「上課的形式」主要是沒有活動、沒有討論和沒有生動的教學方式。

學生覺得上中文課很開心的原因

就這問題作出回應的有988人，調查的結果如下：

老師因素	49.9%
個人因素	2.7%
功課因素	1.6%
上課方式/內容	21.9%
課堂情況/氣氛	2.4%
課本因素	4.0%
不知道	1.1%
其他	16.3%

從學生的回應，他們覺得上課開心的原因和老師及上課的方式/內容有關。老師的因素包括老師很有趣和幽默、老師很風趣和說笑。上課的方式/內容則包括討論、舉行問答比賽、說課外知識和可以回答問題等。

學生在所有中文科科目中，最不喜歡的範疇

回收的問卷中，1814份問卷回答這條問題，結果顯示，學生在讀本、作文、教育電視和默書中，最不喜歡的是作文，佔47.1%，其次是默書，佔33.8%。他們不喜作文的原因是上作文課時很悶、作文太難、字數太多、想不到寫什麼、太費時等。同學不喜歡默書的原因，是覺得默書要溫習和背書、覺得默書難、悶、成績不理想等。

學生在所有中文科科目中，最喜歡的範疇

在回收的問卷中，有1832份問卷回答這條問題，結果是有1170位同學表示最喜歡教育電視，佔63.9%強。他們之所以最喜歡教育電視是因為可以看電視、可從電視節目中學習、覺得電視節目可愛、可以吸收到知識和電視節目好看精采。

學生對中文老師的教學模式的回應

對於老師上中文課的教學方法，學生有以下的回應：

教學模式	是以左列的方式上課	不是以左列的方式上課	總數
舉手答問題	30.5% 597人	69.5% 1361人	1958
朗讀課文	43.7% 855人	56.3% 1103人	1958
參與分組活動	65.0% 1273人	35.0% 684人	1957
參與討論	50.2% 983人	49.8% 975人	1958
很少課堂活動	72.9% 1427人	27.1% 531人	1958
從來沒有參與課堂活動	90.7% 1775人	9.3% 181人	1956

學生的回應顯示，一般老師在上課的時候，是很少有課堂的活動，同時，從回收的1958多份問卷中，表示從沒有參與課堂活動的同學佔90.7%，這實在是值得我們關注的現象。不過，也有50.2%及65.0%的同學分別表示他們在上中文課時參與討論和分組活動。

訪談結果與分析

研究小組對回收的問卷作出整理及分析後，便以訪談的方式，就問卷的內容，與曾經填寫問卷的同學面談。選取訪談學生的方式是從三個不同地區選取八位同

學作訪談，聽取他們的意見，以補充調查所得的內容。下面是四位小四同學的回應。

其中一位小四同學對上課的回應是：

"我最喜歡上英文課，因為上英文課的時候有很多活動，同學都很開心，同時老師對我們很好。在中文，英文、數學和常識四科中，我將中文課排第三，因為我覺得上中文課沒有麼特別。"

"我最喜歡上中文的教育電視課，因為上教育電視課很有趣，不悶。同時也不用做作業。上中文課間中也有一些活動，我很喜歡老師和我們做活動，但都只在考試或測驗的時候才有這些活動，平時就沒有了。"

"我最喜歡的老師是我小學二年級的老師，他教英文，上課是很輕鬆，也有很多活動。"

另一位小四的同學表示他最喜歡上今年的中文課。

"我最喜歡上現在的中文課，因為老師上課的時候，講了很多有趣的課外知識，上課很開心。我最不喜歡上英文課，為為老師很惡。我所學過的中課文中，我最喜歡《萬佛寺》，因為我喜歡佛，同時老師講得很搞笑。課文的內容也很好。我最喜歡上教育電視，最不喜歡上作文，因為有些(作文)題目不知道講什麼，也很難作。"

另一位小四的同學表示他最喜歡上數學課。

"我最喜歡上數學課，因為曾經得過一百分。在中、英、數、常四科中，我將中文排第三，我很喜歡英文老師，他很搞笑，但中文課文很悶，因為全都讀過。在中文中，我最喜歡默書，最不喜歡讀本，原因是閱讀理解很長，要寫很多，假如有人將課文故事講出來，我會喜歡。我最喜歡二年級時的中文老師，因為他上課的時候，時常比賽，如比賽寫字等，上課時很開心。

另一位小四的同學的回應是：

"我不喜歡中文，是因為中文很悶，上課的時候經常做作業，沒有活動，只有在考試前才有比賽。我喜歡比賽。中文科目中，我最喜歡教育電視，最不喜歡默書，因為要花很多時間溫習。我最喜歡小二的中文老師，他不會無故罵人，我們有進步，他們會給我們獎勵，也經常和我們做活動。現在的老師不同了，他常常要我們讀書，每次都讀，很悶。

另外四位小六的同學的回應是：

"我最喜愛的科目是美勞，因為這是我的興趣，同時也因為我的好朋友也喜愛美勞。在五年級開始，我開始喜愛中文，因為考試容易。上中文課前，老師會著我們先查字典。我對作文和讀本都同樣喜愛，我的作文分最高試過拿過八十多分，現在也經常拿七十多分。我最喜歡的中文老師是小二的中文老師，她經常給我們獎勵。

另一位小六的學生有如下的表示：

"我最喜歡上中文課，是因為經常有比賽。我最不喜歡的是常識科，因為內容太長，老師又悶。我現在將中文排第一，是因為上課很開心。中文課中，我最喜歡教育電視，因為可以看電視。我最喜歡小二的中文老師，因為她很好人。在這六年中，我最不喜歡常識和數學。特別是數學老師，他要求極高，不能達標的，便要留堂。"

另一位學表示他最喜歡數學。

"我喜歡數學，因為數學不用默書，只是計數。我最不喜歡中文是因為老師太惡。在中文課中，除了默書外，我最不喜歡作文，作文時，經常要寫字，寫錯字又會被扣分。中文課實在太煩，又要做課後練習，又要查字典，很煩。在這六年中，我最喜歡的是小四的中文老師，上課時，有很多活動，又不用我們查字典，默書前又會讓我們比賽(在黑板上試默)，寫對了，便有獎。我不喜歡現在的中文老師，是因為她要我們抄很多詞語，又要查字典。現在我比較喜歡數學，因為功課不多。

另一位同學有這樣的表示：

"我最不喜歡現在的常識科，因為現在的常識科課文內容和小五的是差不多。現在最喜歡英文，是因為老師解釋得很清楚。現在的中文課程太多，如詞語.....等。中文中，我最喜歡讀本，因為課文很好，有些是很有教育意義的。我也喜歡現在的中文老師，是因為他沒有給我壓力，有時也會說說笑。"

總括而言，問卷結果顯示，學生在學習中文的過程中，最不喜歡作文和默書。相對而言，學生較喜歡小學中文課程的教育電視和閱讀計劃的圖書。就同學的面談結果來說，學生上中文課的經驗是：

- 喜歡有活動的中文課，如比賽、遊戲
- 希望教師給予認同、鼓勵和獎勵，不希望教師懲罰學生
- 期望上課時氣氛愉快、輕鬆的中文課（如教師說笑），教師對學生不要太嚴厲
- 期望較少功課或堂課壓力的中文課，例如抄寫詞語、查字典、做作業和課後練習、讀書等

- 不囿於課本內容，能兼及課外知識並輔以教育電視及講故事等形式學習中文

討論及建議

1. 課程的組合

學生討厭作文和默書的原因，是他們要花很多時間溫習和課堂沉悶，尤其默書，更給他們很大的壓力。不過，從另一角度來說，學生抗拒中文默書和作文，可能與部份學童未能培養讀書興趣，多較疏懶及不願動腦有關，而且默書要求學生背誦課文，減少學童看電視和遊玩時間，作文則要求學生努力思考，均可能是不受學生歡迎的原因。本港現行小學中國語文科的教學，每每將作文和默書另闢教學時段，給學生及家長造成了一個錯覺，以為作文和默書獨立於讀文教學以外。其實作文和默書是語文學習的一部分，應該與語文科聽、說、讀、寫四方面的訓練互相配合、相輔相成的（劉筱玲，1996），假如學校在編排教學時，不將作文和默書編定於某一教學時段內進行，而將作文和默書融合於讀文教學內，讓老師於教學時因應教學的發展而作出安排，這便會減輕學生對作文和默書的壓力，也不致使學生怕了語文。另一種可能性是改變現時的作文和默書方式。就作文來說，鄭美儀(1998)曾試行「整體性評估模式」，讓學生發揮他們的創意和強化他們的寫作意慾，學生們需要多次草稿、修訂文稿及自我評估作文內容、並將不同稿件和評估表格等放進一個「文件夾」裏，作為創作路程的記錄。謝錫金等(1994)曾研究「全語文寫作教學」，教學目的是讓學生可以自由發揮，隨意表達自己的情境和思想，藉此提高他們對寫作的興趣（鄧薇先、李子建，1999）。默書方面，教師可考慮調適默書的方式，例如加入隨機默書的部份（佔平時分的比例較少，以解決評分的公平性），也可考慮以小組比賽方式，對學生的進步分進行獎勵，以增加學生對默書的興趣。

2. 教學法的革新和課室環境的重建

調查顯示，學生不喜愛上語文課，是因為老師沒有設計有趣的教學活動，引不起學生的學習興趣，老師在教學的時候，也該調適傳統的講授方式的教學，盡量多設計語文學習活動，以提升學生的學習興趣，例如潘銘燊(1998)建議利用填字遊戲作為語文測試的可取形式；教師亦可參考殷倩儀和馮瑞龍(1997)在中學實施範文遊戲和寫作遊戲的經驗，在小學課堂教學裏實行。中文的教學，宜將傳統的「講授教學法」改為「充滿歡樂氣氛」的學習法；換言之，教學的方式是由教師主導轉變為學生主導的教學。除了教學法外，問卷調查結果顯示教師的因素影響學生對中文課的喜惡。事實上，教師是課程與教學的靈魂與導航者，除了在設計和組織教材教法花心思外，也可考慮營造一個學生的「寧取」(preferred)課室環境，根據Lee et al. (1999)的研究建議，「教師支持」(teacher support)是重建課室環境一個重要的度向，這個度向強調教師多對學生表示關心，而且有耐性地和和藹可親地對待學生。

3. 利用媒體優化中文教學和將教與學的情境脫離課室

調查發現，學生喜歡上教育電視課，原因是可以「看電視」，電視有著把學生的學習帶出課室的情境的功能。老師在上課的時候，也宜把學生學習的情境，帶離教室，方法可以是多運用視聽教具或電腦作為輔助，隨著多媒體的發展，教師可利用多媒體電教手段和多媒體計算機於語文教學中，林小萍(1997)曾嘗試多媒體CAI系統語文演播式研究，教師通過多媒體計算機控制，讓學生主動地參與課堂學習。此外，教師可建立跨課程的語文學習，給學生進行情境的學習，例如教師可通過以主題方式統整課程，當學生出外參觀或實地考察時，除了可以學習與常識科有關的知識外，也可著學生以專題報告文章或口頭報告的方式表達所見所聞。

4. 教材的處理

調查結果顯示，學生對於中文課的課程，在讀文教學的篇章方面，比較有興趣的，是和他們生活有關的一些課題，如《我愛媽媽》令同學知道母愛的偉大；或是符合學生興趣的一些課題，如《告別》抒發他們畢業的心情；及《有趣的一課》使他們可以認識象形文字和形聲字。回收的問卷也突出了這個情況，在學生的記憶中，他們印象中最深刻的課文，全都是和他們的經驗有關。雖然，教科書的編寫者是成年人，他們在編寫教材的時候，往往受到很多規定的條件限制，諸如課程的要求，不同年級的用字艱深度，篇幅的長短.....等，但教材是死的，教師的責任是「教活書」，不是「活教書」，所以教師在教學的時候，該因應前述的六點，從學生的角度出發，對課程和教學作出適當的處理，結合學生的日常生活經驗施教。

研究限制及未來研究路向

基於人力及資源所限，筆者們僅能對九間小學的學童進行研究，儘管樣本的數目頗大，但是小學的取樣乃是方便性樣本，因此研究結果並不一定能推衍至其他香港小學。此外，訪談的對象只得八個，因此資料的深度和闊度亦受到一定的限制。本研究初步嘗試從學生的角度探討小學中國語文科的課程與教學，日後可進行較深入的個案研究，透過訪談和觀察，了解小學語文課堂環境和教師因素如何影響學生對中文課的觀感。此外，日後研究可進一步探討學生抗拒中文默書和作文的原因，以期對中文課程和教學提出改善建議。

結語

施瓦布(Schwab)認為課程的「共同要素」(commonplaces)為學習者、教師、學科內容及環境(李子建、黃顯華，1996)，過去的小學語文課程與教學研究較少針對我們的課程用家——學生。本研究結果顯示小學生較喜歡教育電視和閱讀計劃／圖書課，較不喜愛作文和默書。研究亦發現學生對中文課的喜惡與教師因素、課室環境和教法有關。語文教育工作者可考慮重新組織作文課和默書課，運用多元的教學方法，要有良好的教學效果，作為語文老師的，也許要改變一些已有教學的觀念，這就需要從學生的角度出發，去設計課程與教學，藉此提升學生學習語文的興趣和提升教學的效能。

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註解：

1. 調查員只負責向同學解釋問題的性質及對同學解釋回答問題的方法。

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Changes in Hong Kong's History Curriculum: Implications and Complications

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In the process of Hong Kong's political transition to the Special Administrative Region of the People's Republic of China, various political forces have been generating impact on the curriculum changes. This paper aims to use the secondary History subject as a case study to demonstrate the implications and complications of curriculum changes in addition to analysing how politics and curriculum interact in the dialectical web of localism, nationalism and globalism. It is expected that it will shed light on the role played by History curriculum in helping pupils to develop local identity in national context while cultivating a sense of global citizenship.

香港的歷史課程的轉變：含義與複雜性

在香港的政治過渡為中華人民共和國特別行政區的過程中，不同政治力量一直對課程的轉變產生影響。本文以中學歷史科為個案，展示課程轉變的含義與複雜性，並分析政治與課程如何在一個地方主義、國家主義和全球主義的辯証關係網絡中產生互相作用。作者期望本文能闡釋歷史課程如何能幫助學生在國家体系中發展本地身份認同而又同時培養世界公民的意識。

Introduction

History can hardly be dissociated from politics as Black and Macraild (1997) remark: "The past has also considerable political leverage" (p.10). The change of History curriculum cannot be separated from politics either. Ginsburg and Kamat (1997) aptly point out: "Curriculum content represents a selection of topics and a selection of ways of viewing these topics. Power relations are embedded in curriculum both in terms of who makes the decision and whose interests are served by the topics and perspectives included or excluded" (p.657). In the same vein, Morris and Sweeting (1995) also indicate: "Control of the school curriculum has long been perceived as a primary tool for maintaining and legitimating political power and the ideology of those in power"(p.142). They further demonstrate this proposition by the change of Hong Kong's school curricula from one of "apoliticization" during the British colonial rule to one of "politicization" in the process of the transference of political sovereignty around 1997 (Ibid., p.143). Seen from such perspectives, it is a worthwhile attempt to use the recent changes in the secondary History curriculum as a case study to further analyse the relationship between curriculum and politics.

