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Evaluating the Effectiveness of the  
Activity Approach in the  
Lower Primary Grades in Hong Kong

Benjamin Y. Chan

**SOCIAL RESEARCH CENTRE**  
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**Suggested citation:**

Chan, Benjamin Y. 1980. *Evaluating the Effectiveness of the Activity Approach in the Lower Primary Grades in Hong Kong*. Hong Kong: Occasional Paper No. 92, Social Research Centre, The Chinese University of Hong Kong.

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by

Benjamin Y. Chan

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May, 1980

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## Acknowledgements

Heads of schools which constituted the sample for this investigation must be thanked for allowing their pupils to sit for the various testing sessions. Without their cooperation and the assistance of some of their teachers, this study could not have been possible.

Several persons from the Education Department including Mrs. Au Chan Po-kwan, and Mr. Fung Yuen of the Advisory Inspectorate, and Mrs. Ruby Lau and Mr. Peter Lau King-fai of the Curriculum Development Committee gave assistance either in the form of advice on test construction or in the form of encouragement. Dr. Chan Wing-leung, and Mrs. Ip Yik Yuen-kam of Grantham College of Education and Mr. Ho Siu-lun of Northcote College of Education also rendered valuable help at various occasions on test construction.

Dr. Rance Lee and Mr. Edmond Sin of the Social Research Centre of The Chinese University of Hong Kong, were kind enough to handle the funding for this investigation during the last two years. Miss Hsu Suet-ming gave her expert advice on computer programming. Mr. Fung Yee Wang, Dr. Pedro Ng and Dr. Michael Bond were kind enough to make critical comments on the report. Appreciation is also extended to the University's Institute of Social Studies and the Humanities for financial support.

EVALUATING THE EFFECTIVENESS OF THE ACTIVITY  
APPROACH IN LOWER PRIMARY GRADES IN HONG KONG

CHAPTER ONE  
INTRODUCTION

Formal education in the school setting has been changing in substance and in form during the last one third of a century, both in the so-called well-developed areas and the less-well-developed areas, but the pace is much more marked in some of the countries in the western world such as the United States of America and the United Kingdom. Prompted by global conflicts and the disenchantment with the human problem as a consequence of the last world war, social reformers including educationists began to ask some basic questions which ultimately brought about changes in the objectives and substance of formal education. Not only did people change their conception of education as a social force, but the very basic tenets of schooling were brought into focus of public debates and eventually modified. Among the notable innovations are the restructuring of the school subjects, the creation of the informal or open classroom, and a new emphasis on the affective aspects of learning.

Hong Kong, being a British dependency, has long been cautious in adopting changes. In the fifties and sixties, educational development was largely overshadowed by the necessity to expand educational provisions. Except with the attempt to experiment on new mathematics which in itself represented an overreaction to external forces, there had been scarcely any innovations during this period either in the school or the classroom. With the ideal of nine years compulsory education realized, the attention was refocused on improving curricular and instructional practices. Within the government's advisory inspectorate, there was created in 1972 a Curriculum Development Committee to initiate and implement new programmes. In the years to follow, new syllabuses, which have been proven elsewhere, particularly in the United Kingdom, were tried out. A pilot scheme was launched in the same year by the C.D.C. to experiment on the feasibility of "activity approach" in some local primary schools.

What activity approach is in operational terms may depend on the interpretation of the implementing agency, but its nature in the Hong Kong context may be inferred from its explicit aims or purposes which have been put forth by the C.D.C. committee on activity approach in 1975 as:

1. To adopt a less formal approach to learning in primary schools.
2. To encourage learning by doing through purposeful activities conducive to the full development of the individual child.
3. To provide a stimulating environment to promote self-initiated learning.
4. To ensure that the teacher's role in the learning process is to guide rather than to instruct.
5. To provide opportunities for children to learn at their own pace according to their own ability.
6. To relate children's daily experiences to their learning environment inside and outside the classroom.
7. To make the school a happy place for children. (Education Department, 1974-75)

In many aspects what appears to be the defining characteristics of activity approach as the term is used here resemble those of the open classroom in the United States and in some of the European countries. In Horwitz's conception open education "refers to a style of teaching involving flexibility of space, student choice of activity, richness of learning materials, integration of curriculum areas and more individual or small group rather than large-group instruction." (Horwitz, 1979) According to another source, open classroom is characterised by its humaneness towards the student, individual diagnosis, individual guidance and assignment in the teaching process, learner-orientated evaluation, and most important of all, by a unique patterning of provisioning for learning, including variety of materials, freedom of movement, and grouping. (Walberg and Thomas, 1972)

Since 1972 when six primary schools took part in the Pilot Scheme to experiment on the activity approach, quite a number of schools have followed

suit. For the academic year of 1979-1980, there are altogether 85 sessions of schools which have adopted this approach in some of their classes, in all 473 in number. Except in the case of three sessions, all schools operate these activity classes only in the lower primary grades, that is Primary One to Three. Whether such a growth rate is considered to be satisfactory by the authorities concerned or not is irrelevant to our discussion, but the fact that such a participation rate represents only about 4% of the total primary school enrollment or roughly 8% of the lower primary enrollment reflects rather poorly on the popularity of the approach among the local primary schools. Perhaps one of the reasons for the reluctance of heads of primary schools is the lack of concrete evidence to demonstrate the desirability and feasibility of the approach.