In 1984, the Sino-British Joint Declaration was signed, stipulating China's recovery of sovereignty in Hong Kong on 1 July 1997. It set in motion Hong Kong's transition from a British colony to a Special Administrative Region of the People's Republic of China. During the transitional phase, education, as an agent for change, had been bearing the brunt of various competing forces at work. According to Morris (1992), the Sino-British Joint Declaration "has created pressure to prepare pupils for their future as PRC citizens" in order to "ensure minimal disruption prior to 1997 and a trouble-free handover in 1997" (pp.122-123). At the same time, there was also an internal force that worked to support the government's belated attempt to introduce representative government in Hong Kong by enhancing people's political

awareness and involvement. It was desired that this could, in the long run, enable Hong Kong to "function as a relatively autonomous political and economic entity after 1997" (Ibid.). Moreover, since both Britain and the People's Republic of China stand to gain from maintaining Hong Kong's international linkages, there is a practical need for the education system to preserve the global dimensions of the Hong Kong identity while preparing its populace for the dynamic complexity of having a quasi-independent status within the umbrella of Chinese sovereignty. To meet the above-mentioned needs, the secondary History curriculum has undergone major changes in the 1990s. Subsequent to these changes, History education inevitably falls into the dialectical relationship embedded in the concentric circles of localism, nationalism and globalism. Herein lie some meaningful issues that would have to be addressed if the History curriculum is to generate positive impact on pupils' learning. In analysing the purpose of education, Heater (1992) sets forth certain thought-provoking questions:

> The purpose of education is to fit the individual for community life in the state of which he or she is a member. The purpose of education is to render the individual sensitive to societies beyond his or her own country, including the global community. All these pedagogical objectives are sincerely and justifiably held. But are they mutually compatible? Or would the simultaneous pursuit of these aims generate unbearable educational, not to mention political, tensions? (p.19).

Inspired by such questions, this paper employs the method of documentary analysis to analyse, not only the implications of the curriculum changes since the 1980s, but also the complications generated by these changes for History education in Hong Kong after 1997, especially in the light of the role played by History in the re-building or re-molding of the citizenship of Hong Kong pupils in the web of localism, nationalism and globalism.

Changes and Implications

In anticipation of the return to Chinese sovereignty, some remarkable changes were made in the 1988 version of History syllabus at the Hong Kong Certificate of Education Examination (senior secondary S4-S5) level. First, it permitted study of Chinese history up to 1970 (Lee and Bray, 1995, pp. 360-361). Second, as Morris and Sweeting (1995) have pointed out: "The topics chosen focus on the political history of the establishment of statehood and political independence by the USA, the UK, France, USSR and China. The new syllabus provides pupils with a more politicized historical framework than was previously the case, and one more relevant to Hong Kong's future" (p.158).

For the changes in the Hong Kong Advanced Level (S6-S7) Examination History syllabus, John Tan (1993) observes: "In the 1980-1983 syllabus, questions on Hong Kong history appeared under British and Commonwealth history in Paper II and Constitutional Developments in British Commonwealth 1900-1960 in Paper III. In 1984, Hong Kong history disappeared from the syllabus. It reappears in the 1994 syllabus under Modern Chinese History and its coverage began in the year 1800, not 1841." Tan further remarks that this syllabus would bear the meaning that Hong Kong was part of China before British colonization. This would also undermine the historical implication that modern Hong Kong history began with the British colonial rule since 1841 (p. 75). Herein lies a tendency of de-colonization that is paralleled by the move towards convergence with China. However, the actual impact of such syllabus changes can by no means be over-rated. It must be noted that Hong Kong history is still not one of the major cores of the Hong Kong Certificate of Education Examination (S4-S5) History syllabus. Even though Hong Kong history has been incorporated into the Hong Kong Advanced Level Exam syllabus (S6-S7), it is only an optional section in the paper of Asian history (HKEA, 1995, pp.287-291). In this case, the History teachers who have little or no training in Hong Kong history could choose to avoid this section in order to focus pupils' attention on the sections with which they are more familiar. That's probably one of the reasons to explain why Hong Kong history has not been a very popular section in the HKAL Exam. Thus, it would be inconceivable for senior secondary pupils to acquire any deeper understanding of Hong Kong and its interaction or interdependence with China and the world from historical perspective.

Whereas the senior secondary History curriculum is mainly molded by the exam syllabuses prepared by the Hong Kong Examinations Authority, the junior secondary (S1-S3) syllabuses are prepared by the Subject Committee of the

Curriculum Development Council and recommended for use by the Education Department. In comparison with the version published in 1983, the new 1996 junior secondary History syllabuses have made some fundamental changes in structure and pedagogy. First and foremost, Hong Kong history has been introduced as a major component of the syllabuses. S1 studies the "traditional rural life of Hong Kong," S2 studies the "growth and development of Hong Kong up to the early 20th century," and S3 studies the "growth and development of Hong Kong in the 20th century." To make room for Hong Kong history, the parts on ancient life and civilization have been made optional as pupils are required to study at least one topic. The topics of "religions", "medieval life", and "great voyages of discovery" have been simplified (Curriculum Development Council, 1996, pp.9-22). All these show a localizing proclivity in the teaching of History that aims to enable pupils to "know and understand the main features of Hong Kong and relate them to wider themes" (Ibid., p.7). Side by side with localization, there is also a strong undertow of "political socialization" and "nationalization" that may have something to do with preparing pupils for adult life and citizenship after 1997 (Ibid.). This trend can be evidenced by the focus being laid on Hong Kong's relations with China, especially China's contribution to the development of Hong Kong. Moreover, in studying Hong Kong's transition to a Special Administrative Region, the key concepts of Sino-British Joint Declaration and the Basic Law are emphasized with a view of developing pupils' civic mindedness (Ibid., p. 21).

Apart from the content knowledge at local and national levels, the new junior secondary syllabuses have not lost sight of the global perspective and concern. As Hong Kong has become an international financial centre and has thrived on its global character, the old 1983 syllabuses, which merely aimed at "encouraging pupils to see history from a broad, global perspective," are no longer sufficient enough to equip them with the knowledge and skills required for coping with the challenges that face the future world (Curriculum Development Committee, 1983, p.5). Thus, while inheriting the topic on "international conflict and co-operation" from the old S3 syllabus, the new one has dropped the parts on " major art and intellectual trends." Instead, it focuses more on the scientific and technological developments and their impact on human life (Curriculum Development Council, 1996, pp. 21-22). Not only are science, technology and environment seen from a global perspective, they are also studied in a global context. In addition, a sense of respect for and understanding of the diversity of cultures in the world are also fostered among the pupils (Ibid., pp.7-8). Hence, judging from the revised and additional contents listed above, it is obvious that localization, nationalization and globalization constitute the concentric circles out of which the new syllabuses have evolved.

Complications

Nevertheless, the practicability of the above-mentioned curriculum changes in cushioning the shocks and smoothing the transition of Hong Kong can be marred by internal and external complications. By and large, the status of Hong Kong history in the latest senior secondary syllabuses is rather precarious as it is still one of the optional topics. In the new junior secondary syllabuses (1996), local history has been given relatively more emphasis. But still, it is rather fragmented and piecemeal. Little or no attempt has been made to present an integral whole of Hong Kong history to the pupils. For instance, the Opium War (1839-1842) that resulted in the Treaty of Nanjing and the cession of Hong Kong to Britain, the Arrow War (1856-1858) that led to the Convention of Beijing (1860) and the cession of Kowloon to Britain, the 1898 Treaty that stipulated the lease of the New Territories to the British for 99 years, social changes and social movements, and Sino-British relations in Hong Kong since 1945, are all crucial issues in understanding Hong Kong's present in the context of the past while analysing its interactive relationship with China and the world. But these topics have been underemphasized or simply left untouched. Even for the topics on Hong Kong history at each junior secondary level, the syllabuses have only suggested that eight periods (i.e. 4.5 - 5 hours) be allocated for teaching (Ibid., p.9). Albeit it may be argued that history learning is not confined to classrooms, yet such time constraints would possibly make deep-learning and thorough discussion impossible. Even worse, teachers can hardly manage to organize co-curricular activities for developing pupils' skills, attitudes and values. This may constitute a stumbling block in effective curriculum implementation. At national level, a recent research conducted

by Lee (1999) revealed that the "informants across categories criticized the lack of nationalistic education in Hong Kong with particular criticism that contemporary Chinese history is not included in the junior secondary curriculum." These informants also "complained that Hong Kong youngsters are weak in national identity and felt that Hong Kong youngsters are weak in their 'international identity' as well"(p.336). Albeit identity may not have absolute correlation with curriculum contents, it is undeniable that the inclusion of more contemporary Chinese and global studies in the curriculum can help to promote pupils' understanding of the nation and the world while preparing ground for their identity-building in national and global contexts.

Aside from internal deficiencies and constraints, there is also external pressure in the process of curriculum development. Approaching China's retrocession of sovereignty in 1997, educational changes in Hong Kong have become more and more politicized, or at least, "politically sensitized" (Lee, 1999, p.315). At the same time, the political relationship between Hong Kong and the People's Republic of China has been exerting a powerful influence on the curriculum (Morris, McClelland and Wong, 1997, p.23). Not only does the rhetoric for change come from the top down, it also emanates from centre to periphery. Before the handover of sovereignty, the officials of the PRC central government have repeatedly emphasized that the terms being used in Hong Kong's textbooks would have to be changed in accordance with the principle of "one country, two systems" (Sing Tao Daily, 2 June 1996 and Ming Pao Daily News, 11 March 1997). Subsequently, the colonial terms have to be deleted or modified (Ming Pao Daily News, 21 January 1997). China should no longer be regarded as the neighbouring country of Hong Kong (Ibid., 1 March 1997). Tibet should not be seen as an independent state (Morris, 1992, p.137). Taiwan cannot be identified as a nation and it should be named "China-Taiwan" (Sing Tao Daily, 11 March 1997). According to Professor Lau Siu-kai, a member of the Preparatory Committee of the Hong Kong Special Administrative Region, if the contents of the textbooks did not violate the Basic Law, they could still be used after 1997 (Ibid.). However, the Preparatory Committee has not listed out tangibly what kinds of contents are incompatible with the Basic Law. The lack of clarity and detail in policy guidelines would naturally cause much anxiety among the teachers who would then become more cautious in discussing sensitive political issues. In spite of the fact that there is no directive that requests textbook publishers/writers to rectify their political viewpoints, the concern for business interest and the desire for avoiding unnecessary complications would definitely constitute a momentum for convergence with the central policy. Inevitably, this would further enliven the fear of political self-censorship and thought control (Ibid., 24 April 1996). Another noteworthy feature in the 1996 new junior secondary History syllabuses is that there is a long reference list suggested for teachers. But the books published by Taiwan are limited to a few translations on western works. Books written by Taiwan historians are minimal (Curriculum Development Council, 1996, pp.31-48). To the history teachers, writers and publishers, this list may be regarded as a sort of informal guideline suggestive of the historical materials or viewpoints that could be accepted. Yet the problem is: if history teachers are wary of eliciting various politico-historical viewpoints for discussion, pupils would be deprived of the practice of critical thinking by weighing different evidences and analysing different opinions. History, as a major channel for implementing civic education, will become lop-sided in development as citizenship transmission tends to become preponderant over reflexive inquiry and critical thinking.

It is true that "while education is an ongoing process of improving knowledge and skills, it is also perhaps primarily an exceptional means of bringing about personal development and building relations among individuals, groups and nations" (Delors, et al., 1996, p.14). Such premise is also the very foundation on which the new junior secondary History syllabuses are built. Notwithstanding that the three concentric circles - Hong Kong, China and the world are interdependent, they are by no means totally conflict-free. Hong Kong, with its transnational economic links, scientific advance, communication networking, population mobility and cultural diversity, tends to be more in tune with the global culture in terms of capitalism, legal philosophy, and human rights. For the past 150 years, Chinese culture had been playing an important part in shaping the social norms, behaviours and ethos of Hong Kong people. But this had been a kind of traditional culture - an aggregate of the national heritage, not the contemporary socialist ethics and culture that prevail in the People's Republic of China (Chan, 1996, pp.19-21). The link between Hong Kong and China has been built largely on

economic and emotional ties without any practical attempts or effective channels for mutual understanding at a macro-scale. This deficiency stemmed mainly from the British colonial policy, which discouraged national education, and the Chinese policy, which tried to seclude the nationals from the corrosive impact of the capitalistic culture for the sake of preventing spiritual corruption. The gap between the two systems was widened after the June Fourth Tiananmen Incident (1989) in which the pro-democracy movement in Hong Kong was regarded as a subversion campaign against the Chinese government. Chary of the de-stabilizing and destructive force in Hong Kong, Jiang Zemin, the Chinese Communist Party General Secretary, used the analogy "river water and well water should not mix," to indicate that Chinese socialist system should not be interfered by the Hong Kong pro-democracy activities (Leung, 1992, p.266). Since the June Fourth Incident, Hong Kong government had been speeding up the process of "democratization" by introducing representative system in the Legislative Council while the pro-democracy groups had been maintaining a very critical and oppositional stance towards the Chinese policies.

After the June Fourth Incident, the "anti-China syndrome" cropped up and served to drive some voters to cast protest votes in favour of the pro-democratic elements in the 1991 and 1995 Legislative Council elections (J. Lee, 1999, pp.38-39). A sizable number of the people in Hong Kong were alienated, and left in despair, uncertainty and anxiety. In November 1996, the University of Hong Kong and the Hong Kong University of Science and Technology jointly conducted a survey on the psychology of Hong Kong people at the transitional phase. Among the young people interviewed, more than 80% were proud of being HongKongese but less than 20% identified themselves as Chinese nationals (Ming Pao Daily News, 1 November 1996). In the same month, the Hong Kong Institute of Asia-Pacific Studies, the Chinese University of Hong Kong, also carried out a survey on the "Civic Awareness of Hong Kong Young People". The findings revealed that the young people had a strong indigenous identity, and believed that freedom and human rights, as well as local interests, were more important than national and state interests. In regard to the political future of Hong Kong, the young people's response in general was relatively more pessimistic (Wong and Shum, 1997). On the eve of the 71st Kong Federation of Youths conducted a survey (17-25 April 2000) on the perspectives of the youths on Chinese history. The results showed that about 60% of the respondents were proud of being Chinese, especially the Chinese cultural tradition. Judging from the statistical figure, it seemed that the percentage of people who identified themselves as Chinese had an increase in comparison with that of the 1996 survey mentioned above. Yet ironically, 50% of them felt disinterested in Chinese history and a majority of them did not have sufficient knowledge of modern Chinese history (Sing Tao Daily, 4 May 2000). Hence, their nationalistic sentiment might be rooted more in the national culture than in the nation as a political entity.

Apart from the discordance between localism and nationalism, Hong Kong is also caught in the web of conflicts between nationalism and globalism. In spite of the fact that Hong Kong people are bound to become PRC citizens that would commit them to a strong identification with China, yet their allegiance with human rights, freedom and democracy would make them disinclined for the policies of the Chinese government (Hung, 1995, pp.107-108). The more radical pro-democrats in Hong Kong are prone to solicit support from western countries for the sake of securing local interests and autonomy. Not surprisingly, the national interests would be menaced and the Chinese government has to put on guard against the western strategy of "peaceful evolution" that aims at changing fundamentally the social system of China through utilizing Hong Kong as a "base for subversion"(Yahuda, 1996, pp.114-119). Under such complicated circumstances, it would be a great challenge for teachers to help students resolve the identity crisis and prepare them for adapting to a new sense of citizenship that can find its place not only in Hong Kong, but also in China and the world.

Conclusion

The paradox that has been existing in the concentric circles of localism, nationalism and globalism would eventually augment the perplexity and complexity in history teaching in the process of Hong Kong's transition towards a Special Administrative Region of the People's Republic of China. Such perplexity and complexity cannot be unravelled simply by a rhetorical emphasis on the interactive and inter-dependent relationships among the three concentric circles.

To remedy the problems and ease the tension, teachers should try to promote pupils' understanding of China and the world via various media, methods and curricula. Contemporary Chinese and global studies have to be incorporated into the existing History curriculum. However, in response to the recent Education Department's proposal of offering a new history that integrates Chinese History with World History, most Chinese History teachers have voiced their opposition and striven for the independence of Chinese History on the ground that it could strengthen the pupils' sense of national identity (Ming Pao Daily News, 31 March 2000 and Hong Kong Standard 19 April 2000). These teachers tended to over-emphasize the nationalistic value of history while neglecting the necessity of studying the mainland from a broader and more objective perspective. Even though Chinese History is offered as an independent subject, it should not be taught from a Sino-centric perspective that tends to parochialize pupils' mindset. Otherwise, it will do more harm than good to the development of multi-cultural citizenship in Hong Kong. On the contrary, teachers should focus more on inculcating the attitude of respecting cultural diversity, because "knowledge of other cultures leads, then, to an awareness of the uniqueness of one's own culture but also an awareness of a heritage common to all humanity" (Delors, et al., 1996, p50). In so doing, pupils can be led to redefine their collective identity in the community, the nation and the world. Furthermore, teachers should make use of the geographical advantage of the place to bridge Hong Kong, China and the world through cultural interflows and dialogues. Indeed, communication rather than confrontation, mutual adaptation rather than mutual insulation, will be more practical and practicable means to enliven the symbiotic relationship between the two systems under one country and reposition Hong Kong and China in the international family of nations.

As Yeung (1999) posits in a paper entitled *Globalization and Regional Transformation in Pacific Asia:*

> While globalization is largely a harmonizing agent with its centrifugal tendency, regionalization and nationalization can be viewed as the other side of the coin in their inherent nature to differentiate territorial specificities, hence primarily centripetal in orientation. In that dialectical relationship, they may be viewed as antagonistic, but equally they can be made complementary (pp.2-3).

The complementary relationship between national and global contexts is especially evident when different countries and regions are becoming more and more interdependent in coping with common concerns in relation to trade, peace, famine relief, resources and environment. Yeung's paper is also insightful in pointing out that national and local governments should strengthen the cultural and historical identities of the territories in order to foster the coherence of the people in the face of global challenges. At the same time, these governments should cope with the challenges brought about by the global flows of capital, goods, and services to local structures by "building new notebooks of co-operation and solidarity" (Ibid.). Obviously, local and national identities have to be re-consolidated, but at the same time, flexibly re-adjusted in order to cope with the global challenges.

With reference to educational changes in the post-modern age, Hargreaves (1994) concludes:

> It is paradoxical that increasing globalization should lead educationally to so much defensive and inward-looking localization; that imposed curricula can be hitched so heavily to the wagons of national reconstruction. Reconstructing and reflecting upon local cultures and senses of community, be these native cultures, other ethnic cultures or national cultures, is , of course, important. But teaching young people to be aware of and take some responsibility for the global dimensions of their world matters too (p.55).

This viewpoint is pertinent and revelational for teachers and curriculum developers to make sense of history education in a broader context. If education is an effective means of socialization, History teachers in Hong Kong could make use of the curriculum to re-develop a kind of civic consciousness that enables pupils to cope or to live with the paradox in the post-modern age - diversity and cohesion, selfness and otherness, centre and periphery. As Hargreaves has aptly pointed out, it is system that generates culture, it is also culture that renovates system (Ibid., pp.254-262). Viewed in this light, education, as a viable system for acculturation, can definitely help pupils build up a new culture that harmonizes localism, nationalism and globalism. With the ethos of flexibility and adaptability in Hong Kong, this cultural re-orientation can be worked out though it may take time, patience and efforts to do so. In fact, Hong Kong's transition towards an integral part of China does not end with the coming of 1 July 1997. In

terms of cultural and national identity, it is still in the process of adapting to the integration or convergence with China while maintaining its global features. Yet no matter how tortuous the road of transition is, there is still room for optimism in Hong Kong's future.

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Assessment of Science Learning at the Primary Level: Perceptions of Teachers[1]

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This paper reports part of the findings from a project called, "Schools Around the World" which aims to offer opportunities for professional development among teachers participating in the project. Through the exchange of professional experiences between local teachers and teachers from other countries in the world, the development of a standard for students' achievement in science both locally and with reference to an international standard will be achieved. This project is originated from Schools Around the World Project (SAW) which was initiated in the United States by an education research foundation, Council for Basic Education (CBE). Apart from Hong Kong and the United States, there are seven other participating countries including Japan, the United Kingdom, Australia, the Czech Republic, France, Germany, and Portugal. It marks an innovative approach with its emphasis on teacher professional development. Instead of using curricular documents, textbooks or an one-off testing to find out standard of student achievement, SAW defines standard by engaging teachers in professional discussion about the nature of excellence and the methods of teaching. The excellence at issue is excellent student work. The project also aims to build up a professional network of teachers internationally such that teachers can work together to develop not only the local set of standards but also an international standard for students. Science which warrants much attention from the local educators has been designated as the first subject focus of the SAW project. This paper looks into the initial views of primary teachers about student work, assessment in science learning and the assessment of science projects at the primary level. The present study is now at the pilot stage, hence both the findings presented in this paper and the overall results of the pilot study provide important background information to the project in supporting the professional development of the teachers. Moreover, the findings will better inform local science educators about teachers' perceptions about student works in science, science assessment and professional discussion among colleagues in schools.

小學科學學習表現評估：教師的觀感

本文的內容是重點報導「寰宇學校計劃」(Schools Around the World Project, 簡稱SAW)的部份研究結果。這項計劃的主要目的是為參與此計劃的教師提供專業發展的機會，讓本地教師能根據本地及國際標準，就學生在科學科的表現與世界各地的教師作專業的意見交流。「寰宇學校計劃」由美國一個教育研究基金會 - 基礎教育議會（Council for Basic Education, 簡稱CBE）策劃，對本港教育界而言，參與這項國際性項目實為一次突破性嘗試。「寰宇學校計劃」讓教師以專業角度討論卓越（學生習作的卓越表現）之本義，以及不同的教學法的作用，藉以釐定學生的表現標準，取代以書信文件、教科書或一次性的測驗、考試成績作釐定指標。此外，本計劃的另一目標是建立一個全球教師的專業網絡，讓教師能共同努力提升個人專業發展。寰宇學校計劃選取了科學科為首個重點科目，而科學科的發展也正是本地學者甚表關注的事項。本文探討了本港小學教師對科學科學生習作及其評核方法的見解，有關結果為本計劃提供了重要的基礎資料，將有助教師的專業發展。

[1] This is a project funded by the Quality Education Fund.

Students' achievement in Science in Hong Kong

While the international SAW steering committee decided to start from the area of science, science also proves to be an area of significance in the primary education arena in Hong Kong. The Board of Education's Report on Review of 9-year Compulsory Education (1997) has found that overall student learning was far from satisfactory in Hong Kong. Moreover, recent international studies have reflected that students' achievement in science is problematic. In an international comparison on students' achievement in Science and Mathematics, the Third International Mathematics and Science Study (TIMSS) has shown that science achievement was much lower than mathematics achievement among the primary students in Hong Kong. For mathematics, 18% of the students from Hong Kong score among the top 10% of the fourth graders (primary 4-5) among the 26 TIMSS countries. For Science, only 4% of the students score among the top 10% (Law, 1997). Unlike most of the participating countries where the student achievements on the two subjects are closely related (e.g. Singapore, Korea, Japan and Belgium), Hong Kong ranked the fourth and twenty-fourth for the two subjects respectively. Despite differences in curriculum, medium of instruction and teaching environment (these differences are in fact not surprising among all the 26 participating countries) and criticisms about the use of quantitative standardized tests in reflecting student achievement, the contrast in student achievements in Hong Kong points to a potentially disturbing situation.

While the TIMSS results show that the science achievement at the Hong Kong primary level is not as satisfactory as mathematics, the results at the secondary two level is more disappointing. Only the top 5% of the secondary two students are comparable with the performance of the top 25% of Singaporean students. Overall, Hong Kong's result is also significantly lower than other developed countries involved e.g. Singapore, Japan, Korea, the United Kingdom, the United States and Canada.

The above research results suggest that science learning in Hong Kong warrants close attention. Science education is recognized as a part of basic education as well as an essential part for nurturing scientifically literate adults. Educating scientific literate citizens is an agenda of top priority in the United States (AAAS, 1989). Comparatively speaking, there is a lack of such emphasis on science education in the local education arena until recently with the proposal of developing Key Learning Areas in primary education (Education Commission, 2000). Science education is one of the eight Key Learning Areas proposed. To achieve the goal of improving the quality of science education locally, science in the primary and junior secondary school need to be seen as the foundation of future science learning. Attitudes, interest and confidence in learning science need to be developed and cultured in the students over years of primary and secondary education. As the science achievement of primary students in Hong Kong is low, our society should pay more attention to improve science education. As the curriculum and education system in Hong Kong are currently undergoing a major review, science education is an area that warrants much closer attention and be placed among one of the top agenda items in the coming education reform. This project may help to improve the present scenario by offering opportunities for professional development of teachers through discussions about students' work in science and the sharing of teaching strategies with teachers from other countries. In the SAW project, the teachers provide samples of their students' work together with their marking criteria and comments. These work samples are then mounted on the web and teachers from all the participating countries are involved in professional dialogue about the work samples. The theme of these discussions may range from specific teaching or assessment strategies to wider concerns about the quality of science teaching and learning. These discussions and exchange of experiences among teachers from different countries will in turn lead to reflections about the learning, teaching and assessment of science, hence improving the quality of primary science education.

The assessment of science learning

The assessment of science learning can be considered at both an international level and at an individual school level. The former refers to a comparison of science learning among different countries, while the latter focuses on the learning of students in individual schools.

At the international level

While international studies of science achievement revealed disturbing results for countries with relatively lower achievement levels, Harlen (1993) suggested that the results of standardized tests in measuring science achievements may not be informative enough apart from ranking each country in comparison with others merely on individual performance measures. There is little information about how science is taught, learnt or the influence of social factors on the above cause. The second problem associated with standardized tests was pointed out by Torff (1997) who suggested that these tests were decontextualized and could not really reflect the intellectual achievement of individuals. Moreover, Torff (1997) also pointed out that schoolwork shared many attributes and skills for real-life that cannot be measured by standardized tests. He proposed assessment tasks that look into the problem solving ability of an individual and other different aspects of cognition instead of simply giving "right" or "wrong" answers. Even though there may be an argument that "good" standardised tests may measure a range of skills and abilities, a portrait of student learning may be more complete with information obtained from alternative forms of science assessment. Concluding from the above comments, investigations into science achievements may not be best measured by standardized tests and possible alternatives involve more qualitative studies into the different dimensions of attributes and skills of pupils (for example, science investigation skills, critical thinking skills and interest in inquiry). While the TIMSS has identified the issue of concern by employing a standardized test, a more detailed picture about student learning in science has yet to be portrayed by qualitative studies.

At the School Level

When science assessment for individual pupils is concerned, teachers are found to play a crucial role in tying the curriculum, instruction and assessment together (Kulm and Malcom, 1991). This points to the importance of the linkage between the teaching process and the impact of the assessment result. The purpose of student work or assessment in primary science is to provide teachers with evidence about pupils' progress of learning such that they can develop an understanding about pupils' ideas (Harlen, 1993). In order to have a relatively accurate portrait of pupils' science learning, diversified forms of student works are necessary for the reflection on different dimensions of learning.

Science learning includes a number of dimensions as defined by Lee and Fradd (1998) namely, knowing science; doing science; talking science and acquiring attitudes and values. This provides a framework for organizing various definitions about science learning as suggested by Hodson (1993), Brown (1993) and Harlen (1993). Knowing science involves the development of scientific knowledge, concepts and vocabulary. Doing science includes the exercises, experiences and investigations associated with the development of practical skills and the development of science process skills which require the applications of science knowledge in the creation of new designs and the experimental phase to test out new ideas. Talking science involves recording and discussing the results, reporting the findings as well as communicating the limitations of science and the scientific methods. Acquiring attitudes and values includes the development of an interest in science learning, the ability to critical thinking, high-order thinking skills, problem solving skills, and scientific reasoning.

In order to reveal the diversified nature of the different abilities, a variety of methods in assessing students have to be in place and that student works mean a range of tasks that may be performed before, during and after a lesson or at different times of the school term. In this study, the range of student work in science may include homework, classwork, experiments, oral tests, reports including laboratory reports, self-evaluations, debates, surveys, paper and pencil tests, performances[2], outdoor learning tasks, debates, surveys, model-making and projects. Among the various forms of student work, the assessment of science projects can reflect pupils' ability to think and apply new understandings in science. Millar, Gott, Lubben and Duggan (1995) devised a scheme that reflects the ability to think scientifically among students from age 9 to 14. The framework is arranged in an ascending order of difficulty from the first level, an engagement frame in which students were engaged with the activities without obvious plan or purpose, at the second level, a modeling frame in which students may model the desired physical appearance, effect or phenomenon. The third level is an engineering frame in which students may optimize the desired effect and finally, the fourth level is a scientific frame in which students may employ independent variables to

[2] Science can be represented in different ways, for example pupils can present their science investigatory project in the form of a drama. A local primary science project competition, with was organised by the Education Department and the Hong Kong Institute of Education, has taken this form.

develop a trend or use measurements to test their predictions. Moreover, aspects with regard to doing science, talking science and the attitudes or values in science are also reflected in the project. This analysis supports the argument that alternative forms of student work like science projects may provide a more complete picture about students' learning.

In the present study, teachers are brought to become aware of the various forms of student works and the diversified nature of science learning. They are equipped to share their student works with other teachers locally and internationally. Prior to the first workshop on student science work, the views of the teachers about science assessment and student work were collected from interviews and questionnaires. Even though the project is at its pilot stage, the findings provide an important basis for the design of future professional development opportunities for the teachers. The findings may also better inform local science educators about the current concern of the primary teachers in science assessment.

Method

The method used in this project includes the collection of samples of student work in science and on-going workshops for teacher development. A workshop held at the beginning of the study by the project team aimed at introducing to the teachers the idea about student work and the background of the project. Participating teachers worked together to build a set of work samples that described their expectation on students. The teachers may choose a topic from those selected topics of the SAW project and provide samples of work that the students complete in the topic. For each set of students' work, the teachers need to provide work samples of high, low and average level of achievement, the marking criteria and their comments. These samples are also for the international project development team and will then be mounted on the web. In addition, CDs that contain the web version are prepared and distributed to the teachers who may not have access to the web. Moreover, a professional development network is constructed through the linkage by e-mail and electronic discussion groups for teachers from different countries. Using the samples of student works as a stimulation and basis for discussion, these teachers can share their opinions, teaching ideas and their experience in science teaching. The project is at its pilot stage at the time of study. The pilot phase took the form of case study that involved two primary schools. These schools were invited based on the criteria set by the international steering committee of the project. The two most important criteria were that they must be representative of the local schools and they are at different geographic locations in the country. The aim of this qualitative investigation is to look into the current practice and perception of the teachers in assessing students' science work. Six teachers who were involved in the teaching of General Studies[3] from the two participating pilot primary schools currently teaching the primary four level were invited to provide information on the present study. The teachers were interviewed and the questions were framed to identify: their understandings of student work, the frequency of assigning various types of student work, the areas of science learning that they intend to measure by the student work, their views about science assessment, their perceived competence of science assessment and the amount of professional discussions in their schools. The teachers were interviewed at their schools and the interviews were translated and transcribed. The findings from the interviews provide an important background for the project team in understanding the current practice and concerns of the teachers. With this understanding, the content of subsequent workshops and the focus of professional discussions can be identified and tailor-made to the needs of the teachers.