The Hong Kong government which originally sponsored the experimentation and which in later years began to provide financial assistance to participating schools is equally anxious in wanting to know the effects of the approach. During the third year of the experimentation, therefore, an evaluative exercise was carried out by the Curriculum Development Committee with the cooperation of the research unit of the Education Department in an effort to compare academic attainments of pupils of schools under experimentation with those of their peers. A non-verbal "I.Q. test" (B.D.6, N.F.E.R.) was used to control intellectual capabilities and attainment tests in Chinese Language and Mathematics were designed to serve as criterion measures. Based on the results of t-testing on group means, the research findings were found to favour the activity approach. (Education Department, 1974-75) However the results of this study were seldom publicized, and since then virtually nothing has been said by the authorities concerned.

Research on informal teaching or open education elsewhere contradicts each other, without giving much comfort to the enquirer. For example, Grobeman et.al. (1976) found that pupils from schools which have adopted an informal approach possessed more positive attitudes towards school, and there was greater transfer of learning from school to non-school settings. On the other hand, in the Wright's study (1975), it was demonstrated that for pupils in the tra-



ditional schools, achievement was higher in all the nine areas tested, namely, in word meaning, paragraph meaning, spelling, language, arithmetic computation, arithmetic concepts, arithmetic application, social studies, and science. In contrast, students in the informal schools did not have higher levels of tested creativity, self-esteem, locus of control, and cognitive development as expected. Bennett (1976) also found negative effects of the informal school, both with regard to the social and emotional development and academic development of the school child. These conflicting findings led Horwitz (1979) to conclude in his most recent review that "there is still by no means a clear answer to the question of whether or not the open classroom is significantly more beneficial to children than traditional teaching approaches."

In the light of the controversial nature of the research findings and of the impending need to evaluate the effectiveness of activity approach in the local setting, the present study was initiated to confirm the findings of the 1974-75 evaluative exercise by extending firstly the period of observation from one to three years, and secondly the scope of investigation from purely academic attainments to social and emotional development.

CHAPTER TWO  
DESIGN OF STUDY

Definitions and Hypotheses

The various key concepts adopted in this study are defined operationally or otherwise as follows.

Activity approach: a style of teaching characterized by an informal learning environment as well as flexibility in achieving pupil progress

Conventional approach: a style or styles of teaching characterized by teacher dominance and a uniform patterning of learning and teaching

Academic attainment: the test scores in Chinese Language and in Mathematics of pupils of the lower primary grades

Social emotional attainment: the maturity level of lower primary grade pupils in certain areas of the affective domain such as dependence on authority, peer relationship, self-concept, attitude towards school, social values

Ability level: Raven's Progressive Matrices scores of pupils in the lower primary grades measured around mid-year

Socio-economic status: pupil's homebackground as indicated by the location and type of domicile

The general hypothesis of the study is that pupils under experimentation with the activity approach shall attain better results in academic and affective attainments than those of their peers. The working hypotheses in null form are:

1. Controlling for pupils' ability level and their socio-economic status, pupils from schools adopting the activity approach do not differ in their academic attainments from their peers from schools adopting the conventional approach.

2. Controlling for pupils' ability level and socio-economic status, pupils from schools adopting the activity approach do not differ in their

affective or social and emotional attainments from their peers from schools adopting the conventional approach.

The relevant variables which are of concern to this study are summarized in tabulation form below.

Table 1. Summary of Variables

<u>Independent/ Blocking variables:</u>	<u>Control variables:</u>	<u>Dependent variables:</u>
Approach to teaching	Pupil's age	Academic attainment in Chinese Language
Grade level	Pupil's ability	Academic attainment in Mathematics
Session of school	Pupil's socio-economic status	Social-emotional maturity

#### Sampling for the Main Study

The main study concerns itself with the testing of the hypotheses in the context of a comparison between pupils of two schools, one being the experimental school, or School A and the other being the control school, or School B. Testing continued for a period of three consecutive years. In contrast, the supplementary study is concerned with the testing of the same hypotheses in the context of a comparison between pupils of eight schools, four experimental schools and the others, control schools. Testing in the supplementary study continued for a period of two years. The supplementary study is undertaken out of a concern for representativeness in the main study, and hence indicates a broadening of the population base applicable to this study.

Since random assignment of pupils was considered out of the question by the school authorities concerned, it was decided to match the two groups of subjects on the basis of their age, ability level, and socio-economic status as far as possible. For the main study, to begin with, two of the four Primary One classes in either the morning or afternoon sessions of the two schools were randomly selected. These pupils, 338 in number, were then given the Standard Version of Raven's Progressive Matrices test in October of

1976. Based on information on the birth dates of the pupils provided by the schools, each pupil's actual age was determined and classified. A pupil would be classified as either overaged or underaged if he was born before or after any date in 1970; both groups of pupils were then excluded from the pool. From the remaining 283, a sample of 192 was selected by pairing students from the two schools on the basis of their R.P.M. scores. The result of such pairing yielded two matched groups for the morning session and another two groups for the afternoon session, all of the size of 48. The following table shows their R.P.M. group means.

Table 2. R.P.M. Group Means

Morning Session		Afternoon Session	
School A	School B	School A	School B
18.45	18.41	17.95	17.87

Taking the two classes of Primary One pupils as a whole, the experimental school had an advantage of 1.65 points over the mean score of the control school.

In connection with data on the pupil's socio-economic status, the initial thinking of a more elaborate scheme was abandoned due to the reluctance of the head of the control school to grant access to information on the pupil's home background. A simple index using the pupil's residential address was used as the basis to categorize the pupil's S.E.S. on the assumption that location and type of housing normally indicate one's socio-economic well-being. Accommodations were classified into five types, namely 1. private residential, 2. semi-public low-cost housing, 3. public low-cost housing, 4. resettlement estate, and 5. resite or cottage area. The following table lists the S.E.S. equivalence of each category of housing and the distribution of pupils from the two schools among these categories.

Table 3. Distribution of Types of Housing

Type of Housing	S.E.S. Equivalence	Distribution	
		School A	School B
Resite/cottage Area	Lower lower	1 (1%)	1 (1%)
Resettlement Estate (Public)	Middle lower	3 (3%)	8 (9%)
Low-cost Housing	Upper lower	42 (46%)	61 (65%)
Low-cost Housing (Semi-public)	Lower middle	24 (26%)	8 (9%)
Private	Middle middle to upper middle	21 (23%)	15 (16%)

From the distribution pattern, it appears that pupils from the experimental school enjoy slightly higher socio-economic status than their peers from the control school.

Through the assistance of the Social Research Centre of the Chinese University of Hong Kong, information on the average household monthly income of four types of residence in the same neighborhood was provided as the means of validating the categorization scheme. This information indicates that types of housing coincide pretty much with household monthly income.

An attempt was also made to compare pre-school education of the samples in terms of years of schooling. Information was provided by the school authorities. No attempt was made to validate this source of information. As can be seen from the table below there is little difference between pupils from the two schools with regard to the number of years of schooling prior to their admission to Primary One classes in the two schools.

Table 4. Number of Years of Schooling

Years	School A	School B
1	2 (2%)	0
2	53 (58%)	50 (54%)
3	35 (39%)	43 (46%)
4	1 (1%)	0

### A Description of the Schools

The object of study is a church-sponsored school situated in one of the low-cost housing estates of New Kowloon. It is atypical, firstly, because it is one of the six schools included in the Pilot Scheme of 1972, and secondly, because unlike all other schools experimenting with the activity approach, experimentation in this particular school is extended throughout the six primary grades, in all classes and for both morning and afternoon sessions. The control school is also a church-sponsored school situated in the vicinity of the experimental school. Both schools share quite a few commonalities. Both employ a teaching staff of fifty-three, maintain 24 full-fledged classes, and enjoy great popularity among residents of nearby estates because of the high academic achievements of their pupils and graduates. For instance in 1977 more than half of their graduates achieved academic results in the Secondary School Entrance Examination which qualified them for 5-year subsidized secondary school places. In one sense these schools can be counted among the "elitist" primary schools in Hong Kong.

Administrative leadership in the experimental school rests in the hands of the headmistress who is assisted by an assistant headmaster and eight senior teachers. In the control school there are two headmasters, one for each session, both assisted by senior teachers equal in number to the experimental school. With the headmistress and her assistant headmaster devoting the whole day to school affairs in the experimental school, it is conceivable that the total amount of administrative input to that school may very well be greater than that of the control school.

Members of the teaching staff in both schools are relatively young, being 30.8 years on the average for the experimental school and 33.5 years for the control school. This puts most of the teachers of the experimental school in their early 20's when the school adopted the activity approach for the first time in 1972. Length of service of teachers in the experimental school averages out to be 9.3 years, and that in the control school 13.0 years. This may be taken to mean therefore that teachers in the control school are a little older and more experienced than their counterparts.

The distribution of male and female teachers in both schools is identical, in the ratio of one to two.

Curricular and related arrangements are quite similar in the two schools. The total number of contact hours per week is virtually identical. But since teaching periods at the control school are five minutes longer whereas time allocation for the subjects of Chinese Language and English is the same, and for Mathematics less in the experimental school, it can be inferred that instructional time in these two subjects in the control school is more than that in the experimental school. Textbooks adopted in the two schools are the same in the Chinese Language, but are different in Mathematics. It must be born in mind, however, that textbooks put out by any publisher must conform to the specifications of the official syllabus if they are to be considered adoptable by the schools. The amount of homework assigned to pupils in the two schools is estimated to be quite equitable, but since some of it may have been completed during group activity time, the actual amount of homework brought home by pupils should be somewhat less in the case of pupils from the experimental school.

The organization of subjects in the experimental school is not as distinct as that in the control school. The subjects of Social Studies, Nature Study, Health Education, and Arts and Crafts are integrated into one subject. Instead of depending solely on textbooks, teachers of the integrated subject are required to compile units of texts together with appropriate exercises. Some of these teachers also link up the study of Chinese Language and Mathematics with the integrated subject. These teachers use block-time tabling instead of the single periods, and though time allocation is supposed to be fixed, individual teachers have the discretion to allocate instructional time the way they see fit.

#### Sampling in the Supplementary Study

The sample for the supplementary study was drawn from eight sessions of subsidized primary schools among Primary One pupils of the class of 1977-1978, as distinct from those of the class of 1976-1977 for the main study. Since both morning and afternoon sessions of three schools were involved in

the supplementary study, there were in fact five schools participating, namely, School K, School T, and School W being experimental schools, and School N and School H being control schools. The following table summarizes the background and standard of these schools.

Table 5. Background and Standard of Participating Schools, Supplementary Study

	<u>Experimental Schools</u>			<u>Control Schools</u>	
	School K	School T	School W	School N	School H
Year founded	1968	1965	1970	1968	1963
No. of classes	48	48	48	48	24
Average years of service of teachers	10+	10+	12-13	14	10-15
1977 S.S.E.E. results:					
X1 - X5	59%	62%	43%	57%	42%
Y1 - Y2	40%	38%	47%	43%	54%

Given the comparability of Primary One pupils in these schools, the samples were drawn as was that in the previous year for the main study, 48 from each session of the schools. The final sample of 384 represented Primary One pupils born in the year 1971, all being six years of age in 1977. No children born more than eight months before or four months after 31st of August, 1971 were included. The sub-sample from each session of the schools was constructed on the basis of pairing pupils with the same or similar Raven's Progressive Matrices scores. Table 8 shows the R.P.M. group means and some of the related standard deviations.