Findings and discussion

The background of the teachers

The findings from the questionnaires and the interviews were collected from six teachers of two primary schools. All the teachers are degree holders and two of them have degrees in education. The teaching experience of the teachers ranged from five to ten years. One of them has not pursued any teacher education programme while another one was in the process of completing one.

[3] General Studies is a subject that includes learning in Science, Health Education and Social Studies at the primary level in Hong Kong.

Current practice - The variety of student work employed

The teachers were asked to indicate the types of student work that they assigned to students on science topics under the General Studies curriculum. They defined student work in a number of ways. All the teachers reported that they employed homework, experiment, reports including laboratory reports and surveys during or after the lessons. Three of the teachers reported that they employed self-evaluative questions asking pupils to rate their own level of interest in science, classwork, oral test, self-evaluation of daily habits and debates. Although it may appear from this finding that these three teachers were ready to employ self-evaluative tasks, one of the other three teachers suggested that she had never employed these tasks in her teaching. In addition, these teachers ranked works that may span over the whole semester including paper and pencil tests, performance, debates, surveys, model-making, self-evaluative questions on the interest of learning science and self-evaluation of daily habits, with a very low frequency or never employed. Science projects were found to be the most frequently employed at the beginning of the semester. Paper and pencil tests, outdoor learning tasks, surveys and self-evaluation of daily habits were employed most frequently during the semester. Paper and pencil tests were reported as most commonly employed at the end of the semester.

Current practice - The purpose of the student work

The teachers reported that the assessment of recalling science knowledge was of paramount importance at present while the assessment of thinking or problem solving ability was comparatively less important. In this study, it is apparent that the commonest forms of student work are homework and practical activities after and during the lessons, while pencil and paper tests are most frequently used at the end of a semester. These tasks are also mainly concerned with the assessment of science knowledge through recalling. Little emphasis is placed on the attitude of science learning or the development of process skills. The scenario suggests that there is a lack of variety on both the student work and the area of assessment. The teachers described in details the difficulties that they met in assigning the tasks. One of the teachers related why experiments were not frequently applied in primary classes,

> *"As I am teaching P4 students, I worry about the safety in the classroom. It is really important to beware of the matter of safety as they are too young and the classroom is crowded. Sometimes, I do the experiment and sometimes I let them work in a group as well. I have to say that we seldom have this chance. As time is insufficient, it is not that easy to allow them to do experiments by themselves. In general, they have the chance to do experiment but that is not so frequent." (P2-T1-I1)*[4]

This quotation points out the practical concerns of the teachers on running practical work and explains why this type of student work was not considered. Other teachers suggested that they worried about assigning student work before a certain topic was taught,

> *"We should consider the ability of students once we assign them some student's work. Some of the student work may be beyond the average level, so they are unable to do them. Let me show you an example. I am teaching them the characteristics of air, but I haven't taught them the function of air. Students may draw conclusion according to their common sense. This wastes an opportunity for them to apply their knowledge. I must give them student work that they are able to do. It is like what I have told you before. I may ask them to do the workbook after my completion of a chapter or ask them to do the worksheet in the middle of their learning. I wouldn't assign them any work until they have learnt. It is quite dangerous since students may get poor results; or they are frustrated about their poor performance. Students may lose their confidence once they are unable to do the student's work. This will suppress them to raise their own questions. Finally, students will be depressed." (P1-T3-I1)*

> *"Students must have some understanding on the topic before they do the student's work. They should have prior knowledge to do the work, it means that I give them student work after I taught them. It greatly depends on how much they have acquired. Once they are able to learn the knowledge, I will assign them some student's work. Basically, student's work here means workbook. Needless*

[4] The transcriptions were coded as P2 stands for primary school 2, T1 stands for teacher 1 and I1 stands for interview 1

to say if we talk about exam. I am able to learn how well they have understood the topic from their workbook." (P2-T3-I1)

These teachers have reflected their expectation on pupils to score high marks or get good results in their daily work e. g. the workbook. They were reluctant to provide any form of student work before teaching a certain topic. This may mean that there is little room for their pupils to explore on new learning or take a more active role in finding out what they wish to know. The teachers may not be aware of the purpose of these tasks which may serve as stimulators for self-learning and help students to take an active role in their own learning. Moreover, the teachers did not consider about assigning students tasks before teaching a topic which may provide them information about pupils' ideas and helps them to adjust their teaching in advance of a lesson.

Among other factors influencing the science learning in General Studies, the teachers found the learning of the vocabulary in science to be of major importance. The teachers suggested that asking pupils to copy new terms or words in exercise books is one of the common forms of student works in General Studies. All the teachers interviewed were concerned about the issue of how language abilities may influence pupils' performance in the General Studies assessment tasks,

"In the learning of General Studies, they are required to use other skills such as language ability like writing Chinese characters. In my mind, I accept that students who have the knowledge and common sense, language ability is not necessary. This is a controversial issue. Of course, I do want students with competence in all aspects. Anyway, I prefer to assess their ability through examining their daily performance in class. This is true among my P4 students. Smart students fail in the tests. I still believe that they have the ability." (P1-T3-I1)

"Our school sets the number and types of questions. The panel of General Studies has already told us what sort of questions should not be asked. We would follow his instructions accordingly. The marking scheme like marks being deducted for any wrong characters written is agreed in a meeting held among teachers teaching General Studies with reference to the suggestions made by the panel." (P2-T2-I1)

As suggested in the above, the purpose of assessment in General Studies is confused with the language issue. Due to the difficulty of writing the correct words, the important aspects in assessment like comprehension of the science concepts and the ability to think were given less attention. Teachers become more anxious to help students master their writing ability and may have overlooked the importance of developing them with an inquiry mind.

Despite the constraints and boundary set by the current forms of student work including homework and tests or examinations, some teachers held different views about students' work in science. A teacher reported her view about science assessment saying that this should include a number of perspectives like experimental skills, attitude and interest in learning science. Moreover, she explained why teachers do not practise what they think is important about assessment in science,

"Assessment should not be confined only to pencil and paper tests or exams. It is good if we can observe their performance in doing experiments within the class. I will find out their level of participation and interest; communication with other members. All these are good, but we may not have enough time and resources to do so. At present, pencil and paper tests play an important role in the examination system. In fact, there are lots of limitations such as insufficient teaching time and teacher-student ratio. I must take control of the whole class instead of helping or observing students individually. New policies on education have been proposed, but they make no changes. There are so many things that we are unable to achieve although we know those are good." (P2-T1-I1)

The teachers were also aware of the limitations of tests and examinations though these are the methods often used in primary schools. One of the teachers showed her concern over the fact that smart pupils failed in tests,

"Tests are very important and I think the results in tests or exams are able to reflect students' abilities. The only problem is that some smart students do not have revisions. Thus, I try to pay more attention to their class performance instead of focusing on tests and exams.

Class performance reflects their standard in a more appropriate way. I am not denying the importance of tests and exams, but they are a game of figures sometimes." (P1-T3-I1)

Changes that teachers wish

Following from the above remark that tests and examinations may not be the most effective way to reflect student performance, the teachers were asked to explain how they think about alternative forms of assessment. In the study, the teachers suggested that students would learn more if they were allowed to assess their own work. They also agreed on spending less time on examinations but more time on projects and assignments. Although the dominant forms of student work currently are homework and examinations, teachers related that they hoped to see changes in the current practice and welcomed alternative forms of assessment. In the interviews, the teachers gave project work a high regard. Since project work relates diverse areas of learning, they are looking forward to changes in assessment practices by placing greater emphasis on project work. One of the teachers reviewed that projects can reflect different abilities of pupils in addition to their science knowledge. Projects can also reveal students' abilities of performing in-depth analysis during their discussions and reflect their learning attitude through the design and the presentation of a report,

"They (The assessment criteria for project work) are different. Learning to write the Chinese word is less important for project work. (The students need not worry so much about whether they write the correct words as in tests or examinations.) The focus is on the content they have selected. Content selection reflects the level of understanding. I will not use the length of work as an indicator of excellence. I accept precise and concise good work. I tend to pay more attention to the depth of their discussions. Extra marks will be given to abundant pictures and good design. In fact, there is a set of standards for assessing students' performance in project work. Different parts of the work will be counted for the final outcome. No distinctive difference will be found if we merely use one assessment standard." (P1-T3-I1)

Another teacher looked for whether or not pupils were active in their own learning from the extra research done by the pupils,

"Last year I assigned the topic - solar system as their project theme. So I compared their content and presentations on the same topic to decide which was the best. The drawings and the writings also contributed to the final grading. Content was still considered to be the most important. Some lazy students just copy from the book without providing extra information while some students gathered much information from the websites and the library reference. I would also add some marks if supplement extra information was given." (P2-T2-I1)

A number of abilities like organisation, thinking and self-learning as well as the attitude of learning could be reflected in students' projects as named by one of the teachers,

"I think the project reflects the learning of students in a clearer way. They are working as a group and they have to organize all the things by themselves. I am sure they will learn something during the process of data collection. This enhances and fosters the self-learning ability among students. Project promotes active learning attitudes of students and it benefits their self-learning. (How about the thinking ability?) Absolutely it will help them to develop their thinking. It requires lots of thinking in doing the project such as the selection of relevant content, where to get the information and they have to embellish the report in a presentable way." (P2-T3-I1)

Being impressed by pupils' abilities and the quality of their work, another teacher reported how she believed that project work can reveal more about pupils' performance and called for heavier weighting in the overall assessment,

"I am glad we still have a data collection project. It accounts for 10% for the school result. Referring to students' performance in tests and exams, in addition, we also need to refer to their performance in their work. In my own experience, smart students prefer to do something like projects. They are willing to express themselves and show me their abilities. They get involved in doing the data collection project. I have collected and checked their introductory part. I am impressed by their intelligence in presenting their ideas. It is a continuous assessment rather than the discrete assessments. Thus, I

think a combination of these two is fair...(Is the project a group work?) No, it is an individual work. That's why it lasts about half a year. The workload is quite heavy. In fact, I know that there are some advantages if we ask them to work in several groups. I only know that 10 marks for the project is under-weighed." (P1-T3-I1)

The future is not gloomy as one of the teachers reported that there are initiating changes in practice following the abolishment of tests and more weighting will be given to project work,

"(Would the results of the projects be counted as part of school results?) No, it is only like marks that students obtain for the exercises in the workbook. However, starting from this year, things would be different. Tests have been scrapped since this year; only exams remained. So there are only two examinations left for assessment in a school term. Two projects might be used to replace tests. But it is just a beginning. We have not yet added the marks of projects as part of students' assessment performance." (P2-T2-I1)

The teachers perceived themselves to be more competent in communicating frequently with students about how they are doing than developing their own tests to assess students or setting high but achievable objectives for individual student. Apart from being competent, a teacher also revealed that she has to be in closer contact with the pupils if assessment is made continuously,

"There is no criterion. Teachers have to decide by their own observation. Besides, insufficient time with students is another reason. The cases of some other teachers are different from mine. I teach more than one subjects and thus have more lessons with the same class. So my judgment on their performance is more accurate. If a teacher just teaches them one subject, say like General Studies, he/she could only meet them four or five lessons per week. It is therefore difficult to give the most accurate general score on their daily performance." (P2-T2-I1)

Professional discussions among the teachers in the same school

Professional discussions among the teachers were reported to be infrequent. Discussions about setting tasks for lessons, student performance and setting assessment tasks were relatively more frequent. There were very little discussions about teaching, students' attitude and interest, setting extra-curricular activities and setting criteria for students' work. Moreover, the teachers remarked that they have subject meetings at the beginning and the end of the semester. The agenda of the meetings were mostly about setting topics and tasks, preparing marking schemes and reaching consensus on the marking scheme. Informal discussions which may occur between colleagues during lunch hours, were not frequent. Teachers have related that "there were not much to talk about in General Studies". The informal discussions were on difficulties about teaching, like how to catch up with the teaching schedule and sharing of information from the Internet. The teachers found themselves "too busy" and hence would have discussion about General Studies only "if any problems rise up".

The findings portrayed the current practices on the use of student work in science among the participating teachers in the pilot phase. The findings reflected their current practice, the changes in science assessment they liked to see and their involvement in professional discussions. These findings have significant implications on the direction of the project.

Conclusion

Though homework and tests are at present the major forms of student work, the teachers realized the importance of project work and practical activities in science learning. Though science knowledge is the dominant area of learning being assessed in the student work, the teachers who have attempted to ask their students to conduct project work were impressed by their pupils' thinking ability, enthusiasm in searching information and their attitudes in doing project work. As a result, these teachers called for heavier weighting in the overall assessment for project work. It appears from the findings that the attitude of these teachers shows their readiness for a change from the current practice.

In order to improve the current situation, the language problem as perceived by the teachers in the learning of General Studies has to be resolved. Getting the correct wordings may have to be de-emphasized while more opportunities should be given to students to develop their thinking skills and provoke their interest in science learning. Drilling exercises for writing the Chinese characters may have to be abolished while providing more opportunities for students to engage in self and active learning in science. As teachers are starting to attempt alternative forms of assessment, for example in assigning project work, their competence towards these assessment forms should be enhanced. Moreover, teachers from different schools or even countries may benefit through the sharing of their teaching experiences. Though such opportunities may be deficient at the moment, professional discussions among teachers should be greatly encouraged.

Besides using samples of student work to stimulate professional discussions, the project team will conduct workshops to introduce a variety of science assessment practices in order to enhance teachers' perception of their competence towards science assessment. Further efforts will be put to introduce alternative forms of assessment to the teachers, ways of stimulating students' thinking through project work and ways of assessing project work. The teachers will be encouraged to share their experience in conducting different forms of assessment in school and discuss the teaching of General Studies and the application of project work. Moreover, they will be engaged in professional dialogues to exchange their professional experiences which would in turn facilitate and support changes in practice.

Through the sharing of experiences, it is more likely that teachers may attempt different forms of science assessment by making reference to the experiences of other local teachers and colleagues in other countries. In view of a lack of opportunities for professional discussions among teachers at present, such discussions will thus be stimulated through the workshops and the exchange of the student work via the CD-ROM or the Internet. At a later stage, samples of student works will be the basis for teachers to analyze and improve their science teaching. It is also the aim of the project that the workshops and discussions among teachers both locally and internationally may enhance teachers' professional development, resulting in changes in science teaching and finally, leading to improvement of pupils' science learning.

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「幼兒文學在幼兒教學的作用與應用」調查報告

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學習語文必須由基礎開始，循序漸進，因此，幼稚園的語文學習絕不容輕視。本研究從幼稚園教育工作者的角度出發，探究（一）香港幼兒文學作品的特點；及（二）幼兒文學在幼稚園教學中發揮的作用、困難及解決方法。本研究共發出180份問卷予幼稚園教育工作者，並深入訪問了14位幼稚園教育工作者。研究發現幼稚園教育工作者認為幼兒文學作品最重文字淺白、圖畫顏色悅目及人物造型生動，現時香港的幼兒文學作品雖能符合被訪者的期望，但其對幼稚園教學的作用則受到家長的重視程度、學生的閱讀興趣、良好作品的數量、教師的觀念和學校經費所限制。

An Investigation on the Function and Application of Children Literature in Pre-primary Education

Without concrete language foundation, children will find it difficult to use language as tools for learning when they grow up. Mastering of language abilities should therefore start progressively from elementary education. Language learning in kindergarten should not be neglected. The present study, from kindergarten educators' perspective, focuses on characteristics of children literature in Hong Kong; their functions and application in kindergartens. 180 questionnaires were distributed among kindergarten educators and 14 kindergarten educators were interviewed in details. It is found that simple words, colourful pictures and attractive figures were 3 important characteristics of children literature. Children literature in Hong Kong can meet kindergarten educators' expectation but its educational functions and application are limited by parents' attitude, children's reading interest, teachers' concept, insufficient children literature of good qualities and insufficient budget of schools.

一. 引言

語文學習一直是香港教育界一個非常熱門的話題，事實上，學習語文必須由基礎開始，循序漸進；沒有良好的語文基礎，學生自難利用它作為學習工具。正因如此，幼稚園的語文學習絕不容輕視。

現時香港大多數幼稚園採用“主題教學”模式，透過活動，讓學生能在愉快的環境下學習。幼稚園學生亦透過不同的學習活動，發展語文能力，如果他們能夠閱讀合適的幼兒文學作品，自能在成長初階，培養良好的學習興趣，以至掌握一定的語文能力。

香港教育署課程發展處（1996）《學前教育課程指引》提出了閱讀訓練的重要性，亦對適合幼稚園學童閱讀的幼兒文學提出了期望；廖、何、劉（1996）曾就香港幼稚園中文教學推行情況進行調查，發現接近一半(47%)的幼稚園教師認為本港良好兒童讀物不足。這種情況到了現在，會有甚麼改變？幼稚園教育工作者站在幼兒教育工作的前線，對幼兒文學作品在教育幼兒時發揮的作用與遇到的困難最為瞭解，因此本研究將從實用角度出發，從幼兒文學作品的使用者——幼稚園教育工作者，包括校長、老師的角度來探究：

1. 在幼稚園教育工作者眼中，香港的幼兒文學作品有甚麼特點？
2. 幼兒文學在幼稚園的實際教學中能夠發揮多大的作用？有甚麼困難？應該如何解決？

希望藉此為香港的幼稚園教育及中文教育提供具體參考資料。

二. 文獻回顧

(一) 幼兒的特點

3至15歲所涉及的兒童心智發展過程其實包括不同階段，祝士媛(1997)指出3至15歲可分為幼兒期、兒童期、少年期。幼兒期是指3至6歲的幼兒，亦即是幼稚園學生的年齡階段。

根據皮亞傑(Piaget)的"認知發展期"的分法，幼兒應處於"前運思期"(2-7歲)。3至6歲的兒童仍依靠形象進行思維，由於他們的生活經驗有限，掌握的詞語不足，所以他們須借助圖片進行閱讀。不過，縱然幼兒的說話能力不足，但聽或了解語言的本事已十分足夠(葉, 1990)。

Opper(1996)指出香港的兒童在3歲時已經發展了相當好的語言理解和表達能力。例如他們可以說出日常生活中熟悉的活動的名稱，又能分辨在上、在下和在後等介詞。他們可以知道一些熟悉的物件和初步認識身體各部分，並可以在一分鐘內說出多達五種動物的名字。

幼兒語言的發展，其中一個要素就是詞匯量的掌握。許多研究材料均指出兒童在幼兒時期的詞匯量增長十分迅速，甚至可以說是一生中增長最快的時期。根據華東七省市、四川省幼兒園教師進修教材協編委員會(1996)《幼兒心理學》的研究資料顯示，幼兒晚期掌握的詞匯可達3000個左右。

當然由於生活條件、教育及其他原因，兒童之間掌握詞匯量的差異亦十分大，據調查3-4歲的兒童，掌握詞匯最多的是2346個，最少的卻僅有598個，但亦可見幼兒已能掌握一定數量的詞匯。

卜衛(1996)根據兒童心理年齡特徵，選出適合不同年齡的兒童閱讀的書籍。3至6歲的兒童仍要依靠父母和老師的指導，但已開始有自己的選擇，亦可自行閱讀。童話、寓言、短小的詩歌，皆由成人朗讀口述而進入欣賞的境界。

幼兒另一特點就是主動好奇，根據艾里克森(Erikson)的"心理社會期發展論"，3至6歲的幼兒正處於第三期，特點是主動好奇。Brewer(1995)亦指出兒童學習閱讀須經歷一個過程，始於他們對書本產生興趣，然後發展"自己就是這本書的讀者"這一概念，有了這種認知，兒童漸漸學會留心書本上的文字，跟著才發展各種閱讀技巧。

(二) 兒童文學與幼兒文學

綜合研究兒童文學的學者，包括蔣風(1982)、許義宗(1987)、雷僑雲(1988)、杜淑貞(1994)、傅林統(1995)和文玉清(1995)的界說，"兒童文學"是因應兒童的年齡、心理發展和興趣而編寫的文學作品。它具備了文學的本質，內容包含了對真、善、美的追求，透過深入淺出的語言和藝術技巧，能為兒童所能理解和喜愛的作品。

兒童心智發展過程既然包括了不同的階段，而每一階段均有其獨特性，兒童文學亦應因應兒童心智發展過程中的不同階段而有不同的特點，因此不少學者從兒童發展的角度將"兒童文學"細分為幼兒文學(3-6歲)、兒童文學(6-12歲)、少年文學(10-15歲)，所以從"兒童文學"的概念又可分化出幼兒、兒童和少年文學的概念(林，1993)。本研究的重心就是指3至6歲的幼兒（亦即是現在香港幼稚園的適齡學童）所閱讀的文學作品。

(三) 幼兒文學的重要性

很多學者都認同幼兒文學是兒童的啟蒙教材，為幼兒奠下學習的基礎。蔣風(1999)強調幼兒文學是幼兒成長不可或缺的精神食糧，對促進幼兒的全面發展具有重要的作用。幼兒文學以其獨特的藝術魅力，引導幼兒初涉人生，是幼兒生活的「形象教科書」，也是幼兒認識生活的「魔鏡」，幼兒文學可說是人生發展的基石。

張美妮等(1996)亦指出在幼年時期接觸幼兒文學，可讓兒童長久在腦海中留下美好的記憶，對他們一生，如職業選擇、人格完善等亦有深遠的影響。

祝士媛(1997)指出幼兒文學具有教育、認識、審美和娛樂等功能，能增進幼兒的知識，陶冶幼兒的情操，培養幼兒的學習能力，使幼兒在愉快的情緒中成長，有利幼兒身心的發展。

此外，香港教育署課程發展處(1996)《學前教育課程指引》中明確指出對4歲和5歲兒童的閱讀方面的培育目標如下：

1. 擴展兒童閱讀興趣，並開始學習書面語言(四歲)
2. 加強兒童閱讀能力和興趣，並促進書寫和運用語言的能力(五歲)

《學前教育課程指引》強調發展幼兒的閱讀能力旨在培養兒童閱讀的興趣和習慣，協助兒童從閱讀中增進知識(頁95)，所以在幼稚園教學中使用幼兒文學不但能提高幼兒學習語文的興趣，而且能使幼兒在升讀小學時有更好的銜接。

三. 研究方法

本研究旨在探究幼兒文學作品在幼稚園教育工作者眼中的價值和應用，由於香港以前並未有進行過同類研究，為求蒐集比較全面的資料，故此兼採定量研究（Quantitative Approach）和定質研究(Qualitative Approach)。

定量研究

本研究先採「定量研究」方法，以問卷方式探究一般幼稚園教育工作者，包括校長、老師理想中的幼兒文學作品的特點、現時香港的幼兒文學作品的實況、他們眼中這些作品的教學作用、在教學上運用這些作品有何困難等資料。此部分探究一般性資料，研究資料更可協助研究者確定定質研究部分的研究焦點。

本研究共發出180份問卷予香港教育學院幼稚園課程的學員，選擇他們作研究對象是因為幼稚園課程的學員來自全港不同的幼稚園，因此反映面應較廣。在進行問卷調查之前，本研究先進行預試（Pilot Study），邀請4位幼稚園教師填寫問卷。在她們填寫問卷之後，研究者訪問受試者問卷中有沒有不明確或有問題的地方，以確保問卷清晰、明確，可協助本研究達到預期的效果。本研究採用的問卷分為兩部分，甲部為針對本研究的目的而設計的10題選擇題目，乙部為個人資料部分。

定質研究

研究者在分析定量研究部分的結果後，針對研究發現中較具爭議性的地方，以訪問方式深入探究，以期獲得更詳細而具體的資料。本研究採用單獨訪問方式，訪問沒有時間限制，研究者預備了一些帶領性問題，刺激被訪者暢所欲言地發表意見。

本研究訪問14位幼稚園教育工作者，包括校長、老師，她們的教齡均在四年以上，確保她們對幼稚園的教學工作情況有相當認識，以助本研究獲得深入而準確的資料。

四. 研究結果

定量研究

a) 預試

4位參加預試的幼稚園教師均能於15分鐘內完成問卷，她們在填寫問卷後進行的訪問中都表示問卷使用的字詞明確，填寫時不感到任何困難。

b) 問卷調查

本研究共收回175份問卷，收回率達97.2%。沒有問卷出現漏填答案的情況，所有收回的問卷都是可供分析的問卷。

175位被訪者中，20位(11.4%)是校長，9位(5.1%)是主任，146位(83.5%)是教師(包括助教)。所有被訪者都是女性，教齡由1年至30年不等。她們服務的幼稚園分散於香港島(50人/28.6%)、九龍(49人/28%)、新界(76人/43.4%)。

被訪者多任教中文幼稚園(105人/60%)，其次是中、英文雙語幼稚園(65人/37.1%)，最少的是英文幼稚園(5人/2.9%)。被訪者多在宗教團體辦的幼稚園(90/51.4%)工作，其次是私人開辦的幼稚園(67人/38.3%)，此外亦有被訪者工作於附屬於小學的幼稚園(17人/9.7%)，還有1人(0.6%)在國際幼稚園工作。

表1：幼兒文學作品內容

選擇項目	選擇人數	選擇人數百分比
有趣味	161	92
有教育意義	138	78.9
情節簡單	131	78.3
生活化	127	72.6
想象豐富	121	69.2
有美感	92	52.6
具感情	91	52
有幽默感	80	45.7
故事性強	79	45.1
別具創意	75	42.9
有思想	56	32
有理想	35	20
情節複雜	3	1.7
其他	1	0.6

被訪者認為幼兒文學作品首重趣味，其次是教育意義，再次則是情節簡單。“生活化”在被訪者的眼中亦非常重要，另外“具感情”和“有美感”亦受到超過一半的被訪者所重視；反而“有理想”、“有思想”等在一般文學作品中非常受到重視的要素，原來並非幼稚教育工作者對幼兒文學作品的期望。

表2：幼兒文學作品表現形式方面

選擇項目	選擇人數	選擇人數百分比
文字淺白	157	89.7
圖畫顏色悅目	149	85.1
人物造型生動	144	82.3
構圖能突出主題	105	60
文字具節奏感	64	36.6
邏輯性強	33	18.9
其他	1	0.6

超過八成被訪者認為幼兒文學作品最重要的三個要素是文字淺白、圖畫顏色悅目及人物造型生動。另外六成被訪者認同構圖能突出主題構圖這個因素在幼兒文學作品的重要性。反而邏輯性、節奏感不大受到被訪者所重視。

表3：現時香港常見幼兒文學作品的題材

選擇項目	選擇人數	選擇人數百分比
故事性	158	90.3
知識性	134	76.5
圖畫性	132	75.4
想象性	64	36.6
猜謎語	37	21.1
音樂性	35	20
懸疑性	14	8

超過九成被訪者認為現時香港的幼兒文學作品的題材以故事最多，其次是知識性和圖畫性較重的作品。想象性、音樂性的幼兒文學作品則不多。

表4：現時香港常見幼兒文學作品的表現手法

選擇項目	選擇人數	選擇人數百分比
圖畫悅目	136	77.1
字彙顯淺	116	66.3
人物形象鮮明	97	55.4
人物造型生動	93	53.1
人物造型簡單	81	46.3
漫畫形式	76	43.4
利用構圖突出主題	76	43.4
音樂性文字	22	12.6
娛樂性消息	19	10.9

被訪者認為現時香港的幼兒文學作品最多採用悅目的圖畫，其次是字彙顯淺，跟著是人物形象鮮明和生動。反而近年在香港甚受歡迎的漫畫形式、以及被訪者在問卷部分第一部分頗為重視的利用構圖突出主題的幼兒文學作品卻非現時香港的幼兒文學作品常用的表現手法。

至於現時香港的幼兒文學作品對幼兒是否吸引這問題，66人(37.7%)認為現時香港的幼兒文學作品對幼兒「有吸引力」；另外56人(32%)認為現時香港的幼兒文學作品對幼兒「頗有吸引力」。只有15人（8.6%）認為「非常吸引」。可見不少被訪者對現時香港的幼兒文學作品對幼兒的吸引力頗有保留。

當被問及現時香港的幼兒文學作品對幼稚園教學是否有助時，61人（34.9%）認為「有幫助」，另外46人（26.3%）認為「頗有幫助」，只有30人（17.1%）認為現時香港的幼兒文學作品對幼稚園教學「非常有助」。

表5：現時香港常見幼兒文學作品的教學作用

選擇項目	選擇人數	選擇人數百分比
培養兒童的閱讀興趣	156	89.1
增強兒童的語文能力	151	86.3
豐富兒童的想象能力	132	75.4
教導兒童的做人態度	118	67.4
培養兒童的閱讀習慣	118	67.4
增強兒童的思維能力	113	64.6
使兒童認識周圍客觀事物	94	53.7
其他	1	0.6

超過八成被訪者認為幼兒文學作品可以提高學生的語文能力和培養學生的閱讀興趣，被訪者肯定幼兒文學作品對幼稚園語文教學的作用。其次被訪者亦認為幼兒文學作品在培養學生的處世態度（德育教育），以至訓練學生的思維想象能力上均有一定的作用。

另一方面，大部分被訪者認同現時香港的幼兒文學作品對家長教育兒女有助。70人（40%）認為「有幫助」，亦有48人（27.4%）認為「頗有幫助」，和被訪者對現時香港的幼兒文學作品在教學上的作用相若。

表6：在教學上使用幼兒文學作品的困難

選擇項目	選擇人數	選擇人數百分比
家長不重視	99	56.6
學生缺乏閱讀興趣	89	50.9
良好作品不多	88	50.3
學校經費不足	86	49.1
教師不懂選擇	56	32
讀物不易購買	52	29.7
學校不重視	50	28.6
其他	3	1.7

多數被訪者以為「家長不重視」是現時幼稚園教學利用幼兒文學作品的主要困難，其次是學生缺乏閱讀興趣。跟著就是良好作品不多和學校經費不足。反而「教師不懂選擇」、「學校不重視」、「讀物不易購買」並非最大的困難。