Table 6. R.P.M. Group Means and Standard Deviations, Supplementary Study

<u>Experimental Schools</u>		<u>Control Schools</u>	
$\bar{X}$	S.D.	$\bar{X}$	S.D.
20.05	9.93	20.10	9.66

The socio-economic status of the pupils selected for the supplementary study is fairly close between the experimental schools and the control schools. (see Table 7)



Table 7. Distribution of Types of Housing  
Supplementary Study

Type of Housing	Distribution	
	Experimental schools	Control schools
Re-site/cottage	15 (8%)	18 (10%)
Resettlement estate	28 (15%)	18 (10%)
Low-cost-housing (Public)	34 (18%)	43 (23%)
Low-cost-housing (Semi-public)	20 (11%)	7 (2%)
Private housing	89 (47%)	102 (55%)
Total	186 (100%)	188 (100%)

### Instrumentation

Attainment tests for Primary One, Primary Two, and Primary Three in Chinese Language and Mathematics were constructed on the basis of the suggested syllabuses currently in use and published by the government. Test items were either written or in some cases modified from test papers set by school inspectors or school teachers, and also from published materials. Both subject inspectors from the Education Department and respective subject lecturers from the colleges of education were consulted extensively at the drafting stage to reduce oversights and errors. Pilot testing was carried out in an urban subsidized school considered to be of equal standing in academic achievement to the schools included in this study. Minimum cut-off point for discrimination was set at .20, and for difficulty level between 75% and 40%. The tests, varying in length of testing from 30 to 45 minutes according to grade level were considered to possess adequate validity.

The Social-Emotional Maturity Scale which aims at measuring non-academic attainments of lower primary grades was constructed on the basis of Kamii's conceptual framework (Bloom, et. al., 1971). Items were written for the five domains and then pilot-tested. Of the original eighteen, ten items were selected for inclusion in the final version, two items for each area of concern: 1. Dependence on authority, 2. Peer relationship, 3. Self-concept, 4. Attitudes towards school, and 5. Social Values. Pupils taking the test were asked to respond to each of the ten statements simply by

checking off the "Agree", "Not agree", or "Neither" boxes. For the positive statements, the scores range from zero for "Not agree", one for "Neither", to two for "Agree". The reverse is true with negative statements.

In order to ensure that the subscales all tapped the same dimension, a factor analysis was run using ratings from the five subscales. The results clearly showed the existence of a single factor allowing us to add together scores of the subscales to yield a single measure of social-emotional maturity.

Another test, Raven's Progressive Matrices, was used in matching the pairs of pupils comprising the sample. The test has been recognized as an instrument purported to measure "general ability" through non-verbal means (Buros, 1967) and is extensively used in the clinical setting in Hong Kong. Before using, in 1976 a validating exercise was carried out using the Goldschmid and Bentler Concept Conservation Test. Twenty Primary One pupils from School A were selected for this exercise, and the resulting test scores from the two tests yielded a moderate correlation coefficient of 0.53.

#### Limitations of Study

The method of matched pairing adopted in this study is a poor second choice to randomized sampling. Had it been possible to divide the pupils through randomization into two groups representing different styles of teaching, there would be scarcely any need to be concerned with factors such as ability level, socio-economic status, or number of years of schooling. Fortunately, the pattern of distribution between the experimental group and the control group on socio-economic status and the number of years of schooling in general did not differ from what could be expected.

The study also suffers from the difficulty to establish a basis on which the fairness of an attainment test can be ascertained. Despite contribution of ideas from various independent judges on the suitability of test items, and of the application of an item analysis to the pilot-tested results, we cannot be sure that the attainment tests adopted in this study are absolutely fair.

Another problem which undercuts group comparability was created by the continuous dropping-out of pupils from their schools during the course of study. Some of these pupils dropped out because their families moved; others dropped out because of poor records. Besides causing the groups to be uneven in size, the dropping-out phenomenon could also distort group means if it were to occur to a particular sector of pupils, in the control or experimental groups say among the pupils of above-average ability. In such a case, the dropping-out would certainly confound the results.

CHAPTER THREE  
RESULTS FROM THE SURVEYS

Classroom Interaction Patterns At Primary One Level

In order that an evaluation of the activity approach is meaningful to practitioners in education, it is imperative that such an approach could be clearly distinguished from the conventional approach to teaching. For this reason an exercise was conducted in the first year of this study to analyze classroom instructional patterns by using the Flanders Interaction Analysis Categories (Flanders, 1970). The F.I.A.C. is considered to be one of a few instruments in connection with interaction analysis of classroom behavior with established validity (Medley and Hill, 1969). It consists of a total of ten descriptors or categories on Teacher Talk, Pupil Talk or Silence/Confusion. There are seven categories intended to describe teacher talking behavior, namely 1. Teacher accepts feeling, 2. Teacher praises or encourages, 3. Teacher uses pupil's ideas, 4. Teacher asks questions, 5. Teacher lectures, 6. Teacher gives directions, and 7. Teacher criticizes. The first three are related to the responding behavior of the teacher, and the other four to the teacher's initiating behavior. There are only two pupil talk categories, namely Pupil responses and Pupil initiates talk. The last category is of course Silence/Confusion.

The observation sessions were conducted by two observers during the months of May and June in 1977 at School A and School B. All sessions were fifteen minutes long, and a total of twenty-three sessions were recorded among which thirteen sessions were connected with Arithmetic teaching and ten with Chinese Language teaching on the Primary One level. The distribution between the two schools is summarized in the following table.

Table 8. Distribution of Classroom Observation Sessions

	School A	School B	Total
Chinese Language	4	7	11
Arithmetic	6	7	13
Total	10	14	24

Normally the observer entered the classroom during the first half of the lesson, and upon settling down, began to record all verbal interaction between the teacher and his pupils at five second intervals for a duration of 15 minutes. No attempt was made to identify the content areas of the lessons. It was noted, however, that during the period of observation, teachers concerned at both schools were teaching about monetary units.

Originally an equal number of observation sessions was planned for the two subjects between the two schools. However, occasional disruption to the normal time-table particularly at the experimental school occurred causing an uneven distribution between the two schools for both subjects. The results of the observation sessions were further complicated by the fact that although it was intended that all observations were to be recorded during the first part of a lesson, some of the recordings were made during the second half simply because of the limitation imposed by block-time tabling. Furthermore, observation of interaction in the experimental school was at times haphazard because some of the conversations between the teacher and the individual pupil were in fact casual dialogues. Many times the observer had difficulty in following the teacher closely enough to capture conversation with pupils engaged in group work.

Table 9. Simple Tallying of F.I.A.C. Frequencies

Category	Chinese Language		Arithmetic		Combined	
	School A	School B	School A	School B	School A	School B
Accepts feeling	0 (0%)	0 (0%)	1 (.1%)	1 (.1%)	1 (.0005)	1 (.0003)
Praises/encourages	1 (.1%)	3 (.2%)	21 (2%)	4 (.3%)	23 (.0119)	7 (.0025)
Uses pupil's ideas	5 (.6%)	3 (.2%)	0 (0%)	6 (.4%)	5 (.0026)	9 (.0032)
Asks questions	51 (7%)	153 (11%)	125 (11%)	226 (16%)	176 (.0915)	379 (.1359)
Lectures	226 (30%)	508 (36%)	181 (15%)	401 (29%)	407 (.2116)	909 (.3260)
Gives direction	80 (11%)	76 (5%)	140 (12%)	189 (13%)	220 (.1144)	265 (.0950)
Criticizes	24 (3%)	19 (1%)	50 (4%)	55 (4%)	74 (.0384)	74 (.0265)
Pupil responses	46 (6%)	452 (32%)	50 (4%)	199 (14%)	96 (.0496)	651 (.2335)
Pupil initiates talk	32 (5%)	7 (.5%)	33 (3%)	5 (.3%)	65 (.0338)	12 (.0043)
Silence/confusion	290 (38%)	177 (12%)	568 (49%)	305 (22%)	858 (.4461)	482 (.1728)
Total tallies	754	1,397	1,169	1,391	1,923	2,788
Tallies per session	189	200	195	199	192	199

The results of these observations indicate that instructional patterns at the Primary One level differ considerably between the experimental school and the control school. Teachers of Chinese Language at the experimental school lecture less, ask fewer questions, and give more directives, while their pupils initiate talk more often and respond to teacher's questions less often. There is far more silence/confusion at the experimental school than at the control school. The pattern of Arithmetic teaching between the two schools is rather similar to the teaching of Chinese Language. The exceptionally high percentage recorded on pupil responses at the control school is due to pupils' recitation of texts at the suggestion of the teacher. On the contrary, the exceptionally high percentage recorded on silence/confusion at the experimental school is due to the frequent use of group work which entails preparation of materials by the teacher, overseeing of group activities, checking of pupil's work or assignments, or giving special attention to pupils who need extra help.

It is also obvious that instructional patterns at the two schools share some commonalities in addition to their differences. There is a lack of accepting feeling and of using pupil's ideas. Compared with findings from Wright's study (1975), these frequencies comprise only a fraction of those found in the elementary schools in the United States. Although there was more praising or encouraging at the experimental school than at the control school, there was even more criticizing or justifying authority than praising or encouraging by the teacher at both schools as well. In fact, there were ten times as many tallies of criticizing at the control school as those of praising, and at the experimental school frequency of criticizing was three times that of praising. These figures compared with those from Wright's study indicate that teachers in the local schools treat their young charges less positively than their counterparts in the United States. The overall picture emerging from this observation exercise, however, coincides quite well with that portrayed by the Wright's study, as can be inferred from the following table.

Table 10. Proportion of Responses Using F.I.A.C. As Compared with Results Derived from Wright

Category	Schools in Hong Kong		Schools in the U.S.	
	Experimental	Control	Open	Traditional
Accepts feeling	.0005	.0003	.0015	.0011
Praises/encourages	.0119	.0025	.0301	.0290
Accepts and uses pupil's ideas	.0026	.0032	.0307	.0204
Asks questions	.0915	.1359	.0940	.1164
Lectures	.2116	.3260	.1617	.3567
Gives direction	.1144	.0950	.1331	.0610
Criticizes	.0384	.0265	.0148	.0252
Pupil responses	.0496	.2335	.1078	.1449
Pupil initiates talk	.0338	.0043	.1141	.0727
Silence/confusion	.4461	.1728	.3059	.1726

Sources: Wright, 1975

Since a more detailed report of this survey can be found elsewhere, (Hung, 1977) no attempt will be made here to summarize the results of this survey in the form of matrix ratios or flow-charts.

#### Instructional Practices Common to Schools Under Experimentation

As mentioned previously, it was reported that in September of 1979, 57 primary schools were participating in the experiment with the activity approach. The total number of classes involved was 473. This means that among the primary school population of about 550,000, roughly 15,000 were studying in these classes at the time. Since some of these schools took part in the experimentation only recently and therefore may still be at a trial period, it was decided that a survey of the experimental schools should be confined to those that were already in the scheme for some time and which had extended the experimentation to the Primary Three level. Ten schools were selected on the basis of these considerations in May of 1979, and the survey was conducted in the same month. Schools in the New Territories were excluded because of their remote geographical locations.