表7：解決教學上使用幼兒文學作品的困難的方法

選擇項目	選擇人數	選擇人數百分比
鼓勵家長多買兒童圖書	120	68.6
加強教師對兒童文學的認識	113	64.6
教育署資助學校圖書費	106	60.6
增加學生上課閱讀時間	84	48
政府多辦寫作獎勵計畫	70	40
學校多辦書展	65	37.1
其他	3	1.7

多數被訪者認為首先要鼓勵家長購買圖書，然後是加強教師對幼兒文學的認識和教育署增加學校圖書經費的資助。其次就是增加學生上課閱讀時間和政府多鼓勵創作幼兒文學。調查結果發現一個頗為有趣的現象，就是雖然只有56位被訪者(32%)表示「教師不懂選擇」是在幼稚園教學運用幼兒文學作品的困難，但卻有多達113人(64.6%)表示加強教師對幼兒文學的認識有助解決幼稚園教學運用幼兒文學作品的困難，從中可見教師雖懂選擇，但對幼兒文學作品的認識還是不夠的。

定質研究

本研究共訪問了14位來自不同學校的幼稚園教育工作者，其中7位是校長或主任，發現如下：

a) 現時香港幼稚園經常使用的幼兒文學作品

被訪者表示現時香港的幼稚園經常使用的幼兒文學作品是故事書，她們都能隨意列出一些例子，如〈獅子找朋友〉、〈月亮掉下來〉、〈添了小弟弟〉、〈北風和太陽〉、〈小白兔送紅蘿蔔〉等。

此外，亦有被訪者指出她們任職的幼稚園採用一些配合主題教學的圖書，如配合「冬天」、「聖誕」等主題的圖書，或是一些發聲圖書。幼稚園教師也會設計一些有趣、圖畫多色彩，而又有教育意義，例如以愛護公物為主的書本。

b) 書本來源

現時香港的幼稚園經常使用的幼兒文學作品主要來源如下：

i) 書商上門推銷，學校請他們留下書本，再由校長和教師根據該書是否有助兒童學習而加以選擇；

ii) 校長和教師主動找尋有關書目和參考市政局新書推介，不過數量實際不多；

iii)由家長捐書，經教師選擇。不過，家長捐書多少視乎家長是否重視學生的學習；

iv)校長到外地考察適合幼稚園學童閱讀的故事書，然後由教師改寫。不過，有經驗的幼兒工作者有能力改寫故事書，年輕、缺經驗的教師則沒有這種能力；

v) 學校向市政局圖書館借書，通常一次借一百本至三百本，每次借用期為一個月。

c) 書本出版地

被訪者慨嘆缺乏本地文化的幼兒文學作品，她們指出現時香港出版的幼兒文學作品很少，但內容多類同。有時教師會憑經驗自製教材，如為了配合環保這個主題而自製圖書。台灣出版的圖書弊在書中每句旁邊也有拼音，令人看得眼花繚亂，更影響學生的識字。至於國內的圖書都是用簡化字寫出，學童未能明白；而且中、港兩地文化有異，圖書的題材背景亦不同，故此選擇時須特別小心。

d) 幼兒文學作品的教學作用

被訪者指出幼兒文學作品可以配合德育教育，例如藉著故事教育學生清潔、關心別人和與人相處的應有態度（教育性）。幼兒文學作品又可以配合單元的主題教學，向學生貫輸生活常識，例如冬天。教師又可以透過幼兒文學作品向學生傳授語文知識，例如每頁朗讀一句，或藉教冬天教學生「衣服」二字的寫法，或在教消防員的工作時教「消防員在救火」這句式（知識性）。幼兒文學作品更可以配合學生的年齡、日常生活經驗，如電視節目（趣味性）。

e) 現時香港的幼稚園使用幼兒文學作品的情況

幼兒文學作品一般用於以下情況：

i) 分組活動時間：教師安排學生於分組活動時間內閱讀指定讀物。

ii) 故事課

由教師講故事，然後學生以「布偶劇場」形式演出故事，跟著以朗讀句子或寫簡單句子作鞏固，教師亦可以其他方法進行。

iii) 設計活動時間

比方高班學生借閱圖書

iv) 課室圖書櫃（角）

學校把圖書放在圖書櫃內讓學生借閱

v) 教師在教學或備課時使用

ii) 茶點後的過渡時間

f) 現時幼稚園學生感到興趣的幼兒文學作品

幼稚園學生一般對幼兒文學作品，特別是附有圖片的故事最感興趣。有些書本設有一活動門，當學生打開書本時，一份禮物會由書本彈出來，這種方法頗能吸引學生的興趣。如學校能按時更換書本，更能維持學生的閱讀興趣。一位被訪者更指出：學生的趣味來自他們對書本內容的理解，如果學生看不懂書本的內容，則難以吸引他們的閱讀興趣。

g) 現時香港的幼稚園利用幼兒文學作品所遇到的困難

被訪者指出現時政府對推動幼兒文學作品支持不足，教育署的廣泛閱讀計畫未能普及至幼稚園。由於人手及經費都不足，校長推行時倍感吃力。部分教師亦缺乏對幼兒文學作品的認識。現時香港的幼兒文學作品亦有問題，例如缺乏本地文化元素，幼兒文學作品亦未有針對不同年級的學生而寫作，或失諸太深奧，或失諸太淺顯。

此外，有被訪者認為幼兒文學作品的閱讀要與其他活動，例如玩具競爭，現時香港的讀書風氣不強，學校空間不足，整理和放置圖書已是一大問題，遑論佈置舒適的環境吸引幼兒閱讀！不少學校更把新添置的圖書給教師備課之用，教師往往使用完畢才把書本放在課室的圖書角（櫃），因而學生可借閱的多是舊書，或是已經從教師口中聽過多時了，試問又怎能引起學生的興趣？

被訪者亦留意到有些家長可能因為工作忙碌，往往忽略幼兒，更無時間陪伴孩子一起讀書，學生下課後便不能利用閱讀延續學習。

h) 改善方法

被訪者認為政府應多撥款給推廣幼兒文學的幼稚園，廣泛閱讀計畫也應普及至幼稚園，政府亦應多設基金鼓勵幼兒文學作品的創作，而公立圖書館亦應多購適合幼稚園學生閱讀的書本。

學校方面應鼓勵親子閱讀計畫，因為家長對幼兒的鼓勵對兒童的閱讀動機有很大的鼓舞作用，教師也應加強認識幼兒文學作品，才能感染學生。同時，學校也應鼓勵教師創作幼兒文學作品，改寫、翻譯、與學生共同創作也可，以期寫出更適合香港幼兒的能力和興趣的作品。此外，學校也可鼓勵家長多參加關於幼兒文學的活動，更可舉辦親子參觀圖書館的活動。學校方面，宜設計一舒適環境讓學生閱讀。教師亦應學習更多有效的推廣閱讀方法。

有被訪者認為教師應多嘗試使用不同的方法推廣閱讀活動，例如安排說故事、聆聽等活動配合，或由不同組別的同學輪流閱讀不同的書本，然後互相分享，亦可鼓勵學生帶圖書回校，與同學分享，更可由學生借書給同學，以增加閱讀的趣味。

五. 結語

綜合兩部分的研究資料，可見：

a) 本研究的被訪者對幼兒文學作品的期望符合幼兒的成長特點：

被訪者首重幼兒文學作品的趣味性，此點和心理社會學家艾里克森(Erikson)的「心理社會期發展論」中3至6歲的幼兒的特點------ 主動好奇相符，其次是情節簡單，這點亦和幼兒的心智成長有關，幼兒正處於皮亞傑「認知發展理論」中的「前運思期」，加上社會經驗不足，情節複雜的作品不易為幼兒所能看懂。

此外，大多數被訪者認為幼兒文學作品最重要的三個表現特點是文字淺白、圖畫顏色悅目及人物造型生動。由於幼兒的詞匯尚在發展，淺易的作品自然容易為幼兒所接受，他們亦較易讀懂，至於故事人物和圖畫的顏色，都是吸引幼兒閱讀的重要手段。其次，被訪者亦非常重視幼兒文學作品的教育作用。

b) 現時香港的幼兒文學作品符合被訪者的期望：

大多數被訪者認為現時香港的幼兒文學作品以故事最主，其次是知識性和圖畫性較重的作品。表現手法則多採用悅目圖畫，字彙顯淺，人物形象鮮明和生動。這些特點正是(a)項中大多數被訪者對幼兒文學作品的期望。然而不少被訪者對現時香港幼兒文學作品的吸引力卻有所保留。

c) 被訪者肯定幼兒文學的教學作用，包括語言能力的發展、態度的改善，以至思維能力的發展。但頗多被訪者認為現時香港的幼兒文學作品對幼稚園教學的作用發揮不足。

d) 被訪者以為現時香港幼稚園教學上利用幼兒文學作品的困難主要來自家長不重視、學生缺乏閱讀興趣、良好作品不多和學校經費不足。要解決這些困難，多數被訪者認為首先要鼓勵家長購買圖書，然後是加強教師對幼兒文學的認識和教育署增加學校圖書經費資助。幼兒文學作品本身的質素？如何提高學生對幼兒文學作品的興趣？以至教師對幼兒文學的認識亦是值得反思的地方。

其實，幼兒的語言發展迅速，他們已掌握一定的詞匯量，而且在聽、說、讀各方面都有一定的水平。再者，很多語言學家都強調多聽、多說、多讀、多寫是語言學習的不二法門，在幼兒來說，多聽、多說、多讀，絕對是他們語言快速成長的催化劑，靈丹妙藥，有人曾打過一個比方，說圖書就是孩子的玩具、是孩子生活的一部分，良好的幼兒文學作品對幼兒各方面，包括語言、知識、態度，都起了積極的作用，這點從本研究的結果充分得到幼稚園教育工作者的肯定。

然而，所謂「良好的幼兒文學作品」，卻不應僅僅看其內容取材、表現手法，最重要的是它是否符合幼兒的語文程度、生活經驗？在選擇題材和表達技巧上能否針對幼兒成長的特點？能否令幼兒感到趣味、有吸引力，從而主動地閱讀？

香港現時的幼兒文學作品，如果以其表達形式（例如故事）和技巧品評，似乎已符合一般幼稚園教育工作者的期望。然而不少被訪者卻不滿香港現時的兒童文學作品未能針對香港幼兒成長的特點，此點是否屬實，有待日後研究再深入探究。

本研究不少被訪者亦認為香港現時的幼兒文學作品未能照顧學生的個別差異，或失諸全書照譯，太外國化，以幼兒淺薄的生活經驗自難看懂，這亦是提高幼兒對幼兒文學作品的閱讀興趣的一大障礙。研究者期望香港的幼兒文學作家正視此問題，多觀察本港幼兒的特點，多參考有關幼兒的研究報告，加深對香港幼兒的瞭解，更要多留意香港的實際情況，從而創作更多、更切合香港幼兒的需要的具有本地原創性的幼兒文學作品。

其次，即使香港的幼兒文學作品如何優秀，如果得不到教師的靈活運用，其作用必然大打折扣。這次研究的結果清楚告訴大家：香港的幼稚園教育工作者絕對肯定幼兒文學作品的價值。但是她們未能懂得在教學上運用幼兒文學作品，這些問題，寄望師資培訓課程能進一步地針對。

此外，政府在推動香港的幼兒文學亦是責無旁貸的，現時香港的幼稚園正面對經費不足、人手不足等問題。很多獨力推動幼兒文學的幼稚園都感到孤立無助，盼望政府在這重要的工作上多作承擔，例如資助香港的幼兒文學創作。

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認知心理學與兒童閱讀發展

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本文的目的是提供有意義的証據，解釋建立良好的語言與閱讀基礎的方法和先決條件。本文根據認知心理學的研究結果，提供有關閱讀的心理過程和閱讀發展的理論基礎。對於小學階段閱讀材料的選編與設計、考慮兒童讀物的主要條件，本文也都有詳盡的介紹。有關閱讀發展之最新趨勢，電腦輔助閱讀學習，本文也都提出實質的建議。

Cognitive Psychology Theories and Children's Reading Development

The article provides an evidence-based approach to explain the required conditions and methods for enhancing children's linguistic and reading abilities at primary school level. It also explores the importance of understanding the relationship between reading process and children's psychological responses and cognitive development. Selection, design and construction of appropriate reading materials for children at different ages were recommended. The new trends of using computer software to promote children's reading motivation, especially for those children with reading disabilities were also discussed.

引言

現代社會的一個重要特點是文字資訊的大量湧現。科學技術的迅猛發展，社會工業化、現代化步伐的加快，刺激了文字資訊的迅速膨脹。七十年代中期，有人作過這樣的估算：國際非科技內容的文獻數量每30-50年增加一倍，而科技文獻的數量每10年，有人認為7-8年就增加一倍(彭，1997)。一些尖端、前沿科學文獻的增長速度更快。科學技術、社會經濟、文字資訊的發展改變著社會的面貌，也改變著人的生活。它大大擴展了人的物理和心理空間，導致人與社會、人與人的聯繫與交流打破了時間、空間、文化的局限，擴展到難以想象的地步，促進了文字資訊大量進入人的日常生活。與幾個世紀前，幾十年前，甚至十幾年前相比，人們需要閱讀的材料大大增加，閱讀在人們生活、工作中起著越來越重要的作用。

閱讀是成年人與社會聯繫的主要途徑，通過閱讀報紙、書籍、簡報、圖表等，人們獲取資訊、綜合資訊、做出決策，從而使自己能適應社會的變化，成為一個正常的社會成員，並在社會中實現著自己的價值。據一些發達國家的調查，16歲以上的成人每天平均業餘閱讀時間為106分鐘，多數人每天閱讀1小時左右，少數人閱讀3小時，甚至更多。70年代，知識界、技術界、商業、服務、農業、工業的調查表明，人們每天工作中職業需要閱讀的平均時間為61分鐘，而到80年代中期，平均閱讀時間增加到162分鐘。對在校學生來說，閱讀是他們物理、數學、歷史、地理等各科學習的基礎(舒，1997)，是他們進入資訊社會，參與社會競爭最基本的技能之一。同時，閱讀也是他們獲取知識、擴展新概念、訓練獨立思考、判斷、推理能力的重要途徑，因此，在一些發達國家，閱讀課成為一門要求很高的課程，它的範圍超出單純的語文學習，它對教師的要求也很高，例如在美國的許多州，中小學閱讀課的教師必須是研究生畢業的。然而，即使是這樣，人們越來越發現，社會對

學生閱讀能力的要求仍遠遠超出課堂教學力所能及的範圍。可以說提高閱讀效率和閱讀學習效率的問題已經提到每個人的議事日程上來。如何提早閱讀，大量閱讀，有效閱讀，成為近幾十年來各國心理學家、教育學家致力於研究的一個重要課題。

解決這個問題的重要途徑之一是加強基礎理論研究的指導，近三十年來，閱讀過程的基礎理論研究是認知心理學中進展最快、獲得成果最多的領域之一，這些研究已經揭開了許多有關閱讀的心理過程、特點及其生理機制的秘密。閱讀發展研究則進一步揭示了學習閱讀的進程和規律，這些都為有效學習、訓練閱讀提供了堅實的基礎。從心理學家的研究看，提高閱讀和學習閱讀效率的問題可以從三個方面入手：一是如何從教育心理學的角度提高人的閱讀能力，如提高閱讀速度、改進閱讀技巧，提高學習閱讀的效率，提早閱讀等。二是從認知心理學的角度，研究閱讀獲得的過程，及改進閱讀材料的質量，如在有限的篇幅中提供更多的資訊，使閱讀材料有利於學習和抽取資訊。三是將認知心理學與高科技配合，尤其是電腦技術給文字資訊的學習和處理帶來的巨大的潛在能力。

閱讀過程與兒童閱讀發展

提高閱讀能力首先要需要瞭解閱讀是怎樣進行的，兒童閱讀與成人閱讀的差距，以找到有效的培養途徑。一般人認為，閱讀是人識別字詞獲得詞義，組織各個詞的意義去理解句子的意義，最後結合各個句子的意義理解文章意義的過程。然而心理學家告訴我們，這不完全正確(彭，舒 1997)。閱讀是一個人依靠腦中的原有知識，主動獲取資訊，從文章中建構意義的過程。人的主動性在閱讀過程中的作用比一般人想象的要重要得多。心理學研究表明，閱讀是人對來自兩個方面的資訊的加工過程，“自下而上”的加工指人的閱讀理解需要接受、加工來自書本提供的資訊，"自上而下"的加工指人還需要選擇和使用頭腦中已有的知識去對閱讀到的資訊加以組織。隨著生活經驗與學習，人的頭腦中有大量有組織的知識，被稱作“圖式”。圖式在閱讀理解中起著舉足輕重的作用，它幫助讀者彌補文章中沒有提到的一些細節，理解文章中表達模棱兩可的意思，推理文章中隱含的深層意義。如果讀者缺乏或不能及時提取需要的知識，進行必要的推理，要理解一個簡單的小段落也是困難的。讓我們舉一個例子：“燕燕聽到”“冰棒-”的叫賣聲，趕忙跑回屋裏，拿起自己的小豬儲錢罐，使勁搖了搖，裏面沒有聲音.....”讀者理解這個段落時，需要做出幾個推理：

1. 燕燕跑回屋裏是為了取錢買冰棒；
2. 小豬儲錢罐是存零錢的地方；
3. 搖搖儲錢罐是確定裏面是否有錢的一種方法；
4. 裏面沒有聲音表明裏面沒有錢。

另外，人們還可以大致推斷，“燕燕是個孩子”，而且很可能"是個女孩子"。所有這些推理都是在很短的瞬間完成的，而沒有這些推理，人們是難以理解以上的小段落的。成年讀者的閱讀理解中熟練地將閱讀材料中的資訊與自己頭腦中的已有知識結合起來，而初學者閱讀理解差，常常由於他們不能及時提取有關知識而過多依賴對文章中字詞的分析，或者由於字詞識別的困難而過多依賴腦中原有的知識代替對當前資訊的閱讀。

閱讀的心理過程

閱讀是一種很複雜的心理過程，心理學家比喻它象演奏一場交響樂，閱讀中包含許多分過程或分技巧，如識別字詞、分析句法、進行語義分析、提取有關知識、做必要的推理等，這些分過程是在人腦中同時進行的，僅一、兩種分過程的單獨工作不能構成閱讀，只有多種分過程或分技巧相互協調，閱讀才能順利進行。然而，就象電腦的記憶體是有限的一樣，人的注意能量也是有限的，也就是說人腦在同一時間內能控制的工作非常有限，因此需要許多較低級的分過程，如字詞識別、句法分析等達到自動化的程度，人才有可能分配更多的注意在閱讀理解的高級過程上，使建構文章意義的過程更加容易。例如，熟練讀者的一個重要特徵是他們的字詞識別已達到自動化的程度，迅速準確的字詞識別使他們分配更多的注意在閱讀理解的高級過程上，初學者學習閱讀時表現出的最明顯的缺陷也在於字詞識別的困難。閱讀是有策略的，熟練讀者的閱讀是靈活的、可變的，他們往往在不同的場合、對不同的文章的閱讀行為不完全一樣的，這是由於有經驗的讀者能根據閱讀的目的和要求、自己對閱讀內容的背景知識、閱讀的條件環境等制訂閱讀策略。初學者常常缺乏熟練讀者的一些重要策略：他們不能迅速提取閱讀任務所需要的有關知識，不能按照不同的閱讀目的調整自己的閱讀方式，難以監控自己的閱讀理解過程，當理解閱讀內容有困難時，不能採取有效的補救措施等。當然，兒童是否有注意力集中的問題，及對文章背景資料的認識及親身經驗程度，衝有影響兒童的閱讀能力。

閱讀的動機因素

閱讀是需要動機的，所有的老師都會同意，學習閱讀的一個關鍵是動機。熟練閱讀本身是有趣的，讀者可以在閱讀中獲取許多有關世界的新的資訊，以滿足自己的求知欲望，得到一種樂趣。但對初學者來說閱讀過程卻不完全如此。在學習閱讀過程中，初學者要花大量時間練習各種分技巧，並且分技巧的不熟練往往干擾他們的閱讀過程，他們不能充分體驗從閱讀中獲取資訊的樂趣。尤其是那些閱讀差的兒童，連續的失敗會使他們喪失信心，甚至使他們放棄對最終成為成功的閱讀者的希望與追求。兒童學習閱讀的期間維持他們閱讀的動機是十分重要的。

儘管心理學研究揭示了閱讀過程的複雜性(朱，1977)，但真正將提高閱讀效率和提高閱讀學習效率問題提到議事日程上的是現代社會的需要。當社會要求人們以極高的效率處理大量文字資訊時，閱讀能力的培養變得越發重要。

閱讀的任務

在今天的社會裏，兒童閱讀學習的目標應能使兒童適應未來社會對人們文字信息處理的需要，因此，閱讀學習的任務是多方面的：

首先，最基本的是兒童通過學習掌握書面語言，書面語言是現代社會資訊傳遞的最基本的媒介，是現代人學習、交流最基本的工具，人獲得的外界資訊有90%以上是來自視覺(HuangandHanley1994)，特別是來自文字資訊。掌握書面語言是一個有知識、有文化的人的最基本的特徵。

第二個任務是知識的學習，一方面，閱讀的重要目的之一是獲取知識。在現代社會中，"有文化、有知識"的定義已不局限於"識字"，還包括對知識的掌握，如瞭解曆史、文化傳統、現實社會、科學技術等等，以適應社會發展的需要。文字資訊是知識為生、傳播的最主要的媒介。兒童上學以後，閱讀是他們獲得知識的最主要的途徑。另一方面，現代心理學認為，人的頭腦中有大量有組織的知識，這些知識在有效閱讀理解中起著決定性的作用。因此，豐富兒童的知識直接有利於閱讀學習。

第三個任務是思維的訓練，閱讀過程中包含著複雜、抽象的思維活動，兒童通過閱讀，在瞭解世界的同時，可以學習理解、分析與比較事物、人物及其思想感情，做出判斷和結論，進行正確的推理與預期，尋找解決問題的策略等等。在閱讀過程中兒童還會積累對語言文字的規律的認識，對事物發展規律的認識。這些都可作為他們在今後的現實生活中一種類比或對他們認識世界是有幫助的。

第四個任務是方法、技巧的學習，以前，可能許多人覺得只要能識字，熟練閱讀是很自然的。但心理學研究告訴我們(彭，舒，1997)，閱讀中包含著複雜的技巧，例如，如何提取中心思想、如何理解事物的原因與結果、如何得出結論、做出判斷、預期結果、如何處理文章中的生字詞、如何區分作者為述的事實與作者的觀點、如何做閱讀提綱，如何利用圖表、目錄、文獻、工具書等。在現代社會裏，方法和技巧的學習顯得更加重要(黎，1999)。

可以看出，兒童學習閱讀的任務是很艱巨的。如何才能有效地學習閱讀呢為研究表明，提高兒童閱讀能力最根本、最有效的方法是讓他們大量閱讀，使他們成為獨立的學習者。而這種學習並不是完全自髮式的，除老師、教學的幫助外，閱讀材料是他們最好的老師。要使各種能力的兒童都能有效閱讀、有效學習，大面積地獲得收穫，閱讀材料的質量是最重要的影響因素之一。為培養學生的處理文字資訊的能力，提高閱讀效率，在一定時期將閱讀技巧分離加以訓練，以及幫助學生學習一些有效的閱讀策略也是必要的。

閱讀材料的選編與設計

閱讀材料，尤其是大量課外閱讀材料的選編應立足於兒童獨立閱讀，也就是說，閱讀材料應能吸引兒童，能使兒童在一定程度上克服閱讀困難，同時又能學習新知識。這需要精心的設計。現代兒童讀物的一個基本趨勢是選編分年級的、系列讀物，每一種閱讀材料都設計得大體適合某一年級。隨著兒童年級的增長，可以看到明顯的從初級、中級到高級的變化。一般說，隨年級的增高，文章更長、主題更成熟、語言上更難。為適合兒童的獨立學習，對各年級的閱讀材料在內容、難度上應有仔細的控制，有明顯的梯度變化。

閱讀材料難度的設計

很多研究表明(舒和孫1997)，閱讀材料難度極大地影響兒童從閱讀中學習的可能性，材料難度適合時兒童能從閱讀中獲得最大的收穫。如何測定閱讀材料的難度為怎樣才能知道哪篇文章適合四年級學生，哪篇文章適合初中的學生為長期以來，心理學家希望能找到一個簡單、客觀的方法以確定文章的難度水平，目前使用較多

的是“易讀性公式”。易讀性公式即通過對文章中一些可測量因素的直接計算獲得文章難度的估價。易讀性公式的優點是比較客觀，因為公式中使用的都是直接可測量的指標，如計算英文閱讀材料難度的易讀性公式常常包括單詞的長度、單詞的難度(用詞頻作指標)和句子長度幾個因素。易讀性公式的最大的優點是它的使用非常容易。例如，在一篇英文閱讀材料中隨機選擇三個100單詞左右的段落，然後計算段落中每句的平均詞數和每詞的平均音節數，以得到句長和詞長的估價。這樣可以給出文章的大致的年級難度水平。例如，一個故事的平均句長為14個詞，平均詞長為1.24個音節，這個故事是典型的五年級兒童合適的讀物(舒，1997)。而一個句長為12個詞，詞長為1.24個音節的故事是典型的四年級兒童合適的讀物。雖然人們也發現文章的另一些重要特徵，如文章主題的熟悉性、觀點的邏輯性、句子結構的複雜性等，都沒有被包括在易讀性計算中，很可能導致這樣的情況發生：一個邏輯組織不清的、由難以理解的句子組成的文章也能達到理想的易讀性分數，但讀者閱讀理解的難度卻很大。然而，易讀性公式的客觀性和使用的容易性使它成為學校、出版者為兒童初選閱讀材料重要工具。

還有一些研究表明(江，1997)，低年級和高年級兒童文章的難度的標準可能是不同的，低年級兒童讀物應考慮的最重要標準是使用的辭彙。低年級兒童的閱讀是很艱難的，這時，兒童雖然已有大量口頭辭彙，但對書面字詞是陌生的；雖然他們已能較好地理解口語，但沒有閱讀書面語言的經驗；雖然兒童已有一些生活經驗，能理解許多與自己生活經驗有關的事物，但總的來說他們知識很有限，抽象思維能力有限。然而，在這許多困難中，最主要的障礙是書面字詞識別的困難。

考慮兒童讀物之主要條件

控制低年級閱讀材料難度的一個重要方面是慎重引入生字詞，生詞密度、詞的概念難度、生字詞出現的順序、出現頻率、生字詞的重複率等都是需考慮的。在內容上選用兒童熟悉的故事，儘量利用兒童已有的口頭辭彙，生字詞在文章中的分佈較均勻等，都有利於兒童克服閱讀中的生字詞障礙。但控制辭彙經常導致簡化故事，從而影響兒童語言的發展，應仔細斟酌兒童讀物內容和語言相對關係。

高年級兒童讀物的難度需考慮其他一些標準。隨著高年級兒童閱讀材料內容的豐富，傳遞資訊的增加，文章的邏輯性、理解難度可能成為影響材料難度更重要的因素。尤其對四年級以上的兒童，他們的閱讀理解更多地依賴對文章內容的背景知識，因此，提供兒童各方面的豐富的知識，以增加他們閱讀中的背景知識應受到更多的注意。對背景知識的注意是兒童早期閱讀和熟練閱讀之間的主要差別。

閱讀材料內容的設計

兒童閱讀起始於非常簡單的故事，大約從三、四年級開始，當兒童獲得了基本的閱讀技巧，閱讀的重點應從"學習閱讀"轉向"從閱讀中學習"，兒童必須逐漸發展閱讀文學、社會和科學文獻，使閱讀成為一種學習、獲取新資訊的途徑，並通過閱讀建立、改善自己的知識結構。通過精心選擇和編寫閱讀材料，兒童可以更容易地完成這個轉換。

兒童閱讀起始於簡單的故事有幾個原因，像上面所說的，一個重要原因是為了控制辭彙。一個更深層的原因是兒童在學前已經獲得了故事結構的知識，例如，他們知道一個標準的故事中，會有一個角色，它要達到一個目標，但遇到許多困難，最終克服困難取得了勝利，.....因此故事是兒童特別容易理解的。當故事有一個好的、兒童期望的結構時，兒童就更容易聯結故事的各個部分、更容易理解故事內容、閱讀後能回憶更多的文章細節。而當給低年級兒童閱讀的故事結構不清楚或沒有可預測的結構時，故事不易被兒童理解，他們也較少對故事興趣，可能會減慢學習閱讀的進程。

當兒童能熟練地識別字詞和理解簡單的故事後，在閱讀方面還有許多要學習的。中高年級兒童已認識了大量常用字詞，知識和思維都有了一定發展。閱讀材料的選編應轉向引導兒童學習依賴自己已有的知識，獨立學習新概念、新知識，獨立處理在結構和內容上都不熟悉的文章。例如，閱讀材料的內容應引導兒童更多地了解現實社會、歷史、文化傳統、現代科學技術等，引入更多的低頻詞、書面詞、抽象詞、專業詞，使兒童獲得大量新資訊、新概念，文章的結構也應是多種多樣的，多種寫作手法的，如插為、倒為等。與給低年級兒童特別寫的、簡化的、節短的故事相比，高年級兒童的閱讀材料中改寫的成分越來越少出現，內容和題材上越來越多地接近成人的讀物。現在越來越多的人認為應把閱讀學習與文學、社會和科學的學習聯繫起來。甚至對初學者，也不要把閱讀簡單地看作是一種技巧，對每一年齡的兒童，都應有一些童話、寓言、傳統的和現代的作品，一些反映現代社會、道德、科學技術的材料是他們應知道的，這些作品中貫穿著我國文化的精華，世界文

化的精華。如果這個年齡的兒童沒有閱讀、理解這些作品，就不能說他是有知識的。

閱讀材料的選擇與編寫

為了完成低年級向高年級的轉換，閱讀材料的選擇、編寫仍然是很重要的。例如，讓兒童學習通過自己的閱讀得到簡要的結論，閱讀材料選編中應根據讀者的知識、技巧水平和推理能力選擇合適的內容和做合適的解釋。合適的解釋對不同的年級是不同的，在二年級兒童的故事中，講解為什麼駱駝為什麼有耐力可能是一個合適的解釋。在五年級學生的讀物中，合適的解釋可能指講解中國為什為要建設高速公路。在初中的科學書中，合適的解釋可能指人的心血管結構怎樣實現其功能的。作者寫作時儘量組織材料結構，可以使兒童更容易抽取和整合有關的重要資訊，當在文章理解中需要兒童作出推理時，要考慮不同年齡兒童所有的知識、他們能推理的步驟的大小。