The schools involved in the survey were founded as early as the late fifties and as recently as the early seventies. Two of these are government sponsored, three organized by Catholic organizations, and the other five run by Protestant groups. In a certain sense then these schools are all in the "public sector" of the local educational system. Academic standards of these schools range very greatly, the percentage of Primary Six graduates allocated to X1 to X5 blocks in the Secondary School Entrance Examination of 1975-76 was as high as 37% for one school and as low as 6% for another. Enrollment figures for the year 1979 represented 65% to 94% of the highest enrollment record of each school.

The survey took the form of interviews with the heads of the schools followed by visits to classes in the lower primary grades. During the interview with the head, questions were raised on the reasons for adoption, difficulties encountered, and possible government actions to help the schools. On the first question, many of the heads thought that the adoption of the activity approach was prompted first of all by the encouragement of the government, and by the head's belief that the activity approach can bring good results to the pupils, such as the fostering of positive attitudes towards school and towards learning. On the second question, almost all the heads agreed that class size was a problem. A great many heads thought the recruitment of teachers to the activity classes was also a serious problem. Some felt disciplinary problems and parent's reluctance to accept the approach had added their difficulties. Some of them also mentioned the burden of additional expenses and the lack of appropriate teaching materials. With regard to possible government assistance, many of the heads mentioned the reduction of class-size or the increase in teacher-pupil ratio, increase of subsidies, and a wide-scale programme in teacher training and in-service education.

From the visits to the classrooms, the picture gradually emerged which depicts the salient points of activity teaching in these schools. A lesson normally constitutes two major portions, the first devoted to block or mass teaching at the "base", an area located in front of the blackboard, nearby the windows where the teacher's desk is, or in one of the corners at the back of



the classroom. The second portion is devoted to group activity, normally in the form of group written work. The number of groups may range from 4 to 6, mostly formed by putting the more able and the less able in separate groups. Sometimes an additional group was created to contain disruptive members in the class. In some cases the whole class may be doing the same kind of assignment, and in others different groups in the class may pursue different activities representing different interests, making use of the "work cards." All ten schools adopt unit teaching, integrating the elements in Nature Study, Social Studies, and Health Education into the subject of General Knowledge. In some but not all schools, block-time tabling is utilized to increase teacher flexibility. Compilation of teaching materials and written exercises is also common in these schools. Class atmosphere in these schools varies, some relaxed, some still tense, still others are quite loose, with pupils playing or bothering other pupils.

Enthusiasm with the experimentation ranks highest with the heads, though one head expressed moderate reservation. However, few teachers demonstrated equal enthusiasm. Some showed reluctance, others mere indifference. Many of the teachers serving in schools with a declining enrollment were concerned because they thought the activity approach may further aggravate the question of pupil recruitment, especially if parents are not informed.

#### Teacher's Attitudes Towards Activity Approach

During the month of May, 1979, a questionnaire was distributed among teachers of the ten schools and either collected immediately or returned later by the head. The questionnaire aims to distinguish perceptions of teachers who are involved in the experimentation from those who are not. The total number of teachers who completed the questionnaire was 226, distributed quite evenly among the following three types: 1. Teachers of conventional classes (76), 2. Teachers of activity classes (76), and 3. Teachers of both classes (74).

Table 11. Degree of Consensus By Type of Teachers

	<u>Degree of Consensus (%)</u>		
	<u>Conventional</u>	<u>Mixed</u>	<u>Activity</u>
Advantages of Activity Approach			
1. Activity approach is better in dealing with individual differences	85	87	100
2. Activity approach is better in fostering self-confidence and initiative	87	86	99
3. In an activity class pupils are more relaxed	91	96	100
4. The activity approach integrates life and study better through unit teaching	88	90	96
5. Pupils have more chances to cooperate and to exchange views and opinions in an activity class	86	96	99
Advantages of Conventional teaching			
1. Pupils learn self-discipline and obedience better	93	81	87
2. Uniformity of practices is more suitable to the teacher	93	83	80
3. Conventional teaching yields better results in learning basic knowledge and skill	72	42	44
4. Requirement for the teacher is more reasonable	78	62	68
5. Parents prefer conventional teaching to the activity approach	77	61	30

In general, teachers of the activity approach classes tend to agree more on the advantages of the approach. Teachers of conventional classes also tend to agree more on the advantages of their own approach. However, they differ between themselves in their perception of the comparative advantage of their approach to pupils' basic learning. They also differ on their views regarding parental preferences. Whether or not conventional teaching

can bring greater educational returns can only be settled by scientific studies. The question of parental choice may be considered as more superficial than real since the choice of a particular school is normally made on more than one consideration, among which teaching style probably ranks relatively low.

CHAPTER FOUR  
STATISTICAL ANALYSIS, MAIN STUDY

Since this is a longitudinal study the problem of subject drop-outs is a recurrent one. At the end of the first year, a total of 8 pupils left the schools and statistical analysis was carried out the basis of the date of 184, not 192 pupils. The number was further reduced by the end of the second year to 165, nineteen pupils having dropped out during the second year. At the end of the third year, the number of pupils left was 145, twenty having dropped during the third year. In other words, in three years' time about one quarter of the pupils in the original sample left the schools for one reason or another. Since dropping-out occurred at every ability level and did not disturb the balance between the two schools, it is believed that the statistical analysis was not affected adversely.