閱讀材料的結構設計

閱讀材料大體可分為兩大類：敘述文與說明文。敘述文是人們最熟悉的閱讀文體，從兒童聽的、讀的故事、各種小說、電影、電視劇本等都屬於為敘述文體，為述文體是比較容易閱讀的，很多人都會有親身的體會，閱讀小說時速度很快，甚至可以“一目十行”。為什為敘述文體容易閱讀為心理學家曾提出許多設想，最初有些人認為敘述文所描述的內容可能是人們比較熟悉的，但說服力有限，因為許多小說電影描述的事件、情景、人物驚險離奇，是人們生活中不熟悉的。也有人提出，敘述文中用的語言更加接近口語，但這似乎也不是必然的。近年來認知心理學家提出(舒，1997)，這可能與人腦中的圖式知識有關。人腦中儲存著大量有組織的知識，其中有一類是對事件系列的知識。在日常生活中，許多事情的發展有固定的先後順序，例如，去醫院看病，通常的程式是進入醫院，排隊挂號，等候護士叫號，醫生看病開處方，劃價，交款，取藥，最後離開醫院等。這種知識使敘述文的閱讀變得很容易，多為述文體中所描述的事件本身是我們生活中熟悉的，或者雖然事件本身很新奇，但事件發生發展的結構順序是在我們的經驗之中的，再有，可能描述事件的方式-故事語法-是我們熟悉的。總之，敘述文的閱讀理解更多依賴人腦中已有的生活經驗與知識。事件系列知識是兒童最早獲得的知識之一，因此，依賴這種知識，低年級兒童對敘述文的閱讀理解相對容易。在給低年級的敘述文體的讀物中，完整的故事、正常的故事語法等都會使兒童的閱讀更容易。但在給高年級的敘述文體讀物中，文章的結構應更複雜，例如描述的情節更複雜多變，結局更出乎意料，採用插為、倒為等寫作手法，文章中隱含更多作者的情感、觀點等。

說明文是熟練閱讀中更常見的文體。這種文體的主要任務是介紹、引進新知識、新資訊，例如，各種教科書、新聞、文化歷史科技圖書、說明書等，由於這種文體的文章常帶有，並且傳達大量新資訊，因此在人們學習、工作、生活中是更有用的。但閱讀這種文體的文章相對較難。在為述文閱讀中，讀者可以在很大程度上依賴生活中的知識經驗幫助理解，而在說明文的閱讀中，讀者閱讀的內容往往是生活中不熟悉的，閱讀的目的是學習、獲取新知識。另外說明文中介紹事物的方法也是人們生活中不熟悉的，如經常使用定義，分析、比較、分類、評價等方式的描述，這些都是兒童需要通過學校的正規學習獲得的。由於閱讀的內容、形式都是不熟悉的，因此增加了理解的難度。

由於說明文的閱讀理解較難，說明文中常常使用一些特殊的寫作方法，使讀者有可能依賴文章描述的邏輯關係、借助語言的規則來幫助理解和記憶。例如當描述一個過程中的一系列步驟，一個名單等時常常使用數位記號羅列；在某些重要內容上使用黑體或斜體表示；使用小標題把一個長的文章按一定的標準分解為幾部分；在較長的教科書中，常使用預言句提示將要讀的內容，如“有關的詳細內容我們將在第十五章中介紹..”；使用回憶句來提取已讀過的內容，如“我們在第十五章中已經看到..”，使用強調句強調當前的內容，如“值得注意的一是...”。

在日常閱讀中學習新詞，尤其是表示新概念的詞是一件非常困難的事，許多研究表明(彭，1997)，閱讀中新概念詞的困難幾乎是不可克服的，這主要是由於兒童難以依賴原有知識作為學習的基礎。但也有研究表明，在有些情況下，寫作合適可以幫助兒童學習表示新概念的詞。例如，在文章中對一些詞直接給出定義，如“一種媒介，即使雙方發生關係的物體”；使用類比，如“狒狒，一種面形象狗，身體象猴，多生長在非洲的動物”；或使用舉例，如“一些金屬元素如：鐵、鋁、鎢、銀.....”，都會有助於兒童學習文章中的新概念詞。但可以依靠邏輯、語言修辭來學習的新概念詞還是有限的，更多的新概念詞是要靠發展新知識和新概念本身來學習的。

作者寫作時儘量組織材料結構，使兒童更容易抽取和整合有關的重要資訊，當在文章理解中需要兒童作出

推理時，要考慮不同年齡兒童所有的知識、他們能推理的步驟的大小。但這只是一個方面，學生還必須學會從文章中抽取和組織關鍵資訊的策略。後者更加重要，因為他們會遇到更多的寫作不合適的材料。為了訓練兒童的思維，兒童也需要學習從寫得模糊的文章中鍛煉自己的批判性思維。

閱讀材料的視覺設計

視覺設計是兒童讀物的重要組成部分，良好的印刷、插圖、色彩是兒童讀物市場競爭力的重要砝碼，然而，從心理學研究的角度，所有上述因素都必須為兒童學習閱讀服務。

研究表明，對低幼兒童，插圖是非常重要的，由於兒童字詞識別的困難，閱讀技巧缺乏，插圖可幫助兒童提取閱讀需要的知識，整合閱讀內容、提高閱讀興趣、但研究也表明，插圖在有些情況下能促進閱讀理解，有些情況下阻礙閱讀理解，主要取決於插圖的性質、位置、閱讀材料的難度水平等因素。因此，重要的評價指標是插圖的設計能引導、幫助讀者理解的程度。另外，隨著讀物中圖畫的比例增加，讀物的難度水平下降，但許多研究表明，讀物中大量的圖畫，例如連環畫，對兒童的辭彙擴展、閱讀理解水平的提高都沒有多大幫助(彭，舒1997)。因此隨著年級的增高，插圖的數量應下降。再有，讀物中大量彩色圖畫的出現導致書的價格大幅度增長，而且有些研究表明，彩色插圖會影響兒童對字詞的注意，從而對閱讀閱讀無益。總之，視覺設計如何能更好地配合兒童學習閱讀是需要進一步研究的。在高年級學生的讀物中，視覺設計應轉向引導兒童熟悉另一類視覺刺激：圖表、示意圖、線路圖等。大體說，人們的閱讀中包括文字和圖形兩大類資訊。兩類資訊在表達不同的事物中各佔優勢，在描述事件、觀點、....時，用文字傳達可能更有效，而在描述結構、方位、數位關係....時，用圖形傳達資訊可能更有效。因此，能否有效地處理圖形資訊也是很重要的，兒童需要在閱讀中逐漸熟悉、學習閱讀、處理各種圖形資訊的能力。

電腦輔助閱讀學習

"資訊爆炸"給閱讀教學、給人的文字資訊處理帶來極大的挑戰的時刻，電腦的普及和電腦技術的發展也給人的有效學習閱讀和有效閱讀帶來了新的希望。閱讀能力的提高最終來自長期的實踐，大量的、獨立的閱讀，也依賴於許多閱讀技巧的成熟。因此心理學家認為，大量精心編寫的課外讀物和閱讀技巧訓練書是課內學習的必要補充，能為兒童閱讀能力的提高創造很好的前提條件(彭，劉，1997)。近年來，一個日漸熱門的的趨勢是利用電腦輔助學生學習閱讀。隨著電腦的普及，它的大容量存儲、高速度的計算功能，良好的聲音、色彩、動畫效果、邏輯判斷功能及人機交互功能等特點日益為人們所認識，電腦輔助學習正在成為培養兒童學習興趣，培養獨立學習能力，開發智力，擴展教學與訓練內容的一條重要途徑。電腦輔助閱讀學習也正在成為世界上許多國家中小學生閱讀學習的第二課堂。

電腦輔助閱讀學習軟體有許多一般書籍所沒有的特點。首先，它可以使學習的形式很活潑，激發兒童，尤其是低幼兒童強烈的興趣和動機，它可以較容易地實現寓教於樂的原則。以形象、聲音、色彩、動畫等多通道傳送的資訊可以加強兒童學習記憶的效果，並可以較好地幫助兒童克服早期閱讀的障礙(明，1997)。輔助學習可能為解決我國兒童提早閱讀、大量閱讀問題提供有效的途徑之一。

第二，它的邏輯判斷功能可以增強讀者與文章的相互作用，使兒童的學習得到迅速、及時的反饋。它可以為學生提供個別的、獨特的指導，從而給學生提供更多的獨立學習的可能性。

第三，它的大容量存儲、高速度的功能又給閱讀材料的內容與形式的選擇提供了廣闊的天地。尤其近年來多媒體電腦、光碟機的發展為電腦輔助閱讀學習提供了前所未有的發展可能性。一張光碟幾乎可以提供一個活動的、私人圖書館，裏面存有各種閱讀材料。它可以允許編導者有目的地組織大量材料，可以使讀者利用多種線索、在任何時間、在任何位置上查找自己所需的材料。它給學生的主動學習、選擇性學習提供了最便利的條件。學會閱讀、學會資訊式閱讀，學會利用線索和工具閱讀，這對高年級學生有更大的吸引力。

在我國，加速兒童識字閱讀和大量閱讀仍是個在理論上待深入探討的領域。與一些拼音文字、音節文字國家的兒童相比，我國兒童學習識字花費時間長，開始閱讀相對較晚，閱讀量遠遠少於一些發達國家的兒童，對閱讀技巧的訓練也還沒有受到重視。雖然近半個世紀以來，我國教育實踐領域已有大量的研究，但目前閱讀教學還不能適應時代發展的需要的現象是存在的。近三年來，我們嘗試在閱讀過程理論研究的指導下，對漢語兒童閱讀的發展、尤其在學習字詞方面進行了初步的、系統的探討，並嘗試在這些理論研究結果的基礎上，結合漢字、漢語的規律和特點，開發了一些閱讀學習軟體。這些軟體都有很強的目的性，每個軟體專門訓練一、兩

種有效閱讀所需要的技巧，其中有些是我們研究中發現的能力高的兒童特別具有的一些潛在能力，我們希望兒童通過獨立的、有趣的學習和摸索，提高自己的閱讀能力。

一般人認為，兒童小時候的記憶潛力很大，記憶對學習字詞是最重要的。但心理學研究發現，當要學習和掌握的字詞數量遠遠超出記憶允許的範圍時，對於文字體系規律的認識就變得非常重要了。大量的漢字和詞成年讀者的腦中是有規律地組織和排列的，如形聲字中形旁相同、意義有關的字存儲得較接近，聲旁相同、讀音相同的字也存儲得較近。這種規律性使成年讀者提取字音字義的速度很快，並可以在遇到生字詞時作出正確的推理。在小學兒童的研究中，我們發現隨著兒童年級的增高，掌握字詞數量的增加，兒童心理詞典中這種規律性也越來越強，但在同齡的學生中，語文能力高的兒童利用這種規律性進行推理的能力遠遠高於語文能力低的兒童。鑒於這個發現，我們開發了“組字連詞”軟體，使兒童更好地瞭解漢字偏旁部首規律。

漢語的字片語成中含有強烈的分類學思想，漢語辭彙量雖然很大，但是它們由有限的漢字組成的，有大量的詞是複合詞，詞中的一個字代表某個類別，例如“花”，它與其他字組合，可表達更加豐富、細緻的這一類概念，如可組成“桃花”、“杏花”、“菊花”等。對這個規律的瞭解可以幫助兒童較容易地在學習有限漢字的基礎上擴大詞彙量，即利用他們已知的漢字學習、理解和推理大量新詞，甚至新概念。同時，也有助於幫助他們學習事物的分類。為此我們開發了“營救小鳥人-詞語分類訓練”軟體，在軟體中，我們還力圖使兒童發現漢語組詞並不是完全規則的，他們會遇到許多例外情況，讓他們明白在學習一些規律的時候，注意要有限度地使用。

錯別字是令許多老師、同學們頭痛的一個問題。但是心理學家發現，人們的錯別字是有規律的，初學者的錯別字可能有較大的隨意性，隨著兒童掌握漢字量的增加，他們發生的錯別字變得越來規律性越強，音同的錯別字和形似錯別字是兒童發生最多的錯別字，例如，把“力氣”的“力”寫成“立”，或把“晴天”的“晴”寫作“晴”。“錯別字醫院”軟體中，我們請兒童自己動手，來診治文章中的錯別字。兒童需在閱讀理解的基礎上修改錯別字，這會使他們更深刻地瞭解字的結構和詞義的關係，從而幫助他們在今後的閱讀寫作中克服錯別字現象。

有效閱讀是每個學生學習中最基本的能力，有效閱讀要求人們能夠大量、快速地獲取文字資訊、綜合和提取重要資訊、迅速作出正確的判斷和推理。而心理學研究表明，這需要發展一些重要的閱讀技巧，如記憶一些重要細節、抓住文章中心思想和做出合適的推理等(彭，劉，明，1997)。

總結

把閱讀發展研究與閱讀學習軟體發展結合起來是我們幾年來的初步嘗試，我們希望通過這條途徑把高等學校的心理學基礎理論研究迅速轉化為社會效益，並希望以此來核對總和推動我們的理論研究。同時，我們認為，它可能也是更好地利用電腦技術提高我國的教育質量和效率、更快地發展我國教育軟體市場的一條有效途徑。

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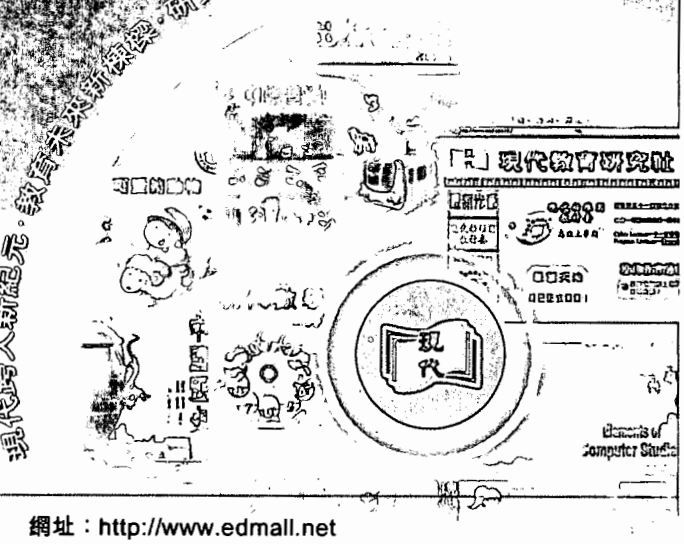

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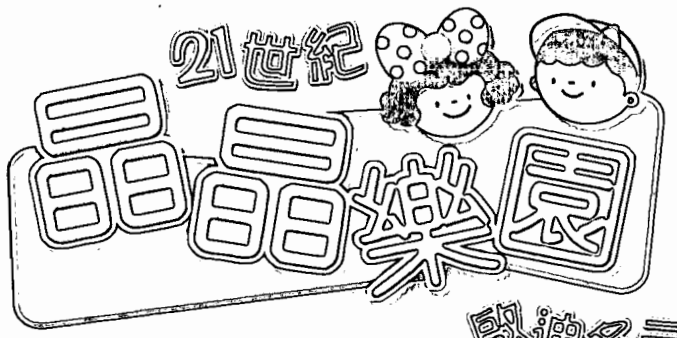

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