Academic Attainment

Table 12. Main Effects by Approach, Using Ability and S.E.S. as Covariates:  
Chinese Language

	Grade 1 (1976-77)	Grade 2 (1977-78)	Grade 3 (1978-79)
Group Mean: School A	42.81 (91)	33.88 (82)	36.67 (74)
School B	32.88 (93)	29.49 (83)	43.83 (71)
F Value	35.66	7.36	21.49
Significance level	P < .001	P < .001	P < .001

From the above table it appears that pupils attending the experimental school were making good progress in the Chinese Language during the first year. Their attainment at the end of the first year was definitely better than that of their peers at the control school. Beginning with the second year, however, the headway they had achieved tapered off somewhat, although they were still clearly ahead. By the end of the third year, however, pupils in the control school had overtaken their peers in the experimental school.

Table 13. Main Effects by Approach, Using Ability and S.E.S. as Covariates:  
Mathematics

	Grade 1 (1976-77)	Grade 2 (1977-78)	Grade 3 (1978-79)
Group Mean: School A	55.80 (91)	22.58 (82)	36.07 (74)
School B	55.32 (93)	22.81 (83)	43.83 (71)
F value	0.113	0.011	12.60
Significance level	N.S.	N.S.	0.001

From Table 13 it is obvious that attainment in Mathematics in the first two years did not differ between the pupils of the experimental school and the control school. But following the trend observed for the Chinese Language, toward the end of the third year pupils in the control school were superior in Mathematics at a statistically significant level.

From the foregoing conclusions, it is clear to us that our first hypothesis can be rejected on the basis of findings from the main study. The results of the testing obviously are in favor of pupils taught by conventional methods in the control school. In other words, the activity approach to teaching as is practised in the experimental school failed to produce in the long run academic results commensurate with those produced under conventional teaching, at least as far as lower primary grades are concerned.

#### Social-Emotional Attainment

Table 14. Main Effects by Approach, Social-Emotional Maturity

	Grade 1 (1976-77)	Grade 2 (1977-78)	Grade 3 (1978-79)
Group mean: School A	12.84 (91)	12.62 (82)	10.49 (74)
School B	12.53 (93)	13.71 (83)	11.56 (71)
F value	1.305	0.399	2.653
Significance level	N.S.	N.S.	N.S.

From the above table it is clear that the social emotional maturity level of pupils of the two schools as measured by the Social Emotional Maturity Scale did not differ. The fact that the S.E.M.S. is composed of five different sub-tests implies that if there had been differences between the pupils of the

two schools, these probably had cancelled each other out to yield a no-difference finding. This means our second hypothesis cannot be rejected on the basis of findings from the main study.

### Mental Growth

Table 15. R.P.M. Group Means, 1976-79

	Grade 1 (1976-77)	Grade 2 (1977-78)	Grade 3 (1978-79)
School A	18.18	36.35	41.05
School B	18.49	30.80	35.18
t	-	3.90	4.05
Significance level	-	P < .001	P < .001

In contrast to academic and affective attainments, mental growth of the pupils in the experimental school as measured by Raven's Progressive Matrices showed a relatively greater rate of improvement over the years. The above table illustrates this advantage.

### STATISTICAL ANALYSIS, SUPPLEMENTARY STUDY

#### Academic Attainment

The statistical analysis performed on data collected from the supplementary study did not fully support findings from the main study. As far as academic attainment in Chinese Language were concerned, the comparison yielded no significant differences between pupils from the experimental schools and from the control schools.

Table 16. Main Effects by Approach, Using Ability and S.E.S. as Covariates:  
Chinese Language

	Grade 1 (1977-78)	Grade 2 (1978-79)
Group mean:		
Experimental schools	28.14	26.08
Control schools	28.28	24.99
F value	0.026	1.65
Significance level	N.S.	N.S.

For the subject of Mathematics, pupils from the experimental schools did better at the end of the first year, but lagged behind so much at the end of the second year that their performance was significantly poorer than their peers from the control schools. This supports the findings of the main study.

Table 17. Main Effects by Approach, Using Ability and S.E.S. as Covariates: Mathematics

	Grade 1 (1977-78)	Grade 2 (1978-79)
Group mean:		
Experimental schools	20.70	20.46
Control schools	17.69	22.83
F value	22.65	5.25
Significance level	0.000	0.023

#### Social-Emotional Attainment

As is with the case of the main study, the results from the supplementary study yielded no significant differences between pupils from the experimental schools and those from the control schools. This finding supports the findings of the main study, and gives no support to the belief that pupils in Hong Kong benefit more from the activity approach in terms of affective growth.

Table 18. Main Effects by Approach, Social-Emotional Maturity

	Grade 1 (1977-78)	Grade 2 (1978-79)
Group mean:		
Experimental schools	13.87	11.83
Control schools	13.42	11.99
F value	2.075	0.25
Significance level	N.S.	N.S.

#### Mental Growth

As is with findings of the main study, the mental growth of pupils from the experimental schools measured by Raven's Progressive Matrices was superior to that of their peers from the control schools by their second year.

Table 19. R.P.M. Group Means, 1977-79

	Grade 1 (1977-78)	Grade 2 (1978-79)
Morning session:		
Experimental schools	20.08	30.15
Control schools	20.09	27.71
t	-	1.98
Significance level	-	$P < .05$



CHAPTER FIVE  
DISCUSSION AND CONCLUSIONS

In assessing the activity approach on the basis of available information, it is imperative to bear in mind that what we know about the effects of the activity approach vis á vis conventional teaching is to a large measure limited to our knowledge of testing and measurement. As has been recognized in the earlier paragraphs, a comparison is real only when the test instrument used for such comparison is a fair one. This question also applies to intelligence testing, and to the testing of affective gains in young children.

Even if we agree that subject competence measured by attainment tests can be taken as an indicator of pupil progress in learning, it must be recognized that it is only one of a host of indicators. There may very well be a multiple of indicators which all add up to account for the overall amount of learning accumulated by a single pupil.

Assessment of the Activity Approach as is Practised in Hong Kong

Having admitted the limits imposed by testing techniques, we shall venture to take a closer look into the factors which may have contributed to the findings derived from this study. We may begin by asking why is it that pupils exposed to conventional teaching perform better in their attainment tests by Primary 3? One of the findings of the Bennett report (1976) points out that time-wasting tends to be more frequent in the informal classes. During the visits to schools in May of 1979, it was observed that inattentive behavior was quite common in some of the activity classes, particularly during the group sessions. Besides social gossip and gazing mentioned in Bennett's report, there were also mischievous behaviours and playful activities. It is suggested here that the value of liberty given to children in the activity class may not be fully recognized and utilized by the school child of six or seven, resulting in the wasting of precious time which in normal circumstances can be put to good use.

For the teacher of the activity class, the time devoted to group work and taken out from time spent on block teaching is insufficient to meet the demands of individual attention in a class of over forty pupils. This may create in some cases frustration on the part of the teacher, and in others a sense of hopelessness, particularly for one who is inexperienced in the art. There may also be the factor of a difference on practice and drill between pupils of the two types of schools, chiefly because first at the activity school, some subjects are integrated into a single subject, and secondly, pupils may take advantage of the time devoted to group activity for the purpose of doing their homework. The advantage thus gained by pupils of the control schools may tend to improve their test scores in the long run.

Pupils of the control school also enjoy the advantage of a greater degree of concentration on work which enhances efficacy in learning. On the contrary, some of the activities organized for pupils in the activity class are meant for the enhancement of interest, not learning. This may explain why pupils in the activity school like school more than pupils in the conventional school. In this case, it seems enjoyment and academic attainment do not go together.

Next, we may turn our attention to the possible causes which contribute to the faster rate of growth in intellectual acuity among experimental groups as measured by Raven's Progressive Matrices. Despite contradictory evidence from the attainment test scores, the marked difference between pupils from the experimental schools and their peers from the control schools cannot be dismissed lightly. One possible explanation may be that children in the experimental schools are given more discretion in learning, for instance, on when, how to, and in what sequence to carry out an assignment. These children are also encouraged to express themselves either in verbal form or in art form, particularly through the use of project method. The employment of educational gaming in class teaching may also foster creative and perhaps logical thinking.

Some reviewers had argued that the Progressive Matrices measured "perceptual adequacy" rather than "intellectual capacity"; they contended that

although the former was highly related to the latter it did not render the measure a test of general intelligence. (Buros, 1967) If such a contention could be accepted, what then could be the factors which have contributed to this significantly more adequate perceptual power exhibited by these children under the influence of the activity approach? Could the development of such powers be fostered by the relative freedom that is given to the children in the learning and teaching environment of the activity classroom? Perhaps the fact that these children are often aided in their learning through the use of concrete objects and through direct experiencing also helps their perpetual abilities.

#### Prospect of Activity Approach for the Future in Hong Kong

Regardless of what research findings say, heads of primary schools in Hong Kong will be persuaded for one reason or another to either stay away from or adopt this approach. In all fairness the approach should be recommended to heads of primary schools who prefer making the school a happier place for children, or who believes that children regardless of age ought to be provided a greater degree of freedom in their pursuit of learning. Additional incentive may be provided for adoption, nevertheless, if the government promises one or more of the following: reduction in class size, increase in allowance and subsidies, provision of continuous in-service training of teachers, and of adequate advice on curriculum building and teaching method.

The determining factors which concern possible adoption rest within each school. In order to adopt the activity approach, there must be an adequate supply of physical resources. The school must be in a good position to recruit new pupils. The head must be well-informed and positive in attitude. Most of all, teachers must be willing and capable of following the direction of school authority in making the transition. Normally, younger teachers can adapt more easily than older ones, and therefore a young teaching staff under the leadership of a sympathetic head will be an added asset.

The role of the parents should be mentioned in passing. It has often been alleged that parents do not accept the activity approach because the approach does not encourage an overdose of homework. While it is recognized

that parents who are well-informed on educational matters and who habitually express their views may try to influence school policy on adoption, it is perhaps an overstatement that parental preference constitutes an important determinant. It is perhaps fair to say most parents would be satisfied with what educational program the school provides.

#### Implications for Further Research

One possible area of further investigation concerns the relationship between class atmosphere and mental health. It was observed during visits to the schools that the class atmosphere in many of the activity classes was more relaxed than in classes of the control schools. In the light of this finding, it is suggested that perhaps some research may be conducted to find out what effects, if any the emotional stress brought about by formal teaching may have on the psychological well-being of the school children.

Other research may continue to compare the effects of teaching styles on various aspects of human growth and development, such as artistic attainment, physical agility, creativity and others. A similar research may be conducted along the lines outlined in this report with pupils and teachers selected by randomization.

Follow-up studies are also required as some of the test instruments need to be validated through the use of more rigorous procedures. The Social-Emotional Maturity Scale in particular needs a great deal of refinement before it can be made useful to researchers.

#### Conclusions

This study attempts to compare the effects of the activity approach with conventional approach to teaching in terms of academic and social-emotional attainment of pupils of the lower primary grades in longitudinal terms.

It was found that pupils exposed to the activity approach after a period of two to three years did not achieve as high levels when compared with their peers in Chinese Language and Mathematics. The difference was negligible on the affective dimension. In contrast to academic attainment however pupils

from the activity schools were found to have grown faster in their mental capabilities than their peers from the conventional schools.

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